Cumbria County Council

ALLERDALE TRANSPORT IMPROVEMENTS STUDY

Allerdale Local Plan

ALLERDALE
MARCH 2018

CONFIDENTIAL

Cumbria County **Council**

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1 INTRODUCTION

1.1 OVERVIEW

1.1.1. WSP has been commissioned, by Cumbria County Council (CCC) and Allerdale Borough Council (ABC), to undertake a Transport Improvements Study for the Allerdale Borough, to support the Allerdale Local Plan proposals for the period up to 2029.

1.1.2. This study consists of three linked elements:

- Identification of the impact of growth, as set out in the Local Plan; to include consideration of the current capacity problems and physical constraints.
- Identification of a range of potential sustainable transport improvements, which could be delivered in Allerdale, with the aim of encouraging modal shift from the car to other more sustainable modes, reducing the impact of development-related traffic on the road network.
- Identification of potential highway improvements, at locations agreed with Cumbria County Council and Allerdale Borough Council, with the aim of improving operation of the network at key traffic pinch points. These improvements would be subject to further consultation as the scheme proposals are developed.

1.1.3. These three elements together are intended to mitigate the impact of additional trip demand, associated with the development growth identified in the Local Plan.

1.2 ALLERDALE LOCAL PLAN

1.2.1. The Allerdale Local Plan sets out the spatial vision for the area of the Borough, outside the National Park, for the period up to 2029. Its aim is to ensure communities are sustainable, prosperous and healthy, as well as having access to affordable housing, jobs and services underpinned by sustainable transport. The Local Plan has a target to deliver at least 5,471 dwellings and 54 hectares of employment land, distributed mainly across the main towns of Workington, Maryport, Cockermouth, Wigton, Aspatria and Silloth. This study supports the identification of sites in part 2 of the Local Plan which will deliver this growth.

1.2.2. The Local Plan includes the total development allocations set out in **Table 1**, below.

Table 1 – Local Plan Site Allocations

Category	No. of allocated sites	Yield / Area
Housing	23	1,913 dwellings
Employment	7	70 Hectares
Retail	3	2.65 Hectares

1.3 POTENTIAL INFRASTRUCTURE MEASURES

1.3.1. The potential improvements identified in this study, both sustainable transport and highway related, have been through various stages of design development, following consultations and workshops with CCC, ABC and Local Committee Members. Initial consultation with the Allerdale Highways and Transport Working Group (November 2017) informed issue identification, and the wider Allerdale Local Committee were then consulted on the options developed (February 2018).

1.3.2. Although the improvements, identified as part of this study, are intrinsically linked to the delivery of the Local Plan, it should be noted that no individual element of the schemes will sustainably deliver the Local Plan in full. It is therefore of critical importance that the full range of proposals, set out in this report, are considered for each development identified for delivery over the Plan period.

1.3.3. Sustainable transport initiatives, such as bus and cycle improvements, should be prioritised in the first instance in an attempt to reduce the overall residual number of vehicles on the Allerdale road network. To complement these schemes, junction and road link improvements have been identified which will release the additional capacity that will effectively manage the residual anticipated vehicle demand. Further assessment,

beyond the scope of this report, will be required to understand when these interventions will be required, as the Plan is delivered.

1.3.4. Where there are conglomerations of development within Allerdale Borough that will be delivered at intermediate years between now and 2029, there should be integration of the transport improvements required for their delivery. This could be achieved, for example, through an Area Action Plan or Area Masterplan. This is to ensure that a holistic approach to securing appropriate infrastructure is achieved, and that the cost to developers (and other funding sources) for delivery of schemes are fairly distributed and achieve maximum benefit for the local community.

1.4 DELIVERY OF INFRASTRUCTURE

1.4.1. This report identifies the potential measures that will allow for delivery of anticipated Local Plan growth in Allerdale Borough, by providing extra capacity on the districts roads, more and better connected cycleways, and measures to improve sustainable transport to enhance people's health, journey quality, and improve travel choices.

1.4.2. There is no overall standard, statutory or prescribed process or framework for seeking funding for a programme of infrastructure improvements such as that which is set out in this report. This is due to the fact that public and private sector funding tends to be attached to, or associated with, individual schemes that consider the costs and benefits of each measure in isolation. As such, a bespoke composite solution, promoted by one party and delivered by many parties, for the specific programme of infrastructure improvements is the best compromise in the absence of any standard model.

1.4.3. As part of the Local Plan, there is no funding available to deliver infrastructure schemes, and therefore this study is limited to highlighting the need for improvement schemes over the Plan period and to identifying the outline design and associated costs of these improvements. The report does not present a delivery model as to how these schemes may be funded and constructed; delivery of the proposed improvement measures will rely upon developer contributions, through planning obligations or Section 278 agreements. To inform the stipulation of funding conditions and so maximise developer contributions, the impacts of the top five Local Plan strategic sites on junctions operating over capacity have been identified and are presented in Section 4.5.

1.4.4. Where there is a shortfall, funding may be identified through external sources such as Cumbria LEP (Local Enterprise Partnership), or rounds of central Government funding competitions, for example, the National Productivity Investment Fund, for which funding was successful for Whitehaven North Shore Access Improvements.

1.5 PURPOSE OF THIS REPORT

1.5.1. The Allerdale Transport Improvements Study report will form part of the Allerdale Borough Local Plan evidence base, and will specifically inform Allerdale Borough Council's Infrastructure Delivery Plan.

1.5.2. It will be used by Cumbria County Council and Allerdale Borough Council to identify transport improvements which will help to mitigate the cumulative effects of development over the Plan period.

1.6 REPORT STRUCTURE

1.6.1. The remainder of this report is structured as follows:

- **Chapter 2***:* **Modal Share** – Analysis of the existing travel patterns of Allerdale's residents, in order to consider the relative hierarchy of transport modes and, as such, inform proposed improvements.
- **Chapter 3: Sustainable Transport Improvements** - Review of existing walking, cycling, public transport and travel plan provision in Allerdale, with details of proposed improvements for each mode as identified as part of this study. Outline costings for the proposed improvements are provided.
- **Chapter 4: Traffic Impact Assessment** – Discussion of the assessment and sifting process that has been followed in order to identify junctions for improvement, and the resulting details of the junction improvements proposed as part of this Study. Outline costings for the schemes are also provided.
- **Chapter 5: Conclusions** – Outline of the key findings of the study.

2 MODAL SHARE

2.1 OVERVIEW

2.1.1. This chapter sets out the existing travel patterns of Allerdale's residents using Census 2011 data, in order to understand the hierarchy of transport modes and therefore the potential for each mode in reducing the impact of the Local Plan developments.

2.2 TRAVEL TO WORK

2.2.1. **Table 2**, below, sets out journey to work data, taken from the 2011 Census, for the resident population of Allerdale. It should be noted that the data may not be representative of the current travel statistics given the withdrawal of bus subsidies and thus services since the 2011 Census.

Table 2 – Travel to Work Modal Share in Allerdale, compared to regional and national averages

Travel Mode	Allerdale	Copeland	Cumbria	England
Car/Van/Taxi/Motorcycle	72.0%	76.9%	68.9%	63.4%
Public Transport	4.8%	6.4%	5.4%	16.9%
Walk	14.1%	10.3%	15.7%	10.7%
Bicycle	1.5%	1.7%	2.5%	3.0%
Work from home	7.0%	4.1%	6.8%	5.4%
Other	0.6%	0.6%	0.7%	0.6%

Data Source: Census 2011

2.2.2. The data clearly indicates that Allerdale Borough has:

- A higher share of journeys to work by motorised vehicle (car/van/taxi/motorcycle) than both the wider county and national averages;
- Half the proportion of journeys undertaken by bicycle, compared to the national average;
- A higher share of journeys to work on foot than that of the neighbouring district of Copeland;
- A higher proportion of people who work from home, in comparison to both the Cumbria and England averages; and
- A lower share of journeys to work made by public transport than any of the comparator areas.

2.2.3. The Census data indicates that, although the proportion of Allerdale's residents that drive to work is higher than the county and national averages, the figure is lower than that of neighbouring Copeland. This is in part accounted for by a higher proportion of residents walking to work in Allerdale, which may reflect its larger urban population and indicate a closer proximity of people's home and employment that results in walking representing a more feasible option. The statistics demonstrate that the number of commuting journeys by public transport and cycling are relatively low, when compared to both the regional and national figures; this may be due to the rural nature of Allerdale, and the fact that the main settlements are widely dispersed.

2.2.4. In the following section, and on the associated heat maps, Census data has been presented at ward level for Allerdale; this illustrates the proportion of residents travelling to work by the following modes:

- Car (**Figure 1**)
- Bus (**Figure 2**)
- Rail (**Figure 3**)
- Working from home (**Figure 4**)
- Bicycle (**Figure 5**)
- On foot (**Figure 6**)

Figure 1: Car Travel to Work Modal Share (Census 2011)

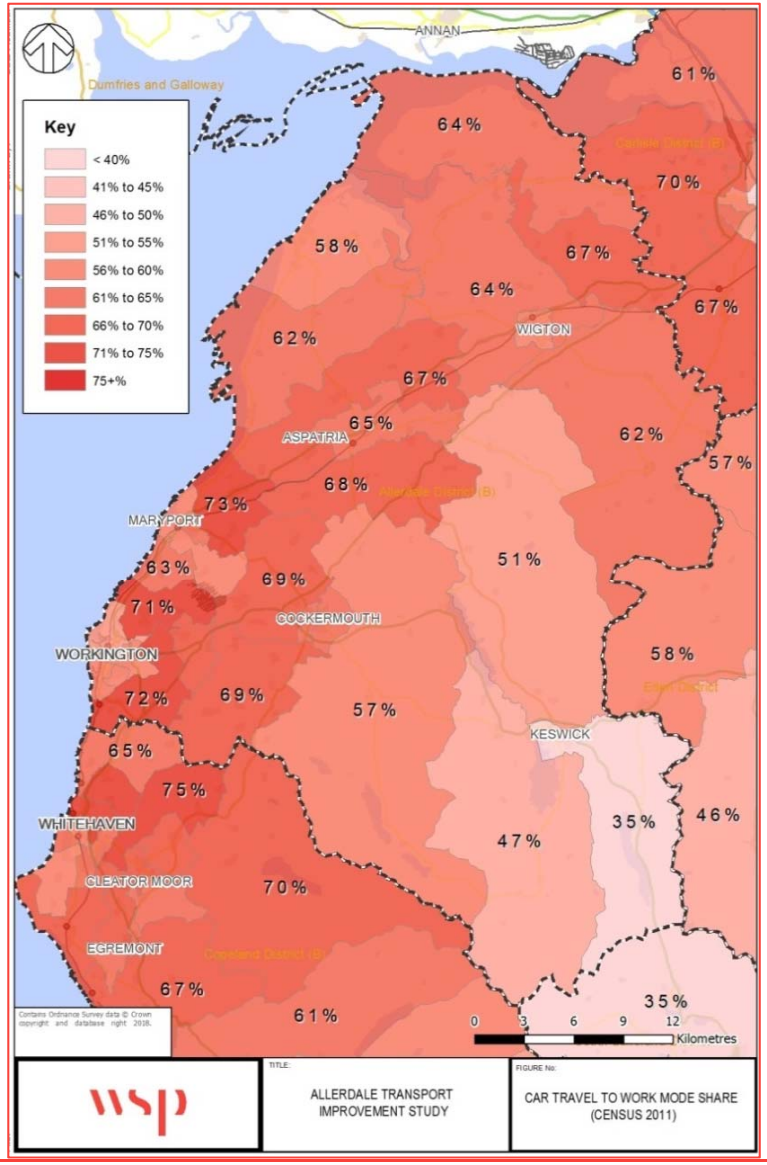


Figure 2: Bus Travel to Work Modal Share (Census 2011)

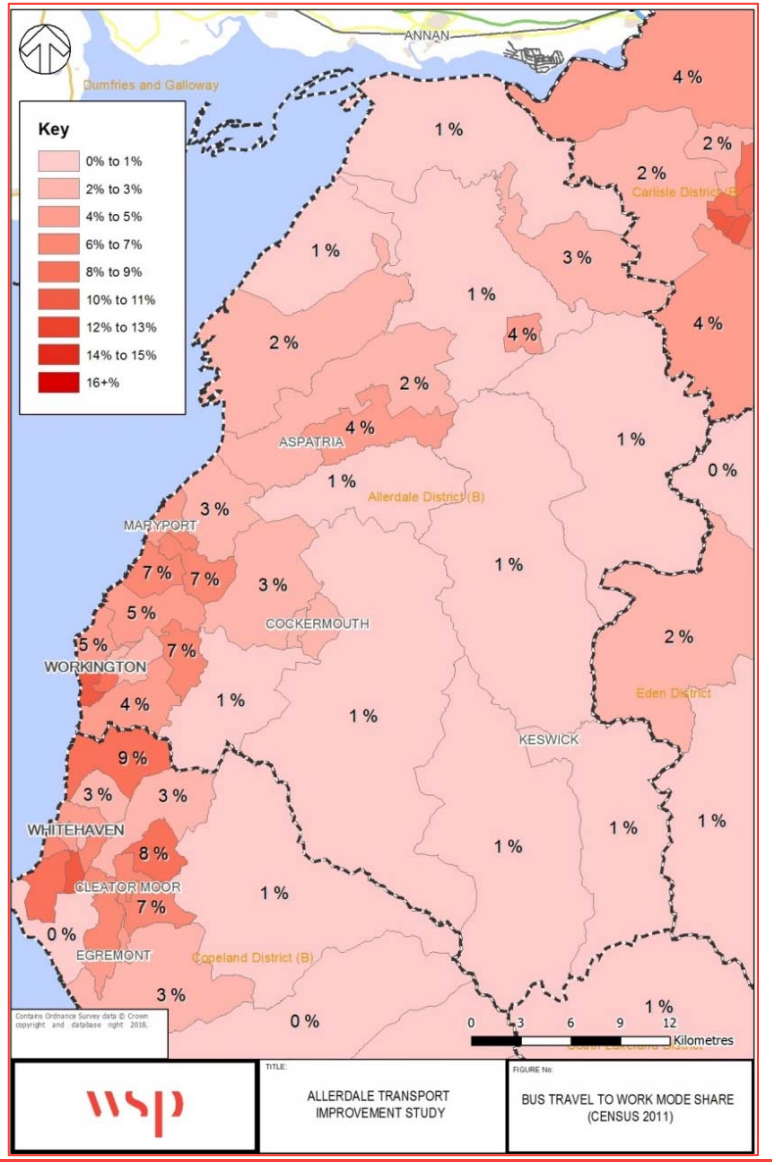


Figure 3: Rail Travel to Work Modal Share (Census 2011)

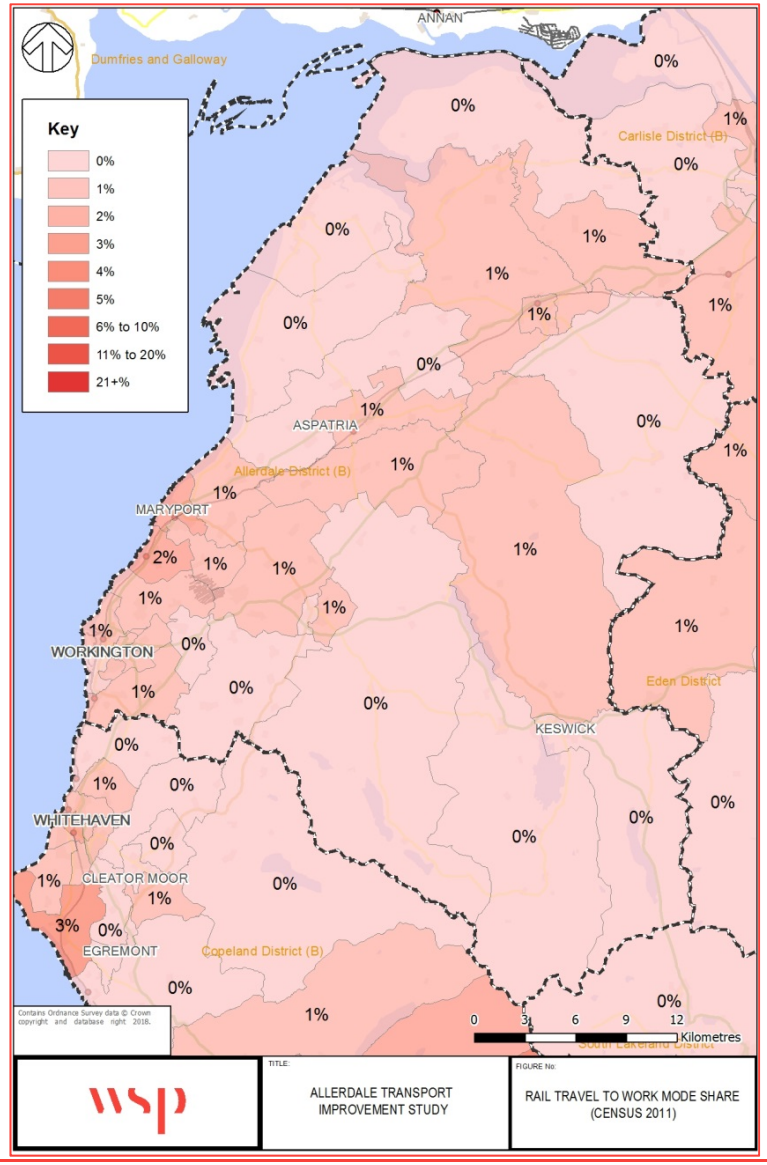


Figure 4: Work From Home Share (Census 2011)

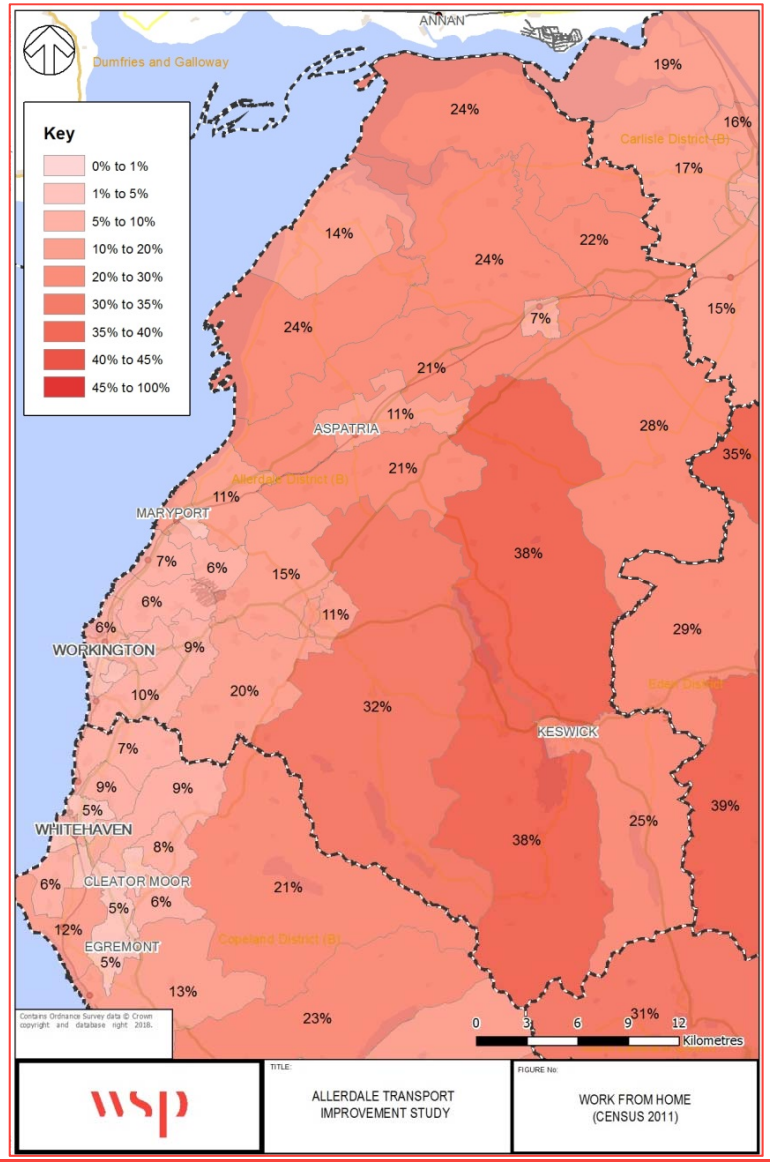


Figure 5: Cycle to Work Modal Share (Census 2011)

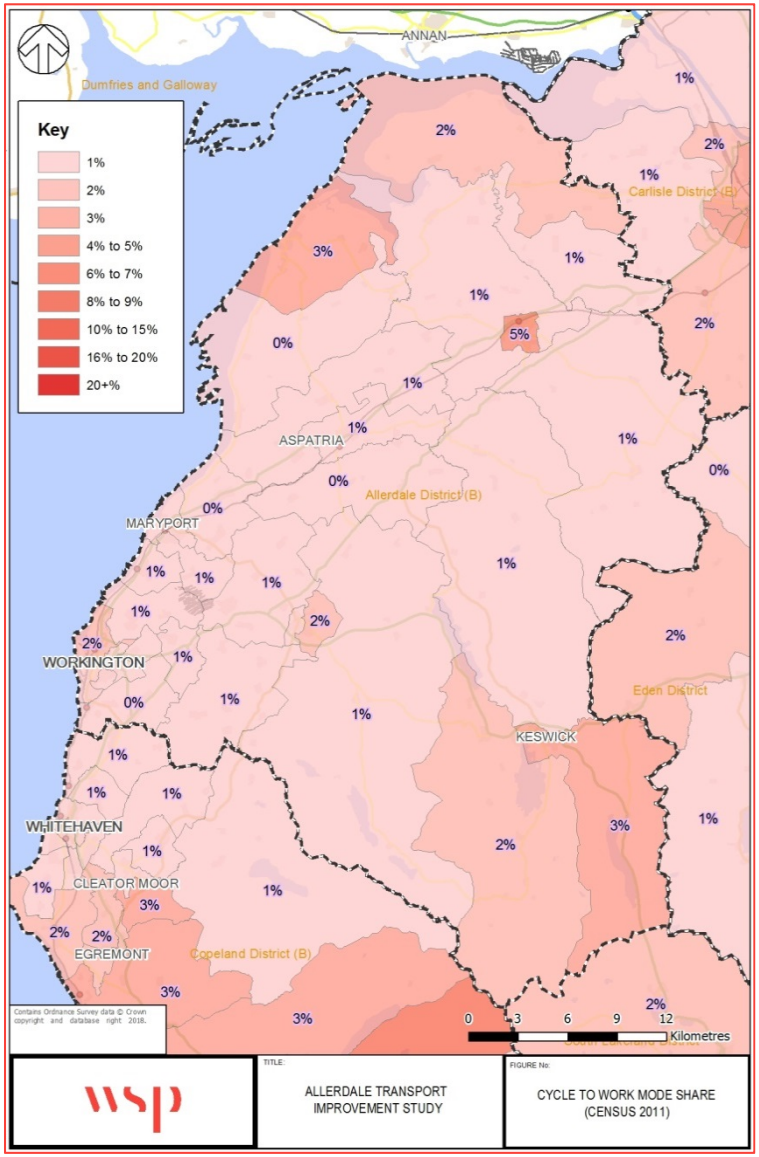
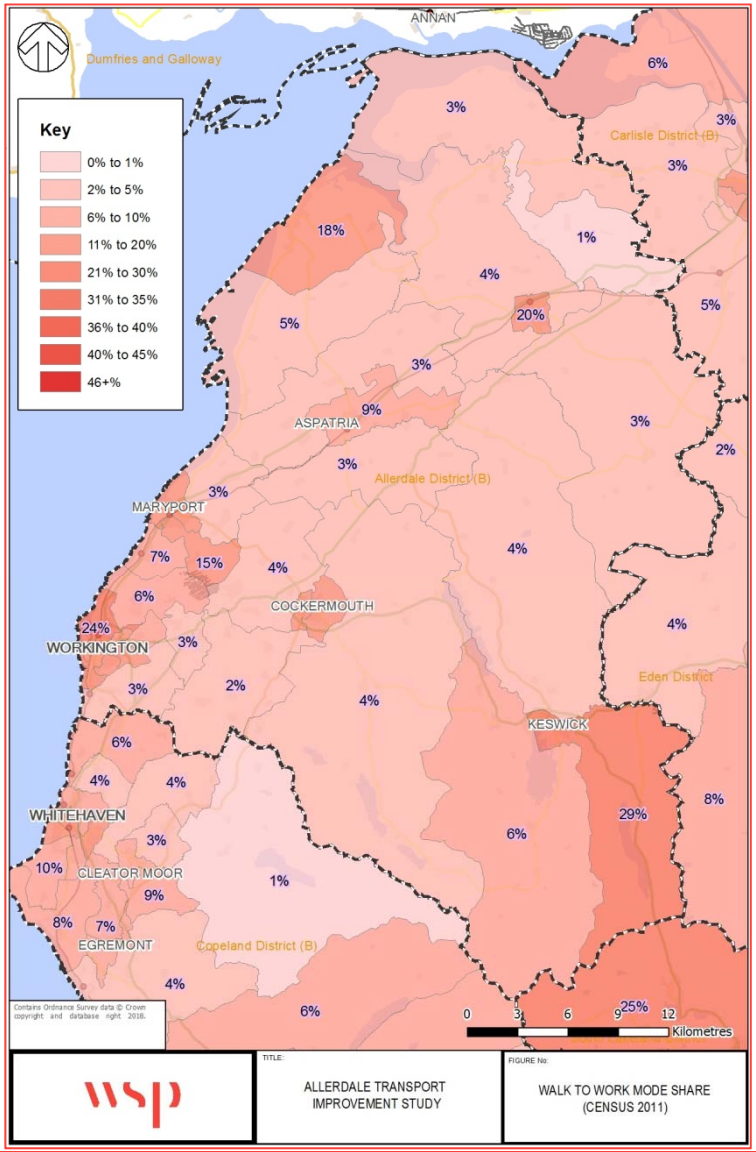


Figure 6: Walk to Work Modal Share (Census 2011)



2.2.5. The maps illustrate varying levels of modal share across the district. Within Workington and Maryport, and the surrounding areas, there are fewer car trips and a relatively higher percentage of public transport users. These settlements have frequent bus services and are also served by rail services on the Cumbrian Coast Line route. Cockermouth has the lowest proportion of public transport users of the main towns within the borough. This reflects a lack of frequent services and also that it is not located on a rail route.

2.2.6. The wards with the highest proportions of the population travelling to work on foot or by bicycle are within the larger settlements in Allerdale. This is considered likely to be due to the proximity of home and employment sites within these towns. For example, the relatively high percentage of those walking or cycling to work in Wigton is, in part, expected to be because Innovia Films, a large local employer, is located in proximity to the town centre and a significant proportion of residencies.

3 SUSTAINABLE TRANSPORT IMPROVEMENTS

3.1 OVERVIEW

3.1.1. This chapter sets out the existing sustainable transport provision within Allerdale, with the aim of identifying potential specific interventions that could realistically be expected to increase sustainable transport modal share, leading to some level of mitigation of the impact of Local Plan associated trips.

3.1.2. CCC has looked to develop, promote and implement the approaches and measures set out in the Local Transport Plan (LTP), including:

- Work with partners to develop rail services and passenger facilities;
- Support communities to improve accessibility to services for people without access to a car;
- Maximise opportunities for investment in new Highways and Transport infrastructure and service through development and grant funding;
- Improve accessibility for people with impaired mobility;
- Develop sustainable community transport solutions through work with communities and the Third Sector; and
- Work to ensure we retain and improve local rail services, infrastructure and connectivity through active engagement in the national refranchising and investment programmes.

3.1.3. It is considered important to increase the existing sustainable transport modal share in Allerdale for the following reasons:

- **Congestion** – a reduction in the number of cars on the road will improve traffic flow throughout Allerdale, and the surrounding area, thereby mitigating the impact of traffic generated by the Local Plan developments.
- **Environment** – a reduction in the number of car journeys will result in improved air quality and reduce the carbon footprint from road traffic.
- **Health** – opportunities to walk or cycle contribute to a healthier lifestyle, which in return offers economic benefits and reduces the pressure on local services.
- **Deprivation** – providing alternative travel opportunities, for households who may not be able to afford their own car, can improve access to employment areas and other essential services.

3.2 ASSESSMENT METHODOLOGY

3.2.1. Journey to work data was initially analysed in order to identify the modal share of public transport, cycling and walking for commuting in the wards where Local Plan development site allocations are located (see **Appendix A** for list of allocated sites that have been considered as part of this study); this informed an understanding of the sustainable transport accessibility to the sites. Where the modal share of these methods of travel were shown to be relatively low, the area was compared to others with a larger proportion of the working population travelling to work by public transport, bicycle or on foot, in order to identify possible contributory factors; this analysis was then used to inform the development of potential improvements.

3.2.2. Alongside the travel to work modal share analysis, existing and future sustainable transport infrastructure provision in Allerdale was considered. This comprised:

- A review of existing infrastructure provision for each mode, and any identified associated issues;
- A review of current aspirational infrastructure improvements for each mode, based upon existing policy documents and consultation with CCC Officers; and
- Identification of potential further schemes that could realistically be introduced across Allerdale.

3.2.3. Using this information, a gap analysis was undertaken - considering existing public transport and cycling networks, and proposed development sites - in order to identify locations where new infrastructure and connections would improve accessibility of the Local Plan sites by these more sustainable modes. Particular consideration was given to connecting Workington and Maryport station hubs to existing infrastructure.

3.2.4. It is critical that the proposed improvements are both feasible and deliverable and, as such, a number of specific factors were considered.

3.2.5. For cycling interventions, this included assessment of the terrain, to ensure that the routes would represent a realistic and safe option for cyclists; land ownership was also used to inform feasibility of the routes proposed, so as to avoid the use of private land due to possible financial and political implications.

3.2.6. For public transport improvements, consideration was given to the need to liaise with private operators where proposals involve altering services, and to the responsibility of different public bodies to maintain the assets. In order for these proposed improvements to be made, dialogue between the land developers, CCC, the relevant operators and parish council would be required.

3.2.7. To inform development of the sustainable transport improvement proposals, CCC and ABC Officers were consulted and invited to provide specialist local knowledge and input. In particular, this helped to ensure that the proposed improvements would be deliverable within specific constraints, including land ownership and local issues.

3.2.8. Following liaison with relevant officers, a range of potential improvements, to the pedestrian, cycling and public transport networks, have been proposed with the aim of providing viable alternatives to car based trips, with a focus on those trips which will result from Local Plan site delivery.

3.2.9. For the proposed cycling schemes, cost estimates have been developed, applying assumptions used in previous study work and in the Cumbrian Local Cycling Infrastructure Plan.

3.2.10. The proposed improvements have been linked to the Local Plan sites that are considered likely to benefit from the improvements. This provides an indication of the potential sites where developers could be expected to contribute financially to the delivery of the schemes.

3.3 WALKING

EXISTING INFRASTRUCTURE AND OPPORTUNITIES

3.3.1. Currently 14.1% of people in Allerdale walk to work which is significantly higher than the national average of 10.7%. Within the larger towns of Maryport, Workington and Cockermouth, up to 24% of people walk travel to work. This high proportion demonstrates the proximity of existing employment areas to houses within these settlements and also the good availability of walking routes connecting employment sites.

3.3.2. The compact nature of these towns encourages people to travel on foot and there are further opportunities to increase the proportion of short journeys for housing and employment developments that are located close together. Some of Workington town centre is now pedestrianised as a result of extensive public realm improvement works, which further helps to encourage walking, outside of commuting patterns too.

RECOMMENDED IMPROVEMENTS

3.3.3. The only specific pedestrian improvement proposed is in Maryport and has been identified because of the cumulative requirements of two major development land allocations in the Local Plan. One of the development sites has been allocated for three hundred dwellings adjacent to Whitecroft, and the other is a three and half hectare employment site at Glasson Industrial Estate. At the junction of the access road with the A596, the current footway from the Industrial Estate finishes short of the A596. This presents a severance and safety issue, with no suitable walking route between Glasson Industrial Estate and the footway along the A596. The nearest bus stop is on the A596 and this therefore inhibits travel to the Industrial Estate by bus. In addition, there are public footpaths accessible through the Industrial Estate, which at present could not be safely reached on foot from properties on the A596. As such, there is a shared requirement between the two Local Plan sites for the provision of a pedestrian link. The proposal is to extend the footpath along the A596 towards Maryport to connect with the existing infrastructure, and provide a pedestrian refuge to ease crossing of the A596.

3.3.4. The proposed scheme to improve walking provision at Maryport is outlined in **Table 3**, overleaf.

Table 3 – Proposed Pedestrian Improvement Scheme

ID	Town	Scheme	Length (m)	Cost estimates	Local Plan Sites
1	Maryport	Extend footway along western boundary of A596 from Glasson Industrial Estate and provide pedestrian crossing	300	£67,000	3/MAR/036/R 1/MAR/009A/E

3.3.5. The cost estimate provided does not include street lighting costs or any bridge strengthening works that would be required.

3.3.6. Other walking infrastructure will need to be provided by the developers to provide access to their site from the public highway. These are more discrete and associated directly with each site.

3.4 CYCLING

EXISTING INFRASTRUCTURE AND OPPORTUNITIES

3.4.1. Currently, 1.5% of Allerdale's resident population cycle to and from work; this figure is half that of the national average of 3%, and is also lower than the county average. However on a more local level, within Wigton cycle mode share, for journeys to work, is much higher, reaching 9% within certain wards.

3.4.2. **Figure 7** overleaf, illustrates the existing cycle network within Allerdale; this consists of three National Cycle Network routes, in addition to clusters of shorter, more localised cycling infrastructure within the larger settlements. The majority of the cycle routes are off-road, with only a small number of short, on-road sections.

3.4.3. The National Cycle Network routes which pass through the Borough are:

- **National Route 10**: Cockermouth to North Shields;
- **National Route 71**: Whitehaven to Penrith; and
- **National Route 72**: Whitehaven to South Shields.

3.4.4. Between them, these routes provide almost continuous long-distance routes to other regional centres including Whitehaven, Carlisle and Penrith.

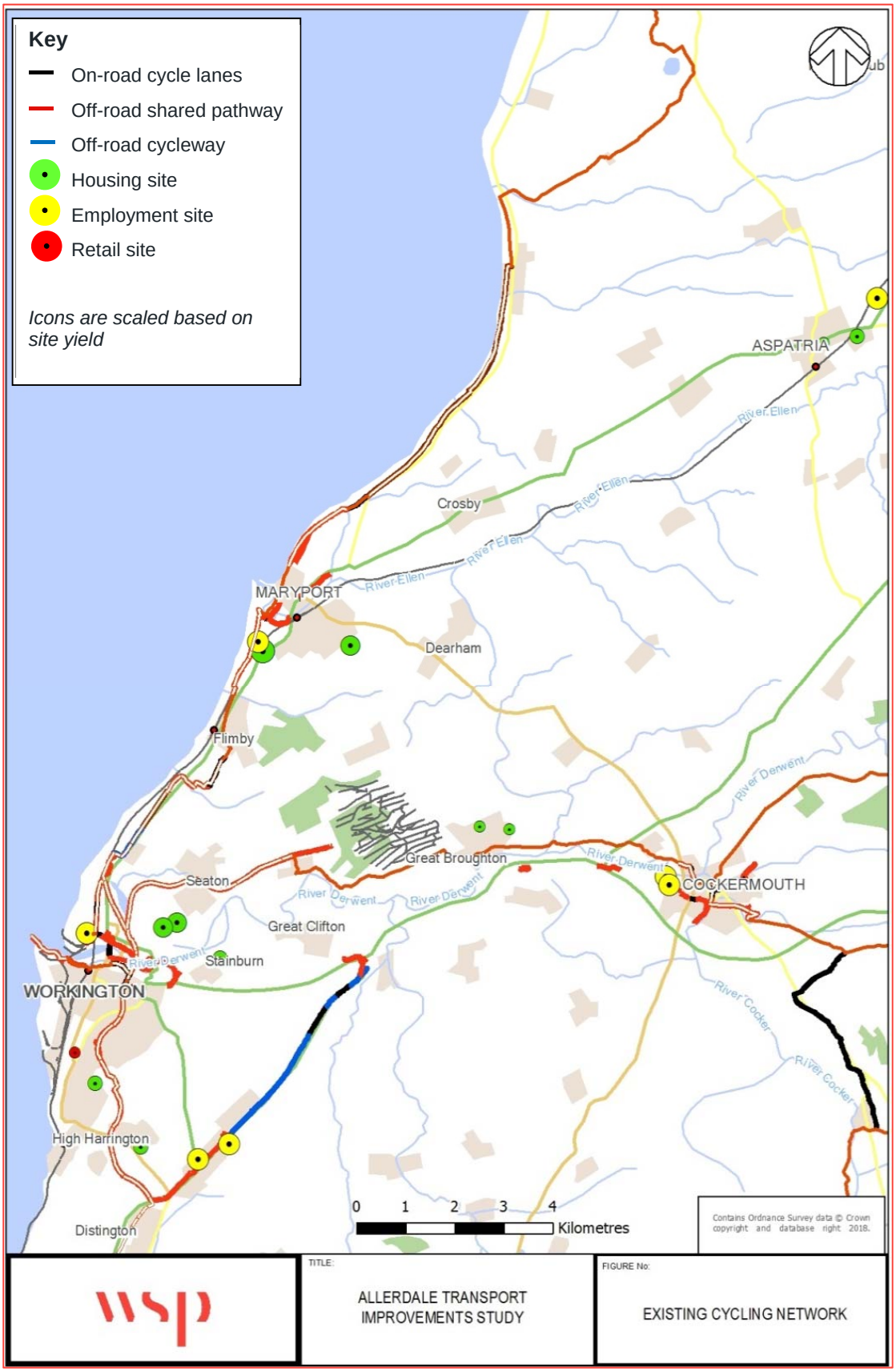
3.4.5. There is a particularly high density of cycling infrastructure in Workington, providing connections within the town centre. In addition, there is a 4 mile cycle route along the A595 east of Workington, from the junction with the A66 in the north to Distington in the south.

3.4.6. Improvements to the cycle network in areas of high car use, where there is no current provision, is likely to have a more significant impact on mode shift than improving existing cycle facilities on designated cycleways.

3.4.7. There are also currently a number of informal cycle routes, used by cyclists. It is considered that it would be beneficial to formalise these routes and, where necessary, adopt them as cycle paths (potentially shared with pedestrians).

3.4.8. In terms of road safety there have been no recorded fatal accidents, involving cyclists, in Allerdale between 2012 and 2017.

Figure 7: Map of Existing Cycling Network in south Allerdale



RECOMMENDED IMPROVEMENTS

3.4.9. In order to increase mode share of cyclists in Allerdale, and to improve connectivity to the Local Plan sites, a number of new potential cycle routes and links have been identified. Given that the improvements are associated with the new development sites, they are primarily targeted at new trips for which sustainable behaviours could be influenced at the outset. Developer contributions could be sought to fund the delivery of these improvements, as outlined in **Table 4** below, alongside outline costs.

Table 4 – Proposed Cycling Improvement Schemes.

ID	Town	Scheme	Type	Length (m)	Cost estimates	Local Plan Sites
1	Workington	Signed cycle route	Off-line	205	£28,700	4/WOR/110/R 1/WOR/005/R 1/WOR/064/R
2	Workington	Advisory cycle lanes	On-line	1,000	£7,000	1/WOR/053/R
3	Workington	Signed cycle route	On-line	2,920	£3,200 (inc. uplift, see text below)	1/WOR/053/R
4	Workington	Advisory cycle lanes	On-line	1,630	£86,400	3/WOR/084/R
5	Workington	Advisory cycle lanes	Mixed	2,575	£75,600	1/WOR/056/R
6	Workington	Advisory cycle lanes	On-line	830	£5,800	1/WOR/073A
7	Workington	Bicycle parking	Off-line	-	-	3/WOR/086/S
8	Workington	Advisory cycle lanes	On-line	620	£132,000	-
9	Maryport	Advisory cycle lanes	On-line	2,355	£49,000 (Additional cost of railway arch works)	3/MAR/036/R
10	Cockermouth	Advisory cycle lanes	On-line	1,730	£12,100	3/COC/019/E 3/COC/025/E
11	Wigton	Advisory cycle lanes	Mixed	1,390	£101,500	1/WIG/016/R 1/WIG/012M13/M

3.4.10. To estimate scheme costs, assumptions used in the Cumbrian Local Cycling Infrastructure Plans (2017) were adopted, as they are recent and thus are likely to be reflective of current infrastructure prices and installation fees. The cost assumptions are:

- On-line: £5 per metre + 40% cost risk
- Off-line: £100 per metre + 40% cost risk

3.4.11. In addition to the above assumptions, it should be noted that schemes estimated to be less than £5,000 were uplifted by £2,000 to reflect miscellaneous fees (e.g. installation fees and legal costs); this applies only to Scheme 3 in the table above.

3.4.12. This proposed extended cycle network addresses a number of existing gaps and provides improved connections between the major Local Plan proposed residential and employment sites within the Borough. In order to comprehensively connect the widespread locations of proposed housing development across Allerdale, a total of eleven cycle routes have been proposed, to increase accessibility by bike.

3.4.13. **Appendix B** shows the new routes proposed for the Borough, in relation to the Local Plan housing sites; this includes the six largest sites having direct access to a new or existing cycle route within 300m. Descriptions of these routes are set out below.

Scheme 1: Calva Brow to Coronation Avenue

3.4.14. The Calva Brow to Coronation Avenue route is proposed to connect the allocated residential site, adjacent to Coronation Avenue, to the existing cycle network at Calva Brow. The initial section would be on-road, along Meadow Bank, with requirements including signage and improved surfacing.

3.4.15. The route would then follow the Public Right of Way, to the south of the site, linking to Coronation Avenue; this would require an alteration of existing permissions to allow cyclists to use the paths. In addition, there is a short bridge across a drainage gully that may require strengthening or widening in order to make it suitable for cyclists. CCC intend to undertake a site visit to assess the condition of the bridge and paths; the findings should then be used to amend the feasibility and cost analyses subsequently presented in this report.

3.4.16. Consultation with CCC's Cycling Officer has identified that the initial section of the proposed scheme, along Meadow Bank, is part of an informal route to Seaton that uses the bridleway on Fernbank Lane. As such, CCC has previously proposed to formalise this route for cyclists and incorporate it within the area's cycle network and so the recommended scheme builds upon this historic proposal.

Scheme 2: Stainburn Road

3.4.17. This proposed scheme is for on-road advisory cycle lanes along Stainburn Road, from the roundabout with A66, through Stainburn; the route would link the allocated housing site in Stainburn to the existing cycle path through Curwen Park, thereby providing connections to Workington town centre, National Cycle Route 71 and Workington Station Hub.

Scheme 3: Stainburn to A595

3.4.18. This scheme entails formalising the use of the minor road, between Stainburn and the A595, for use by cyclists. There is already a short cycle lane adjacent to the junction with the A595; however, it is considered that it may be difficult to cross the A595 and, therefore, a central refuge or island is proposed.

Scheme 4: Newlands Lane to Ashfield Drive South

3.4.19. An on-road cycle route is proposed, connecting Workington Academy to the National Cycle Route 72, through a large residential area of Workington. There is an existing signalised pedestrian crossing, on the A596 at the school access, which would require incorporating into the proposed new signalised junction at Newlands Lane (see paragraph 4.4.23).

Scheme 5: High Harrington to Harrington station

3.4.20. This proposal aims to connect residential areas of High Harrington to Harrington station; it is primarily on-road, along relatively narrow roads with variable gradients. There is a short section of the proposed route which follows a public footway from East Ave to Eadie Street.

3.4.21. To facilitate cycling to the station for onward travel by train, it is recommended that cycle storage is provided at Harrington station.

Scheme 6: Mossbay Road to National Cycle Route 72

3.4.22. In order to connect the retail site allocation, set out in the Local Plan, to existing cycling infrastructure it is proposed that advisory cycle lanes are provided on Mossbay Road and Westfield Drive.

Scheme 7: Central Way Cycle Parking

3.4.23. It is proposed that cycle parking is provided at the Central Way car park, in order to encourage residents to cycle into Workington town centre to access retail and services.

Scheme 8: William Street to Workington Station Hub

3.4.24. The William Street scheme is proposed to connect Workington Station Hub to existing cycling infrastructure, thereby improving accessibility to the station for onward travel. On-road advisory cycle lanes are suggested, to be facilitated by narrowing the inner footway around the gyratory at the station.

Scheme 9: Ellenfoot Drive to Maryport Station Hub

3.4.25. This proposal includes on-road cycle lanes and a new access to Maryport station; the scheme would provide connections between residential areas of Ellenborough, including the allocated Local Plan site, to the station. The new access would use a disused railway arch, under the A596, so that users are not required to cross this major road.

Scheme 10: A66 Roundabout to Cockermouth Town Centre

3.4.26. On-road advisory cycle lanes are proposed along Low Road, to connect the existing cycle network at the A66/A595 roundabout to Cockermouth. The scheme would also serve new housing developments along Low Road, and two employment sites, allocated in the Local Plan.

Scheme 11: Lowmoor Road to Wigton Station

3.4.27. The proposed scheme is a shared-used path, along Stony Banks path from Lowmoor Road to Tenters path, connecting to on-road advisory cycle lanes to Wigton station. This proposal will connect two large housing sites, south of Wigton town centre, to the train station in order to encourage the use of sustainable transport. It is understood that this scheme has already been identified and funding secured in principle.

3.5 PUBLIC TRANSPORT – BUS

EXISTING INFRASTRUCTURE AND OPPORTUNITIES

3.5.1. The current bus network and service provision within Allerdale is concentrated around Workington, and along primary roads including the A595, A596 and A66. There are local bus services within Cockermouth, Maryport, Wigton and Workington, however, only in the latter do services operate throughout the day with a daytime frequency of less than 30 minutes. A number of Allerdale area bus services connect the main settlements within the borough, with most routing through Workington. In addition to the study area services, there are a number of longer-distance bus services providing connections to Carlisle and Penrith.

3.5.2. 2011 Census journey to work data indicates that an average of 3.8% of Allerdale residents travel to work by bus; this is similar to the wider county average of 4.2%. However, at a more local level, bus mode share ranges from less than 1%, in more rural areas, to 21% within urban districts.

3.5.3. Workington has the highest proportion of residents who travel to work by bus (up to 21%). Workington is the largest town within Allerdale and is a key employment centre for West Cumbria; the town is served by fifteen bus services and the majority of residencies are within 400m of a bus stop. The principal bus station is centrally located, in close proximity to retail and services, although the building itself is dated, with poor waiting facilities.

3.5.4. There are a number of major employment sites located outside of Workington town centre, including the Port of Workington and Lillyhall Industrial Estate. The former is over 400m from the nearest bus stop, located on the A596; this stop is served by five bus services, providing a daytime frequency of less than 15 minutes. Lillyhall Industrial Estate has six bus stops, served by bus services that provide a half hour frequency.

3.5.5. There is also a relatively high proportion of the resident population in the communities along the primary corridors into Workington, in particular the A595 and A596, who use the bus for their journey to work. For example 10% of the working age population in Flimby travel to work by bus, a figure that rises further to 14% in Great Clifton. It is considered that this is likely, in part, to be a result of the high quality of services along these routes, particularly the Stagecoach Gold services. In addition, walking and cycling are likely to be less feasible for commuting because of the greater distances involved, consequently resulting in higher bus mode share.

3.5.6. Outside of Workington, Maryport has a relatively significant proportion of the population who travel to work by bus - over 10% in some wards. The remaining larger settlements of Allerdale, such as Cockermouth and Wigton, are also seen to have generally higher bus usage for commuting, although the figures are below 10% of the population.

3.5.7. Based upon the 2011 Census Journey to Work data, a calculation has been undertaken in order to estimate the potential daily demand for bus services generated by the larger housing sites allocated in the Local Plan. These projections are set out in **Table 5**, overleaf.

Table 5 – Daily Bus Trips Generated from Local Plan Housing Sites

Local Plan Site	No. of trips generated
3 sites on Seaton Road, Seaton	6
Southfield School Site, Workington	13
Land at Main Road, Harrington	6
Land adjacent to Whitecroft, Maryport	21
Land to rear of Ellenfoot Drive, Maryport	25

3.5.8. From the data above, it can be seen that the area with the greatest potential demand for bus travel, generated by the Local Plan sites, is Maryport. This is in part due to the volume of dwellings proposed in the housing sites, and also the existing, relatively high, proportion of bus users in the town.

3.5.9. As sites come forward, an assessment of the demand for bus services will need to be undertaken in order to fully understand the potential for improvements to bus infrastructure and services.

3.5.10. A large proportion of bus stops outside of town centres do not have a shelter provided, and simply consist of a flag pole. Due to this lack of provision, waiting for a bus, particularly in poor weather, is likely to be a factor that discourages bus use across Allerdale.

RECOMMENDED IMPROVEMENTS

3.5.11. A number of improvements to bus services are proposed in order to better serve development sites identified in the Local Plan and encourage travel by public transport so as to reduce private car use.

3.5.12. A discussion of the proposed bus improvements is provided below, with each linked to specific development sites.

Workington

3.5.13. There are a cluster of Local Plan housing site allocations, between Workington and Seaton, which are within 300m of existing bus stops on Coronation Avenue. These stops are served by the Stagecoach 47 service which has a day time frequency of 20 minutes; this is considered suitable for the new developments and there is existing spare capacity on the services to accommodate for the additional demand. It may be necessary to refurbish or replace these bus stop facilities, in order to maximise the attractiveness of bus as a mode; the costs could be sourced from the local developers, with a commitment from the Parish Council to maintain the shelters.

3.5.14. Existing bus routes from Workington that serve Stainburn provide an hourly service in the PM peak. Given the existing relatively low bus usage in Stainburn, there may not be sufficient demand to increase this service frequency; however, with an additional 130 dwellings proposed, it might be appropriate to consider providing an additional evening service.

3.5.15. Lillyhall Industrial Estate is a significant employment centre in West Cumbria, and there are two further employment site allocations within the Local Plan. Current bus operations provide a half hourly service through the industrial estate; to support use of the bus for travel to work, it is suggested that additional evening peak services are provided. The Stagecoach 302 service could be altered or an extra service incorporated into the timetable to provide greater frequency when demand is expected to be greatest.

3.5.16. Workington bus station is well-located to serve the town centre amenities, and whilst it is dated, the station is considered fit for purpose, with the pavement levels recently raised to ease access to the buses for users with mobility issues. However, improvements to the poor waiting facilities would make bus a more attractive travel option and thus potentially increase its mode share. Therefore it is proposed that an assessment of the costs and potential benefits of a refurbishment of the bus station is undertaken. This would require dialogue with Stagecoach, as the management company.

Maryport

3.5.17. The access for the allocated housing site adjacent to Whitecroft is approximately 300m from the nearest bus stop, not including the additional walking distance from within the site. The expected yield from the site is 300 dwellings – the largest site allocation in the Local Plan; it is therefore proposed that improvements to existing footways and bus stops are undertaken. Provision of shelter facilities for both bus stops is suggested, and a signalised pedestrian crossing should also be considered. These improvements would also support the allocated employment site at Glasson Industrial Estate, because these are the nearest bus stops. However this would be dependent upon the pedestrian improvements at the priority junction of the A596 with Glasson Industrial Estate, which will include an extension of paving.

3.5.18. The Stagecoach 57 service is a local circulatory route around Maryport, providing connections from the residential areas of Ewanrigg and Ellenborough to the town centre and the train station. The first service in the morning is not until after the peak period, and therefore does not represent a suitable option for journeys to work. As such, it is proposed that additional services are provided earlier in the day to facilitate the use of bus, and also rail, for commuting.

Wigton

3.5.19. Two of the allocated housing sites within Wigton are located more than 400m from the nearest bus stops. Given that the cumulative total is 250 dwellings, it is proposed that new bus stops are provided on Lowmoor Road, at Stony Banks Lane, to encourage bus operators to consider re-routing their existing services. This could either be a re-routing of the Stagecoach 600 service, between Carlisle and Cockermouth, or a change to services currently travelling along the A596, to travel on the A595.

Broughton and Cockermouth

3.5.20. There are two proposed housing sites within Broughton proposed as part of the Local Plan allocations, totalling 119 dwellings. The parish is served by the Ellenvale 68 service which runs between Cockermouth and Maryport. There are only five services per day and the first does not start until after 09:30. Therefore, to support the potential housing development, two additional services in the morning peak and one in the evening peak are proposed. This would facilitate bus use for residents to travel to work in either Cockermouth or Maryport. Furthermore, the 68 service provides a connection to Maryport train station and thus the opportunity for onward travel by rail. However, the bus timings do not align with the train timetable. Therefore it is recommended that the additional services proposed should coincide with the rail service times. For example, if the bus arrived in Maryport at 06:40, this would allow onward travel to Barrow-in-Furness on the 06:46 service, or Carlisle on the 06:50 service.

3.5.21. A new bus stop is proposed on Low Road in proximity to Parklands Drive to serve the employment site allocations.

3.5.22. **Table 6** overleaf, summarises the proposed improvements to bus services within Allerdale to support the delivery of Local Plan sites. Developer contributions could be sought to fund the delivery of these improvements and thus proximate Local Plan sites have been identified alongside each.

Table 6 – Proposed Bus Improvement Schemes

ID	Location	Scheme	Local Plan Sites
1	Seaton Road, Workington	Refurbish Coronation Avenue bus stops	4/WOR/110/R 1/WOR/005/R 1/WOR/064/R
2	Workington	Additional PM Peak service to serve allocated housing site in Stainburn	1/WOR/053/R
3	Workington	Additional PM Peak service on Stagecoach 302 service to cater for additional demand at Lillyhall	1/WOR/047 1/WOR/046
4	Workington	Upgrade waiting facilities at Workington bus station	3/WOR/086/S 4/WOR/101/R
5	Maryport	Installation of a bus shelter at Cumbrian Seafoods bus stop	1/MAR/017A/R
6	Maryport	Additional AM Peak services on the Stagecoach 57 service	3/MAR/036/R
7	Wigton	New bus stop installed on Lowmoor Road, at Stony Banks Lane	1/WIG/016/R 1/WIG/012M13/M
8	Cockermouth to Maryport via Broughton	Additional Peak services on the Ellenvale 68 route and alignment of timetable with Maryport train times	1/BRN/004/R 1/BRN/007/R
9	Cockermouth	New bus stop installed on Low Road, next to Parklands Drive	3/COC/019/E 3/COC/025/E

3.6 PUBLIC TRANSPORT – RAIL

EXISTING INFRASTRUCTURE AND OPPORTUNITIES

3.6.1. According to the 2011 Census figures, approximately 1% of Allerdale's population use the train to travel to work, and rail patronage is highest in Workington. The borough is served by the Cumbrian Coastal Line which connects Carlisle to Barrow-in-Furness. The line travels through most of the larger settlements in Allerdale, including Workington, Maryport and Wigton. There are six stations in the borough, with the usage statistics outlined in **Table 7**.

Table 7 – Number of Passenger Entries and Exits for Stations in Allerdale (2016/17).

Station Name	2016/17 Entries and Exits
Aspatria	25,904
Flimby	11,678
Harrington	30,262
Maryport	89,562
Wigton	49,124
Workington	186,576

Data source: Office of Rail and Road, 2016-17 report

3.6.2. As would be expected, Workington has the greatest number entries and exits, with Maryport being the second busiest station.

3.6.3. Improvements to the interchange facilities at Workington and Maryport stations have recently been delivered to provide improved access for onward travel by rail to employment sites in Cumbria. These include larger,

high quality car parks to encourage park and ride. They have been called station hubs and a particular focus for this study was to consider options for improving access for both motorised and non-motorised users.

3.6.4. The Community Rail Manager has confirmed that as part of the Northern Passenger Rail franchise, there will be complementary improvements to rail infrastructure and services. As part of the £1 billion investment by Arriva, all stations facilities will be brought to minimum specifications, with CCTV and ticket machines installed at each station. Furthermore, higher quality rolling stock will be in operation on the Cumbrian Coast Line and there will be more frequent Sunday services.

3.6.5. As part of the Energy Coast Rail Upgrade an Outline Business Case was developed for the Cumbrian Coastal Railway, which passes through Allerdale. The Business Case identified the need for improvements on this line, to facilitate the successful delivery of the pipeline of major developments in West Cumbria. It also stated that infrastructure and service enhancements will open up new sustainable travel options for residents of, and visitors to, the region. Ten interventions were outlined in the Business Case, which included enhancements to infrastructure, service frequency and capacity.

3.6.6. One of the proposed schemes consisted of conversion of the long absolute block section, between Wigton and Maryport, to three shorter block sections; the resulting change in signalling would enable greater frequency of services along this section of the line. In respect of this study, it is considered that the scheme outlined above would support delivery of Local Plan allocated sites within Maryport, Aspatria and Wigton.

RECOMMENDED IMPROVEMENTS

3.6.7. The development of further Station Hubs, to support the use of sustainable transport connectivity to Local Plan site allocations, has been assessed. It is not considered that these are required to support the delivery of Local Plan sites. Nonetheless, given the success of the Workington station hub, and the imminent opening of Maryport station hub, the demand from these two locations should be used to inform a long-term strategy along the Cumbrian Coast Line for station hubs at locations between Carlisle and Sellafield.

4 TRAFFIC IMPACT ASSESSMENT

4.1 OVERVIEW

4.1.1. This chapter describes the methodology used for the junction appraisal, and includes assessment years, peak hours, traffic flow and forecasting assumptions including committed development, the software used, and the process used to select specific junctions to be included within the study. It also sets out the improvement schemes proposed for each identified junction, including outline designs and estimated costs. The results of the modelling assessment are then presented to demonstrate the extent of the mitigation provided by the proposals.

4.2 ASSESSMENT METHODOLOGY

4.2.1. The assessment undertaken within this study is based upon the results of the West Cumbria Transport Model, developed by CCC using the SATURN software. The model contains separate vehicle classes for cars, light goods vehicles (LGVs) and heavy goods vehicles (HGVs); it consists of a morning peak period (08:00-09:00) and an evening peak period (16:00-17:00), which have been run for the following two future year scenarios:

- **Scenario 1** - 2029 Base: Includes committed developments and background traffic growth.
- **Scenario 2** - 2029 Local Plan: As Scenario 1 plus Local Plan development proposals.

4.2.2. Scenario 1 (2029 Base) is the reference case scenario; it includes developments which have existing planning permission as well as live applications with the potential to gain permission soon. Developments that are considered likely to gain planning permission, and be constructed by 2029, have been included where information is available; this is not meant to be prejudicial to the planning process, and is based on guidance on uncertainty as defined by Table A2 in TAG Unit M4 Forecasting and Uncertainty.

4.2.3. Scenario 2 (2029 Local Plan) is the Local Plan scenario; in addition to the development in Scenario 1, it also includes all Local Plan proposals for housing, employment and retail.

TRAFFIC FLOWS, FORECAST YEARS AND PEAK HOURS OF ASSESSMENT

4.2.4. The traffic flow information, used in the assessment undertaken as part of this study, was provided to WSP by CCC, and originated from the West Cumbria SATURN model. These flows have been used in the traffic modelling and each junction has been assessment for the following scenarios:

- 2029 Base AM;
- 2029 Base PM;
- 2029 Local Plan AM; and
- 2029 Local Plan PM.

4.2.5. The forecast assumptions, used within the traffic modelling undertaken by CCC, follow the guidance set out in the Department for Transport's Transport Appraisal Guidance Unit M4: Forecasting and Uncertainty (July 2017). Further details of the forecasting methodology used in the SATURN modelling can be found in the '*Allerdale Local Plan - Transport Modelling Report, January 2018*', produced by CCC.

4.3 JUNCTIONS INCLUDED IN THE STUDY

4.3.1. The outputs from the SATURN traffic model were analysed by CCC, to determine delay at junctions, and a list was prepared containing a total of 46 junctions that were forecast to operate at more than 85% of their operational capacity in at least one of the 2029 scenarios; this list was independently reviewed by WSP.

4.3.2. The initial 46 junctions, identified by CCC using the West Cumbria transport model, consisted of key points on the network that were found to experience high levels of delay, or high Ratio of Flow to Capacity (RFC), in the forecast year scenarios. A sifting process was then undertaken to identify the junctions at which improvements would be necessary and feasible. This entailed the following analyses:

- Review of SATURN model results against local knowledge;
- Review of individual junction context; and
- Consultation with CCC and ABC Officers and Allerdale Local Committee Members.

4.3.3. Through this process, which is recorded in the accompanying Junction Sifting Technical Note (**Appendix C**), 22 junctions were identified for more detailed modelling assessment, which entailed analysis of the specific capacity issues. The junction flows used for these analyses were taken from the specific demand scenario testing which produced the maximum RFC for each junction respectively. However, for junctions which have recent traffic survey data recorded in Transport Assessments submitted to ABC, sensitivity testing was undertaken to provide a range of possible RFCs. This entailed extracting the traffic growth from SATURN between the base year (2015) and the future forecast year (2029) with Local Plan development, and adding this to the observed traffic flows recorded in the Transport Assessments. This provided a more realistic assessment of junction capacity.

JUNCTION ASSESSMENT SOFTWARE

4.3.4. The junction assessment software, used for the detailed assessment of the 22 identified junctions, is set out below:

- Junctions 9 ARCADY (Assessment of Roundabout Capacity and DelaY) module - for roundabouts;
- Junctions 9 PICADY (Priority Intersection Capacity and DelaY) module - for priority T-junctions and priority crossroads; and
- LinSig 3 for signalised junctions.

4.3.5. ARCADY and PICADY, developed by the Transport Research Laboratory (TRL), provide an industry-standard method for assessing the capacity, queuing and delay at roundabout and priority junctions, respectively. The software reports the junction results as a RFC, a measure of junction performance, as a ratio of traffic demand to available junction capacity. An RFC of less than 0.85 indicates that the junction is performing efficiently, above 0.85 indicates that the junction is nearing capacity and greater than 1.00 indicates that the junction is operating over the capacity it was designed to operate within.

4.3.6. LinSig is an industry-standard computer software package, developed by JCT Consultancy, and is used for the assessment and design of traffic signal junctions, either individually or as a network comprised of a number of junctions. LinSig reports the junction results as a Degree of Saturation (DOS), for which the thresholds are similar to that of the RFC but presented as a percentage. A DOS of less than 90% indicates that the junction is performing efficiently, above 90% indicates that the junction is nearing capacity and greater than 100% confirms that the junction is operating over its design capacity.

4.3.7. The traffic flows, extracted from SATURN, have been entered into the model matrices in passenger car units (PCU), for one hour periods; all ARCADY and PICADY models have used the ‘One Hour’ flow profile to ensure robustness.

4.3.8. Junctions with a forecast RFC greater than 0.85, or DoS greater than 90%, have been included in the study as this demonstrates that they will experience capacity issues in at least one of the 2029 scenarios. The results of the detailed junction modelling identified 13 junctions that exceeded the capacity thresholds.

4.3.9. **Table 8**, overleaf, provides the list of the 13 junctions which have identified capacity issues and the maximum recorded RFC or DoS in the 2029 scenarios (worst case at each junction).

4.3.10. Potential mitigation measures have been investigated for these 13 junctions. The concept designs were then re-modelled to illustrate the residual impacts and these are reported in the remainder of this chapter.

Table 8 – Junctions Taken Forward for Outline Improvement Design

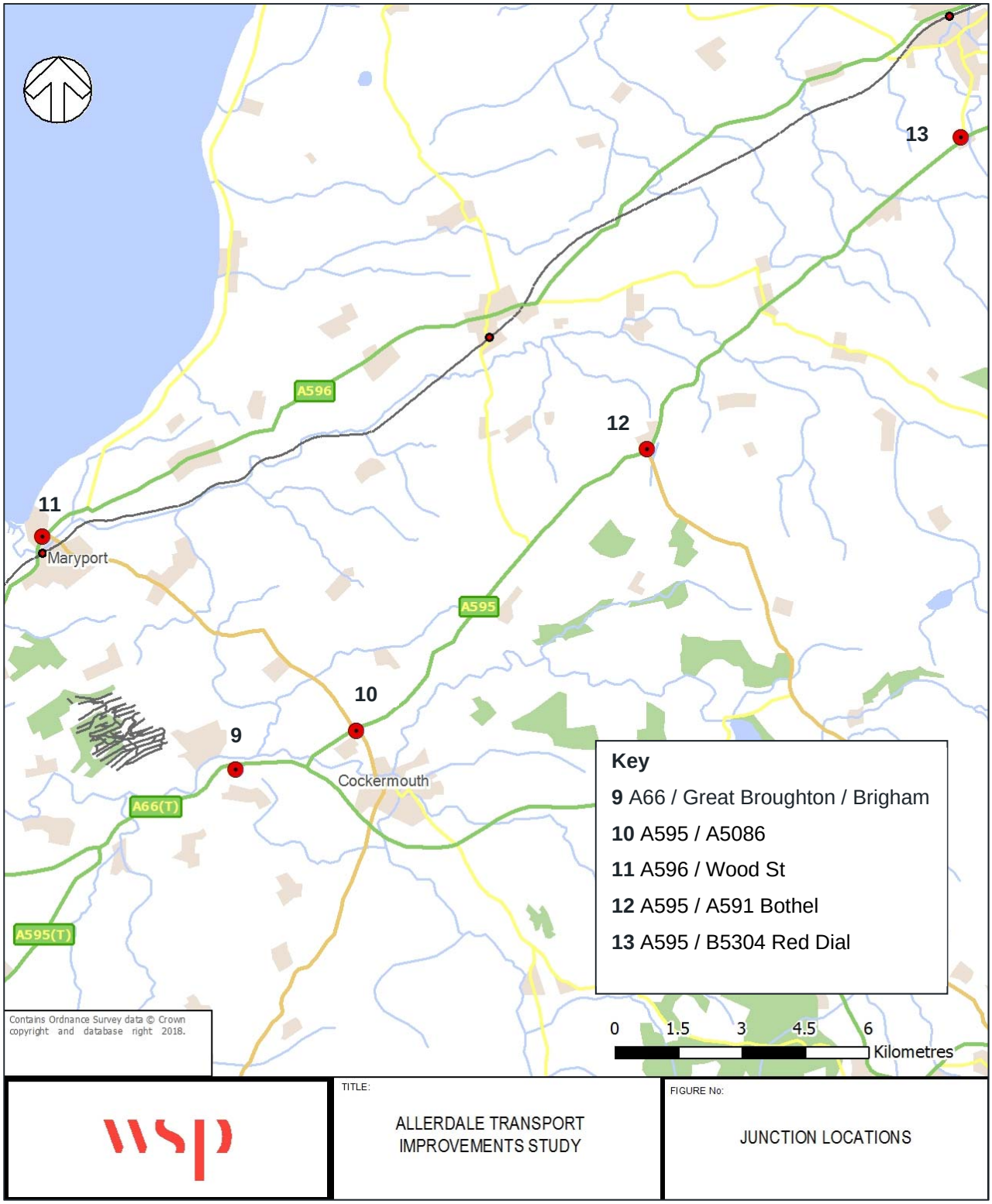
ID	Junction	Existing Junction Type	Worst Case RFC / DoS	Location
1	Washington St / Ramsay Brow	Traffic Signals	1.08	Workington
2	Washington St / Jane St	Traffic Signals	1.10	Workington
3	Harrington Rd / A596 Guard St	Mini-roundabout	1.44	Workington
4	A596 / Newlands Ln	Priority Junction	1.00	Workington
5	A596 / Branthwaite Rd	Priority Junction	15.85	Workington
6	A596 / Jubilee Rd	Priority Junction	1.71	Lillyhall, Workington
7	A597 / Scaw Rd	Mini-roundabout	1.05	High Harrington
8	A595 / A597 Roundabout	Roundabout	0.92	Lillyhall, Workington
9	A66 / Great Broughton / Brigham	Priority Junction	9999*	Broughton / Brigham
10	A595 / A5086	Roundabout	0.98	Cockermouth
11	A596 / Wood St	Traffic Signals	0.96	Maryport
12	A595 / A591 Bothel	Priority Junction	4.57	Bothel
13	A595 / B5304 Red Dial	Priority Junction	1.54	Wigton

*9999 indicates that the junction is operating severely over capacity (greater than threshold of software's reporting)

4.3.11. These junctions are plotted in **Figure 8** and **Figure 9**.

Figure 8: Location of junctions listed in Table 8 that are within Workington

Figure 9: Location of junctions listed in Table 8 that are within not within Workington



4.4 JUNCTION MODELLING RESULTS

4.4.1. The results of the detailed modelling, for each of the 13 junctions in the four scenarios outlined in 4.2.4 and based on existing alignments, are presented in this section; this is followed by the modelling results for the same junctions but with the proposed junction improvements in place.

4.4.2. For each of the junctions a satellite image is presented, and the movements which are predicted to be operating near to or over-capacity in the worst case 2029 scenario highlighted. The following annotation has been used:

 Nearing Capacity (RFC of 0.85 – 0.99, or DoS of 90%-99%)

 At or Over Capacity (RFC of 1.00 and above, or DoS 100% and above)

4.4.3. The drawings and estimated costs for each proposed improvement scheme are provided in **Appendix D and Appendix E** respectively.

WASHINGTON STREET (A596) / RAMSAY BROW (A66) AND WASHINGTON STREET (A596) / JANE STREET (ID 1 & 2)

Existing Junction Layout

4.4.4. The area under consideration is made up of two linked and signalised junctions, in Workington town centre, which are part of a key north-south corridor through the town. The Washington Street / Ramsay Brow junction is of strategic importance for connectivity to the Port of Workington. The Port exists to support local industry as a key transport link for West Cumbria and beyond, offering Sea, Rail and Road access for the import and export of freight. It is uniquely placed to serve the freight requirements of major investments in the nuclear and other sectors in West Cumbria. As such, the effective operation of the Washington Street / Ramsay Brow junction is crucial for supporting Port and thus the economy of West Cumbria. To facilitate the freight traffic generated by the Port, the junction must be negotiable for articulated HGVs and this has been considered in the concept designs proposed. To

4.4.5. **Figure 10** below, shows a summary of the future year situation at the Washington Street / Ramsay Brow junction while **Table 9** provides the detailed modelling outputs. This demonstrates that all arms of the junction will operate either nearing or are over-capacity, in the 2029 Local Plan PM Peak scenario, with the current layout.

Figure 10: Washington Street / Ramsay Brow Operation (2029 Local Plan PM Peak Scenario – Existing Alignment)

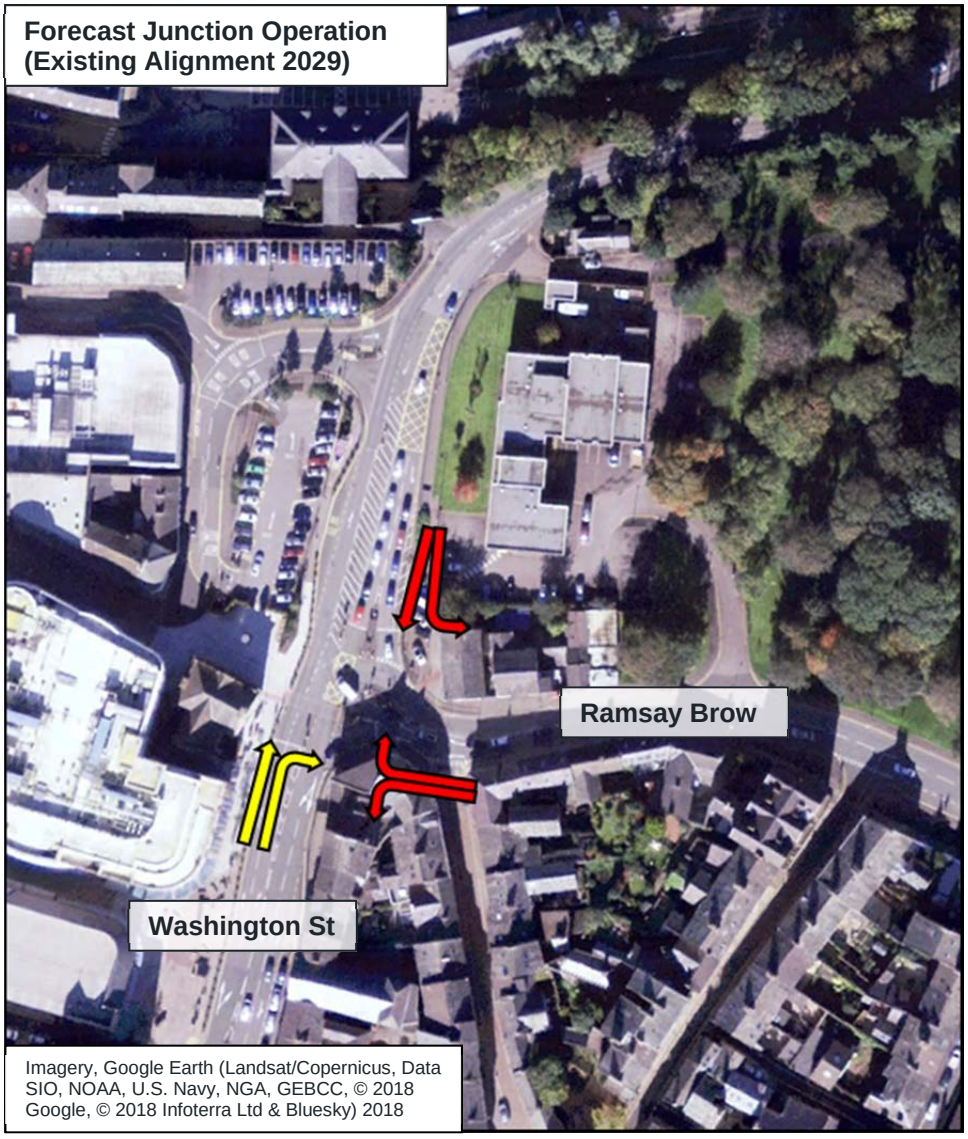


Table 9 - Washington Street / Ramsay Brow Results Without Improvements

Arm	Lane	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	Turn	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
A596 (N)	Ahead/Left	95.2%	26.2	108.0%	69.5	87.9%	19.1	105.1%	65.8
Ramsay Brow	Left	85.9%	14.1	106.9%	50.9	86.2%	14.3	105.6%	57.2
	Right								
A596 (S)	Right	55.0%	17.6	91.0%	24.5	88.5%	16.7	96.3%	38.2
	Ahead	53.8%		65.5%		87.0%			
PRC		-5.8%		-21.8%		1.7%		-17.3%	

4.4.6. **Figure 11** and **Table 10** below, set out the operation of the Washington / Jane Street junction; these show that three of the junction movements are nearing capacity in the 2029 Local Plan AM Peak scenario, with the current junction configuration.

Figure 11: Washington Street / Jane Street Operation (2029 Local Plan AM Peak Scenario – Existing Alignment)

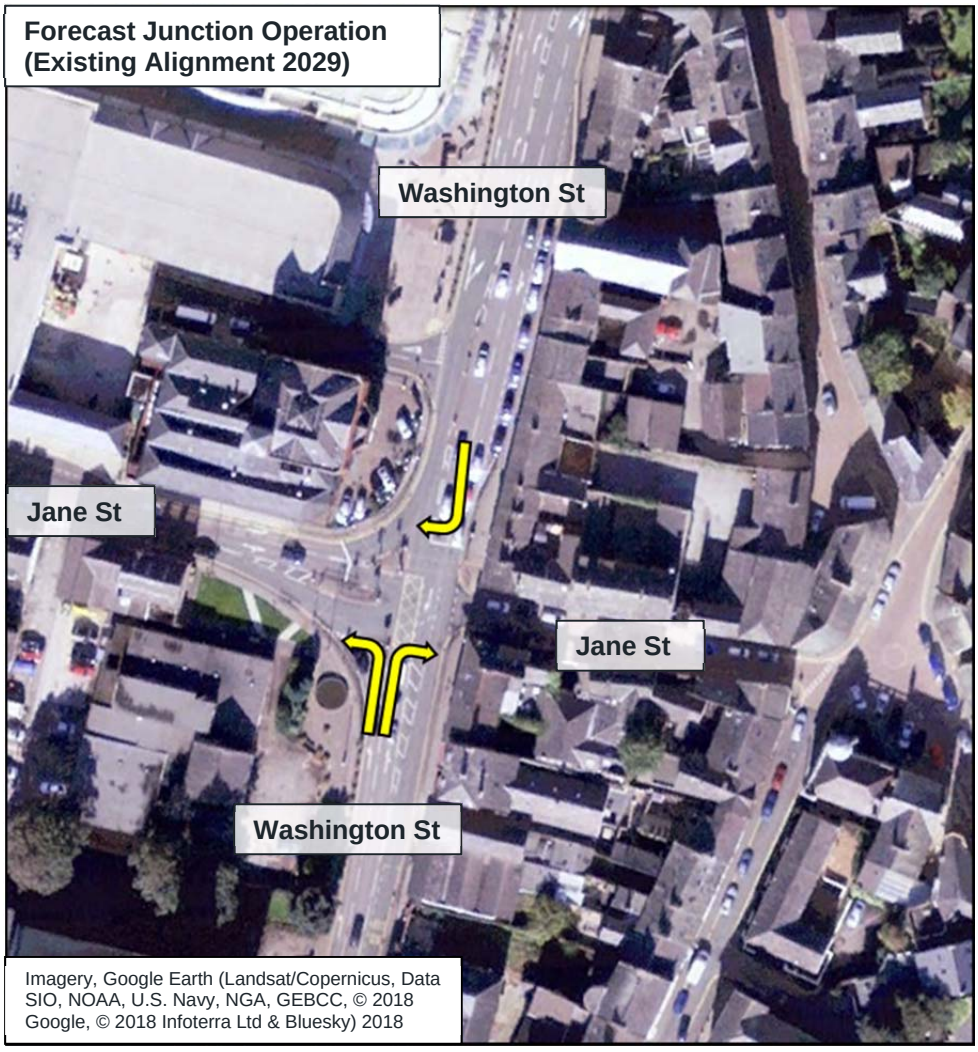


Table 10 – Washington Street (A595) / Jane Street Results Without Improvements

Arm	Lane	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	Turn	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
A596 (N)	Right	99.8%	20.0	109.6%	41.2	65.2%	7.3	74.8%	13.0
	Ahead/Left	66.6%	10.1	67.6%	11.1	65.8%	13.6	80.8%	23.3
A596 (S)	Left	99.8%	13.1	108.4%	64.0	84.4%	14.9	85.3%	20.6
	Ahead/Right	76.2%		108.4%		84.4%		85.3%	
Jane St	Left	24.4%	3.0	23.7%	3.1	72.8%	13.2	87.7%	25.2
	Ahead/Right	26.4%	2.8	44.1%	4.7	74.7%	9.0	83.3%	15.1
PRC		-10.9%		-21.8%		6.7%		2.6%	

Proposed Improvement Scheme

4.4.7. The proposed improvement scheme consists of widening the carriageway to provide two lanes, both northbound and southbound on Washington Street through the junctions with Ramsay Brow and Jane Street. This would also require space to be taken from the existing pedestrian facilities. Additionally, in order to provide the capacity required in peak hours, time restrictions would need to be implemented for the existing loading and parking bays on Washington Street.

Figure 12: Washington Street / Ramsay Brow Proposed Improvement Design

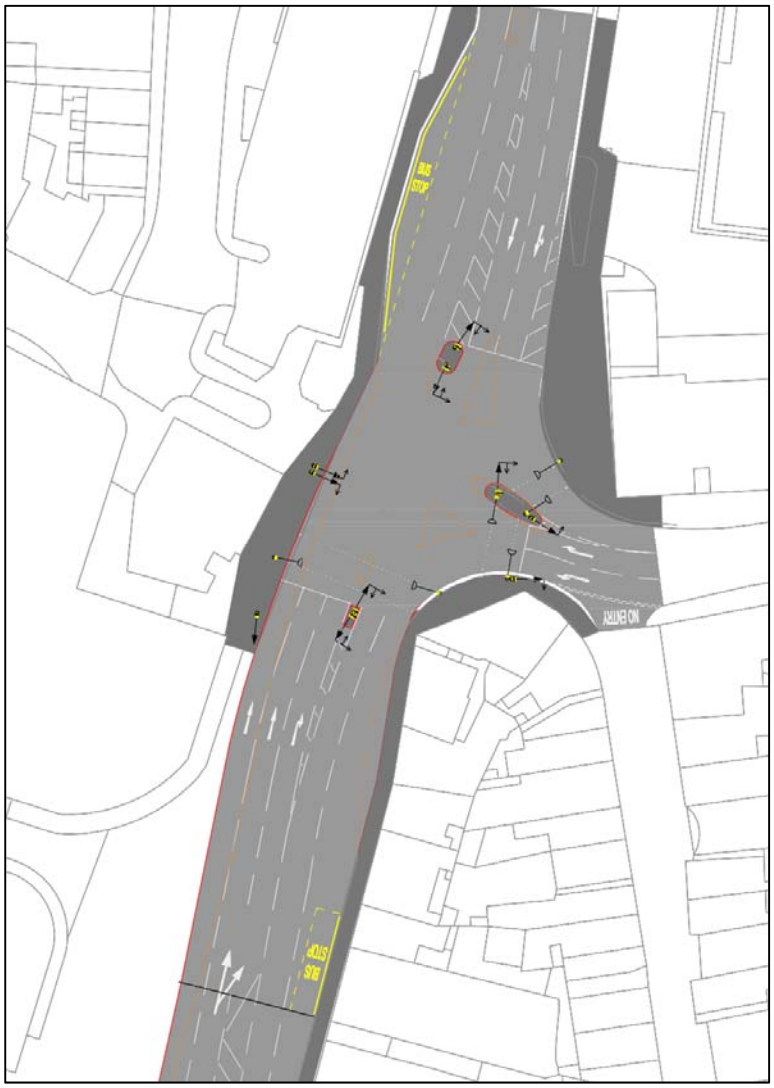


Figure 13: Washington Street / Jane Street Proposed Improvement Design

4.4.8. **Tables 10 and 11**, below, set out the results of the junction modelling, for the same scenario as above, with the proposed improvement scheme in place.

Table 11 – Washington Street / Ramsay Brow Results with Proposed Improvement

Arm	Lane	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	Turn	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
A596 (N)	Ahead/Left	89.9%	21.3	101.1%	48.3	82.3%	14.3	97.8%	30.6
Ramsay Brow	Left	88.9%	15.2	101.7%	41.6	81.3%	12.6	98.4%	25.2
	Right	87.8%		100.1%		77.7%		95.4%	
A596 (S)	Ahead/Right	28.1%	1.5	37.5%	3.9	42.7%	8.5	56.0%	12.4
	Ahead	27.2%	1.3	34.8%	3.8	50.2%	7.5	51.2%	1.8
PRC		0.10%		-13.00%		9.30%		-9.30%	

Table 12 – Washington Street / Jane Street Results with Proposed Improvement

Arm	Lane	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	Turn	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
A596 (N)	Ahead/Right	48.9%	1.0	64.4%	9.7	69.5%	6.9	83.1%	12.5
	Ahead/Left	18.0%	0.7	33.6%	5.4	58.7%	6.6	75.8%	7.3
A596 (S)	Ahead/Left	59.2%	7.7	59.0%	8.9	61.9%	8.4	68.7%	10.0
	Ahead/Right								
Jane St	Left	56.6%	4.6	68.9%	7.8	81.6%	15.3	88.8%	20.6
	Ahead/Right	50.2%	3.7	67.3%	7.4	49.1%	6.8	51.8%	7.9
PRC		52.10%		30.6%		10.30%		1.30%	

4.4.9. The results demonstrate that, with the proposed improvements in place, the two junctions perform better, with Washington Street / Jane Street now operating within capacity. However, despite the improvements, several movements at Washington Street / Ramsay Brow junction remain over maximum capacity. At this junction, the proposed design provides an additional ahead only northbound lane on Washington Street, thereby increasing capacity for this movement. As such, marked reductions in DoS and MMQ are recorded on the southern arm. Whereas for the northern arm, the design just entails reallocating the current left turn lane to a straight and left turn lane, and thus the capacity improvement is minor relative to that on the southern arm.

4.4.10. The cost to implement the proposed improvement is estimated to be £1,237,000.00.

Alternative Options

4.4.11. The design of the proposed improvement at Washington Street / Ramsay Brow junction does not provide sufficient carriageway space to accommodate articulated HGV movements from and to Ramsay Brow - this is illustrated using a swept path analysis. To cater for articulated HGVs at this junction, additional land acquisition is required, as shown in **Figure 14**, overleaf. Land acquisition ensures that HGVs turning left from Washington Street into Ramsay Brow can do so effectively, thus improving HGV access. However, it should be noted that, this option would result in reduced pedestrian walkway width - less than 1.0m outside of the property to the north east of the junction. Further options, retaining existing pedestrian walkway widths, would require 3rd party land acquisition.

4.4.12. As well as this scheme, which accommodates HGV traffic into Ramsay Brow, a scheme has been developed to reduce land take to the west of Washington Street / Jane Street junction. This is shown in **Figure 15** overleaf.

Figure 14: Alternative Washington Street / Ramsay Improvements to accommodate HGVs

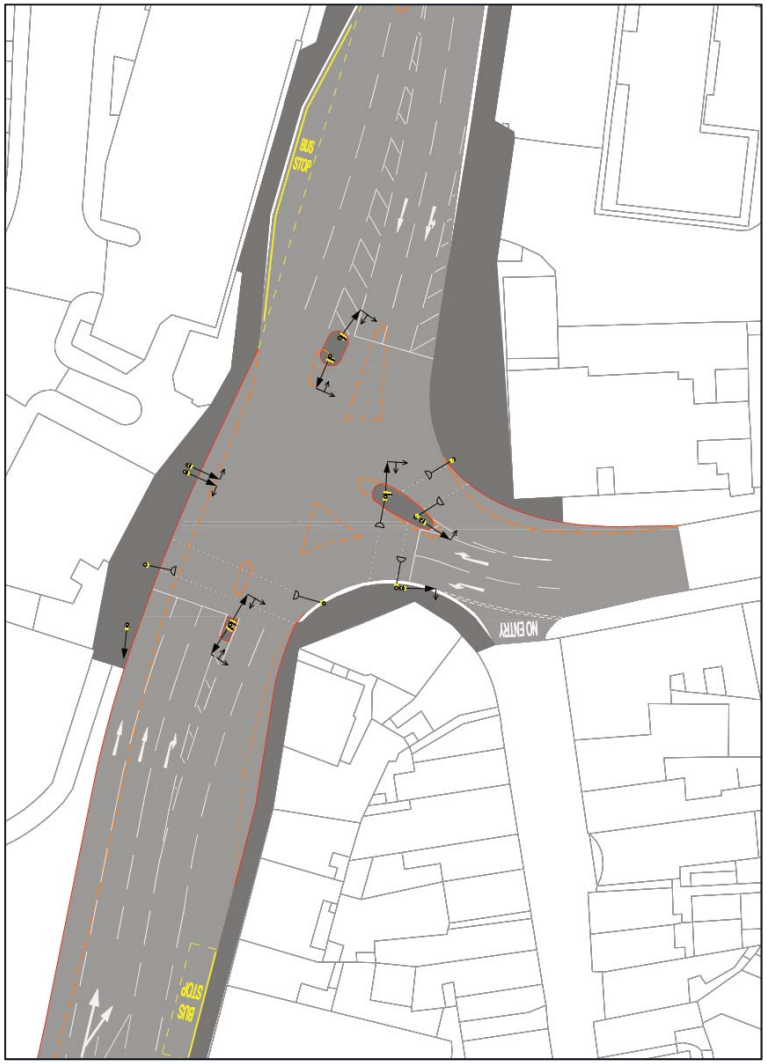
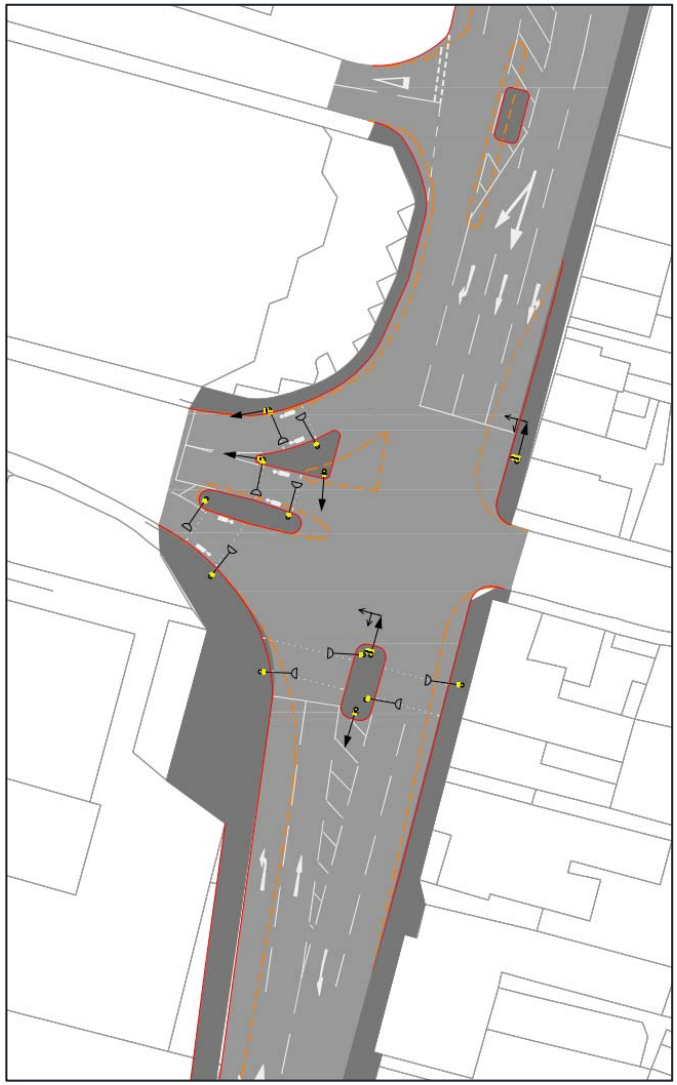


Figure 15: Alternative Washington Street / Jane Street with reduced land acquisition



HARRINGTON ROAD / A596 GUARD STREET (ID 3)

Existing Junction Layout

4.4.13. The Harrington Road / A596 Guard Street mini-roundabout is located to the south of the junctions discussed above, on the A596 route that runs through Workington. As a result congestion at this junction is, in part, linked to the capacity issues at the Washington Street junctions.

4.4.14. **Figure 16** and **Table 13**, below, set out the results of the junction modelling for the future year scenarios, with the current junction alignment. The results demonstrate that all arms of the junction are operating over-capacity in three of the future scenarios without intervention.

Figure 16: Harrington Road / Guard Street Operation (2029 Local Plan AM Peak Scenario – Existing Alignment)

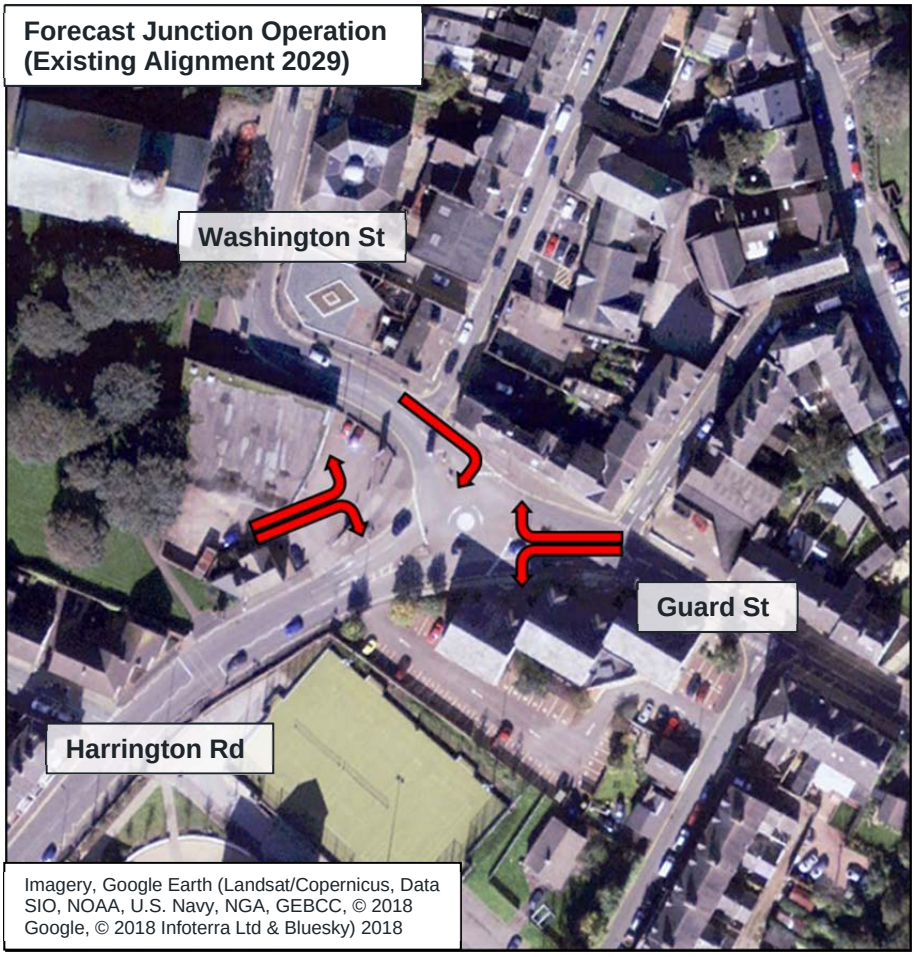


Table 13 – Harrington Road / Guard Street Results without Improvements

Arm	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Guard Street	0.85	5.2	0.86	5.8	0.84	4.9	0.98	19.2
Harrington Road	0.75	2.9	1.12	46.9	1.19	70.8	1.44	139
Washington Street	1.11	50.8	1.54	263.6	1.23	111.5	1.35	178.4
Maximum RFC	1.11		1.54		1.23		1.44	

Proposed Improvement Scheme

4.4.15. The proposed improvement scheme, for the Harrington Road / Guard Street junction, comprises a larger roundabout with a central island. Land take will be required to provide the space needed to accommodate a roundabout with this alignment.

Figure 17: Harrington Road / Guard Street Proposed Improvement Design

4.4.16. **Table 14**, below, sets out the results of the junction modelling with the proposed new roundabout scheme in place, as shown in **Table 14**.

Table 14 – Harrington Road / Guard Street Results With Improvement

Arm	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Guard Street	0.63	1.7	0.67	2	0.63	1.7	0.67	2
Harrington Road	0.42	0.7	0.59	1.4	0.65	1.8	0.71	2.5
Washington Street	0.52	1.1	0.66	1.9	0.6	1.5	0.76	3.1
Maximum RFC	0.63		0.67		0.65		0.76	

4.4.17. The results show that the proposed roundabout would operate within capacity in all 2029 scenarios, with particular improvement observed on Harrington Road.

4.4.18. The cost to implement the proposed improvement is estimated to be £216,000.00, excluding land take costs.

4.4.19. A variation of this proposal is to widen the northern side of the corner of Washington Street to provide additional space for large vehicles and prevent them blocking the approach to or exit from the junction. However, this would require further land acquisation and, as such, poses greater deliverability risk.

Alternative Options

4.4.20. In order to keep the proposed mitigation within the highway boundary, a smaller roundabout option was developed to reduce land take. This is shown in **Figure 19**.

Figure 18: Harrington Road / Guard Street Alternative Roundabout Improvement Design

4.4.21. However, as shown in the table below, this option does not operate within theoretical capacity.

Table 15 – Harrington Road / Guard Street Results Alternative Roundabout Improvement

Arm	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Guard Street	0.63	1.7	0.67	2.0	0.63	1.7	0.66	1.9
Harrington Road	0.49	0.9	0.69	2.2	0.76	3.0	0.84	4.8
Washington Street	0.75	3.0	0.97	15.2	0.86	5.9	1.14	70.6
Maximum RFC	0.75		0.97		0.86		1.14	

4.4.22. An alternative scheme that has been considered is to signalise the junction. This could be accommodated within the highway boundary and thus no land take would be required. The results are presented in **Table 16**.

Table 16 – Harrington Road / Guard Street Results Signal Improvement

Arm	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
Guard Street	112.0%	82.3	120.0%	119.5	93.5%	26.3	125.4%	135.6
Harrington Road	109.2%	51.6	116.5%	71.3	112.7%	60.3	124.8%	89.5
Washington Street	111.2%	35.0	119.2%	74.1	109.3%	33.7	114.5%	77.3
PRC	-24.5%		-33.3%		-25.2%		-39.4%	

4.4.23. The results presented above demonstrate that a signalised junction here would not operate within capacity and thus the option was not progressed further and a design was not developed.

A596 / NEWLANDS LANE (ID 4)

Existing Junction Layout

4.4.24. The A596 / Newlands Lane junction is a priority junction, located to the south of Workington town centre. There are three schools in close proximity to the junction and, as such, pedestrian safety is of significant importance in this location; there are currently two signalised crossings provided – on the A596 and on Newlands Lane.

4.4.25. **Figure 19** and **Table 17**, below, show that the existing junction is forecast to operate over-capacity in the 2029 Local Plan PM Peak scenario, with the principal issue being difficulty for vehicles turning out of Newlands Lane onto the A596. It should be noted that, although this junction is only slightly over capacity within the 2029 Local Plan PM scenario, delays are up to 5 minutes exiting Newlands Lane.

Figure 19: A596 / Newlands Lane Operation (2029 Local Plan PM Peak Scenario – Existing Alignment)

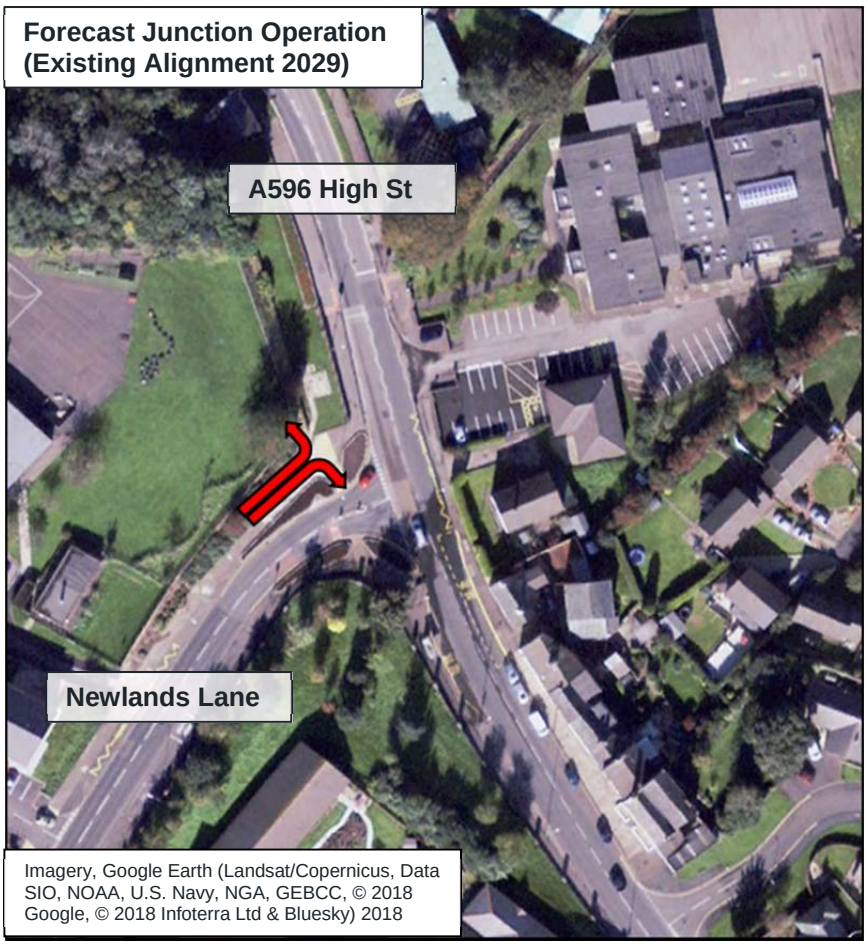


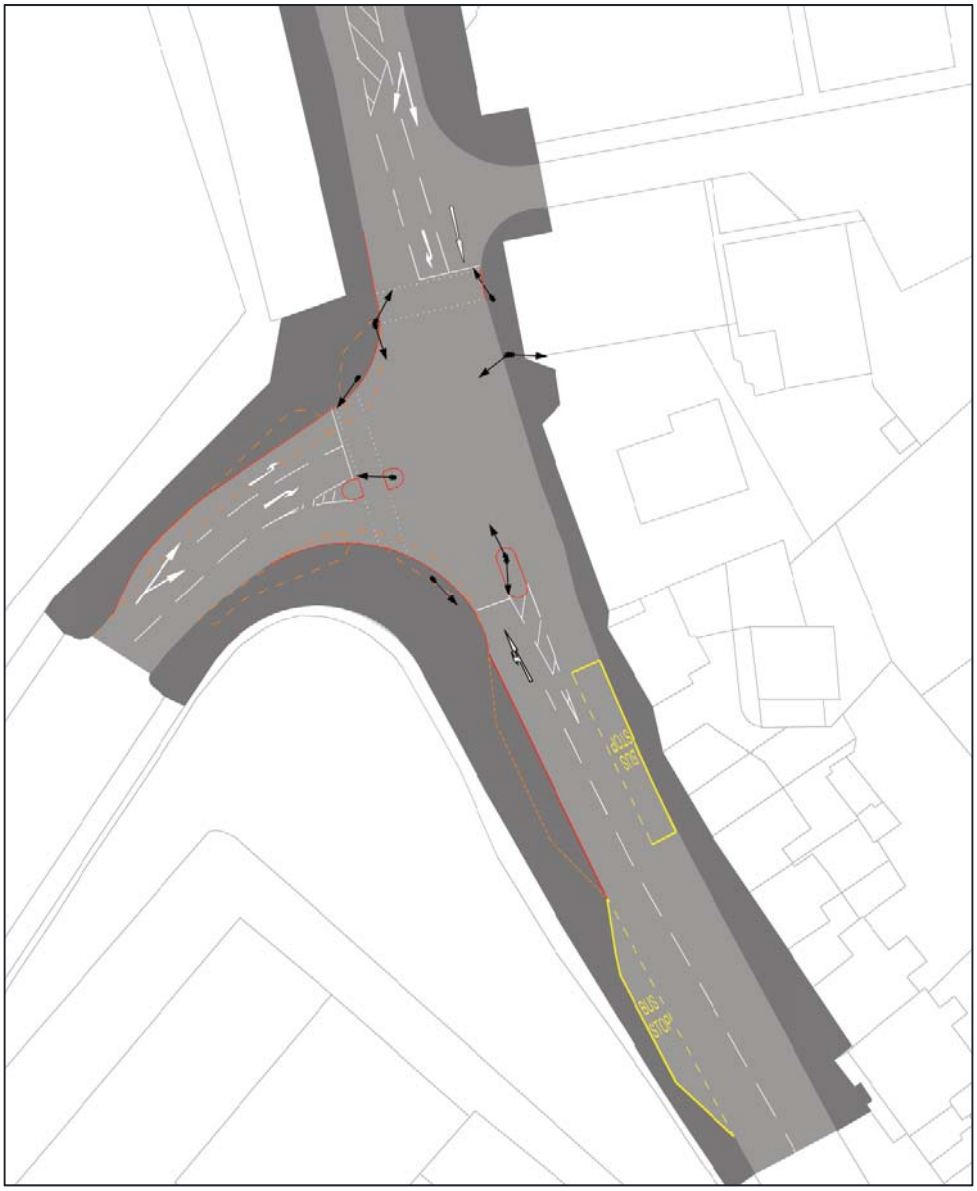
Table 17 – A596 / Newlands Lane Results Without Improvements

Arm	Turn	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
		RFC	MMQ	RFC	MMQ	RFC	MMQ	RFC	MMQ
A596 (S)	Ahead	0.73	4.2	0.75	4.7	0.6	2.3	0.79	5.9
	Right	0.71	0.9	0.73	1	0.73	1.6	0.75	0.9
Newlands Lane	Left	0.36	0.5	0.49	0.9	0.56	1.2	1	3.3
	Right	0.77	2.8	0.85	3.9	0.73	2.4	0.99	7.4
Maximum RFC		0.77		0.85		0.73		1	

Proposed Improvement Scheme

4.4.26. A review of the existing junction operation indicates that high flows on the A596 result in few gaps for traffic exiting from Newlands Lane. As such, the proposed improvement is to signalise the junction so as to provide greater opportunity for traffic to exit Newlands Lane, and the outline design is shown in **Figure 20**. There is a private access within the junction limits, which would require a separate traffic signal; similar schemes have been implemented at junctions with similar configurations elsewhere in the country. To ensure the safety of users with this design, the signal sequence has been modelled such that pedestrian crossings are called during a pedestrian only stage.

Figure 20: A596 / Newlands Lane Street Proposed Improvement Design



4.4.27. The signals design includes Toucan crossings on the A596 and on Newlands Lane. These have been located so as to maintain pedestrian desire lines, which is particularly important because of the proximity to local schools. As a result, existing crossing points on the A596 and Newlands Lane have been removed in order to accommodate the proposed signalised crossing points. These road crossings must accommodate cyclists because one of the proposed cycling improvement schemes (outlined in paragraph 3.4.19) is routed along Newlands Lane Road, with the requirement to cross the A596 for access to Stainburn School.

Table 18 – A596 / Newlands Lane Results With Improvements

Arm	2029 Base AM Peak		2029 Base PM Peak		2029 + LP AM Peak		2029 + LP PM Peak	
	DoS	Queue	DoS	Queue	DoS	Queue	DoS	Queue
A596 (N)	75.3%	21.8	79.2%	24.4	79.1%	23.9	90.0%	37.1
A596 (S)	64.0%	16.9	64.4%	16.3	66.3%	16.9	70.9%	19.3
Newlands Lane	73.2%	6.3	78.2%	5.8	52.2%	2.5	83.2%	5.8
PRC	19.5%		13.7%		13.8%		0.00%	

4.4.28. The results in **Table 18** show that the proposed traffic signals would result in the junction operating within capacity in all 2029 scenarios, though with no reserve capacity in the 2029 Local Plan PM scenario – it should be considered that, although queuing increases, delays are significantly lower with the implementation of the proposed improvement. In order to present results that are representative of the junction layout, the private access has not been considered within the junction model. During the peak hour, it is likely that there will be minimal trips to and from the private access as only one property is served by the access. Therefore, this stage will not be called in every cycle within the sequence.

4.4.29. It should be noted that, although there is an overall capacity improvement at this intersection, the introduction of signals increases queuing on the A596 (N) to allow vehicles to exit the minor arm.

4.4.30. The cost to implement the proposed improvement is estimated to be £258,000.00.

A596 / BRANTHWAITE ROAD (ID 5)

Existing Junction Layout

4.4.31. The A596 / Branthwaite Road priority junction, with dedicated left off-slip, is located just south of Workington.

4.4.32. The results of the modelling demonstrate that there are three over-capacity movements at this junction in the 2029 scenario, with the existing alignment, as shown in **Figure 21** and detailed in **Table 19**.

Figure 21: A596 / Branthwaite Road Operation (2029 Local Plan PM Peak Scenario – Existing Alignment)

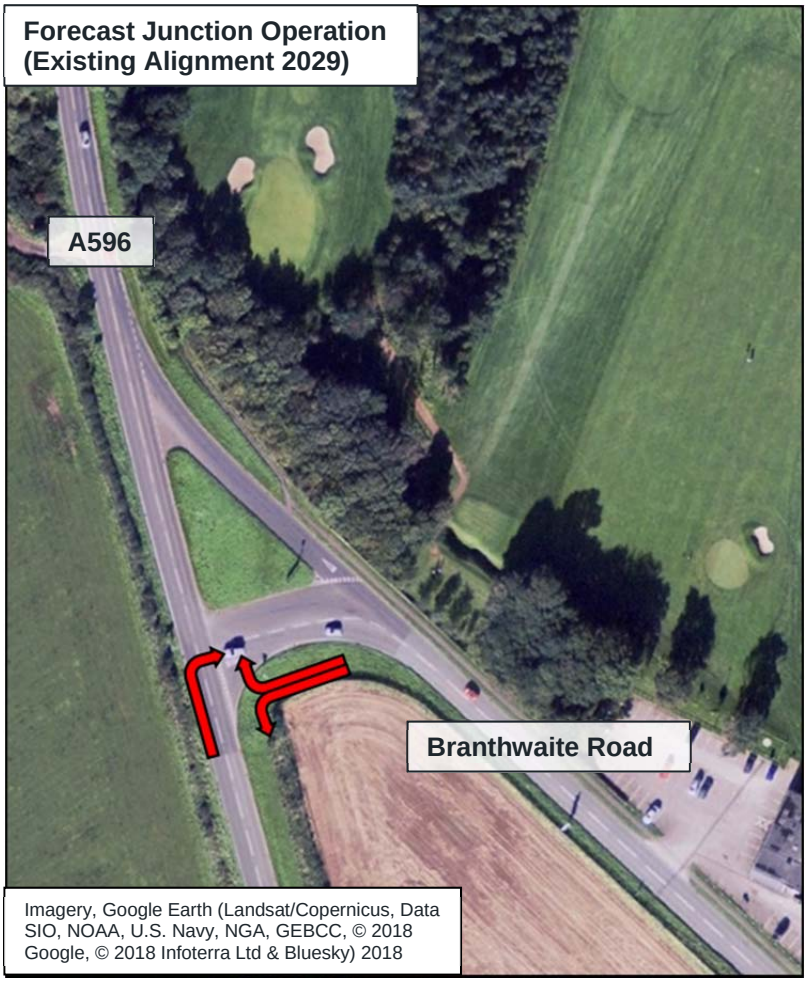


Table 19 – A596 / Branthwaite Road Results Without Improvements

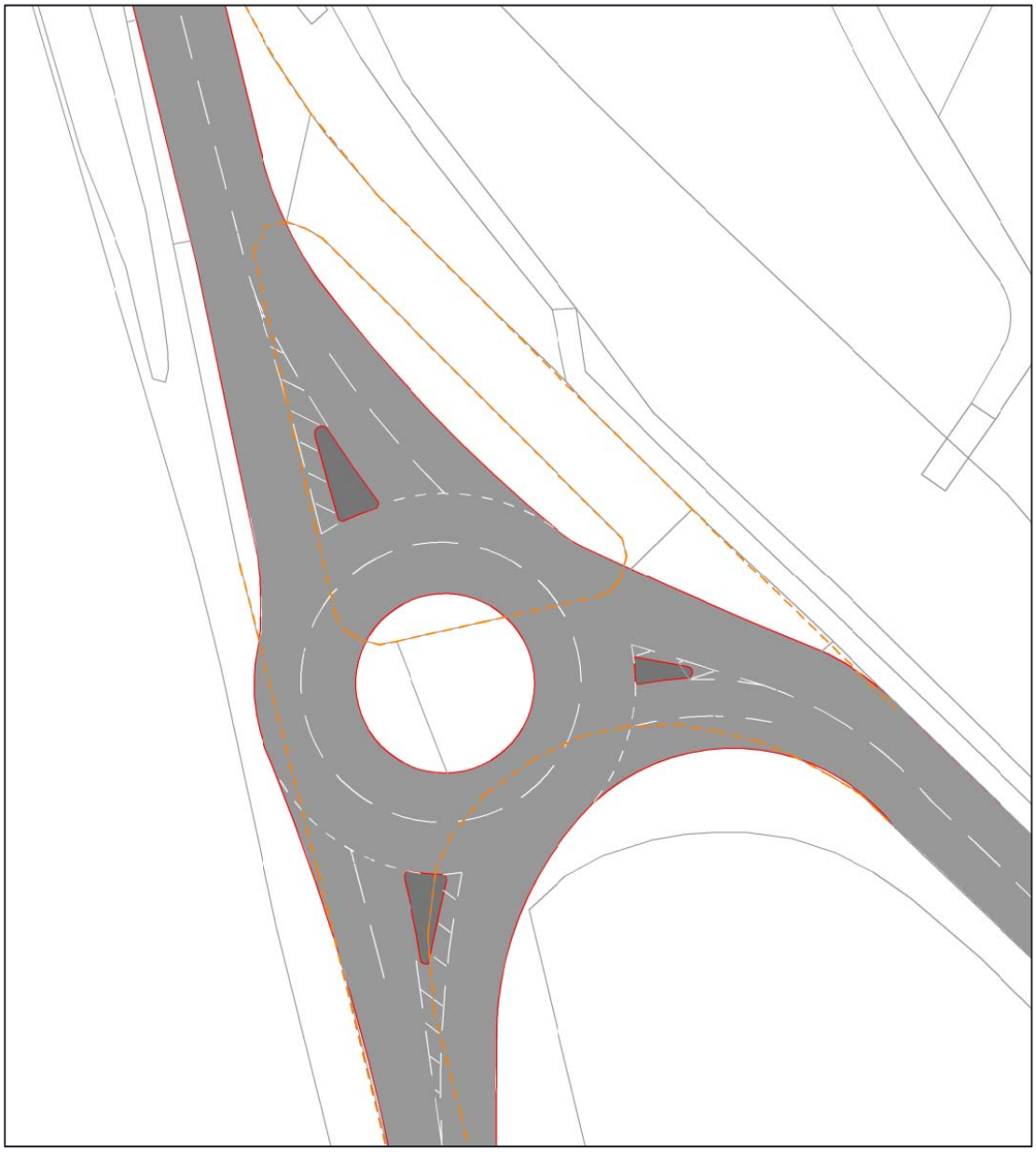
Arm	Turn	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
		RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Branthwaite Road	Left	0.3	0.4	0	0	1.81	18.2	0	0
	Right	0.81	3.8	1.08	14.7	1.84	28.5	15.85	72.4
A596 (S)	Right	0.28	0.8	0.67	4.5	1.05	55.1	1.15	106.5
Maximum RFC		0.81		1.08		1.84		15.85	

Proposed Improvement Scheme

4.4.33. The proposed improvement scheme is for a replacement of the existing priority junction with a roundabout; this would provide gaps in the traffic for vehicles turning out of Branthwaite Road, and also for right-turning vehicles travelling northbound on the A596.

4.4.34. The scheme does not require land acquisation given existing available space at the junction; the outline design is shown in **Figure 22**, below.

Figure 22: A596 / Branthwaite Road Proposed Improvement Design



4.4.35. **Table 20**, below, sets out the results of the junction modelling with the proposed new roundabout scheme in place.

Table 20 – A596 / Branthwaite Road Results With Improvements

Arm	Turn	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
		RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
A596 (N)	Left / Ahead	0.33	0.5	0.45	0.8	0.55	1.2	0.59	1.4
Branthwaite Road	Right / Left	0.28	0.4	0.19	0.2	0.21	0.3	0.15	0.2
A596 (S)	Ahead / Right	0.45	0.8	0.65	1.8	0.70	2.4	0.78	3.6
Maximum RFC		0.45		0.65		0.55		0.78	

4.4.36. The results show that the proposed roundabout would operate within capacity in all 2029 scenarios, with particular improvement observed for right turning vehicles from Branthwaite Road because of the greater opportunity provided by the roundabout.

4.4.37. The cost to implement the proposed improvement is estimated to be £964,000.00, excluding land take costs.

A596 / JUBILEE ROAD (ID 6)

Existing Junction Layout

4.4.38. The existing A596 / Jubilee Road junction is a priority junction, with a ghost right-turn lane, on the A596; the junction provides access to Lillyhall Industrial Estate North, a key employment site south east of Workington.

4.4.39. The results of the modelling demonstrate that both movements out of Jubilee Road, onto the A596, will operate over-capacity in the 2029 scenario, with the existing alignment, as shown in **Figure 23** and detailed in **Table 21**.

Figure 23: A596 / Jubilee Road Operation (2029 Local Plan PM Peak Scenario – Existing Alignment)

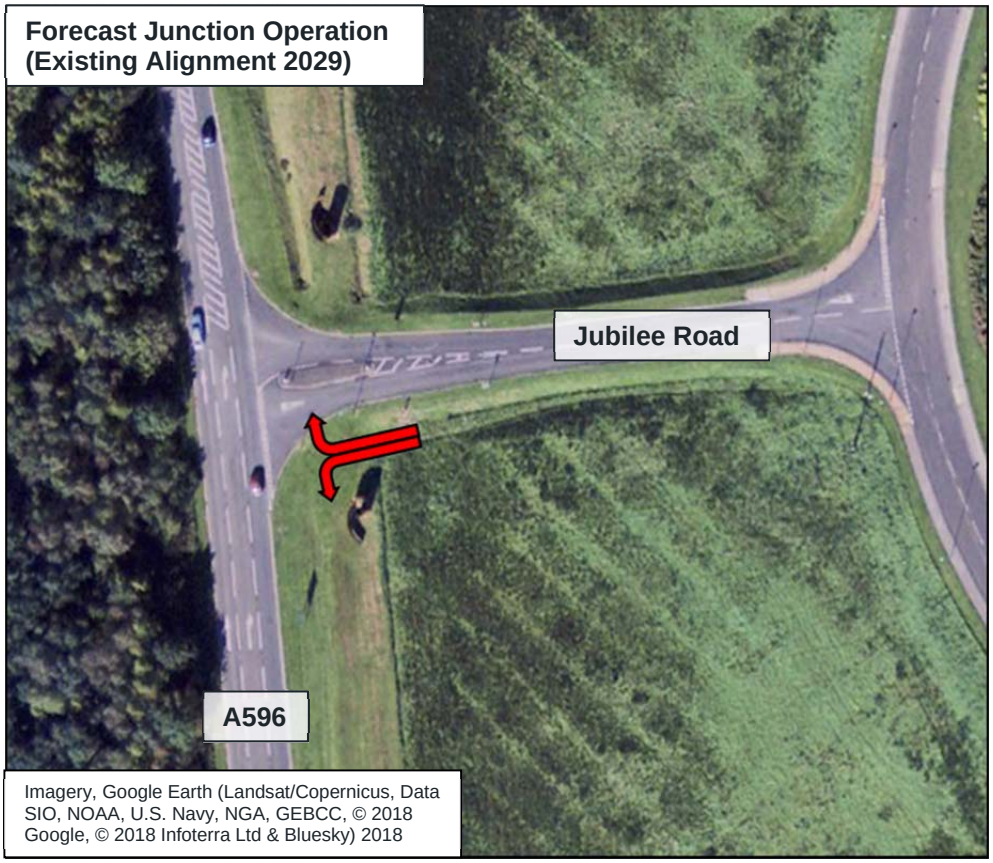


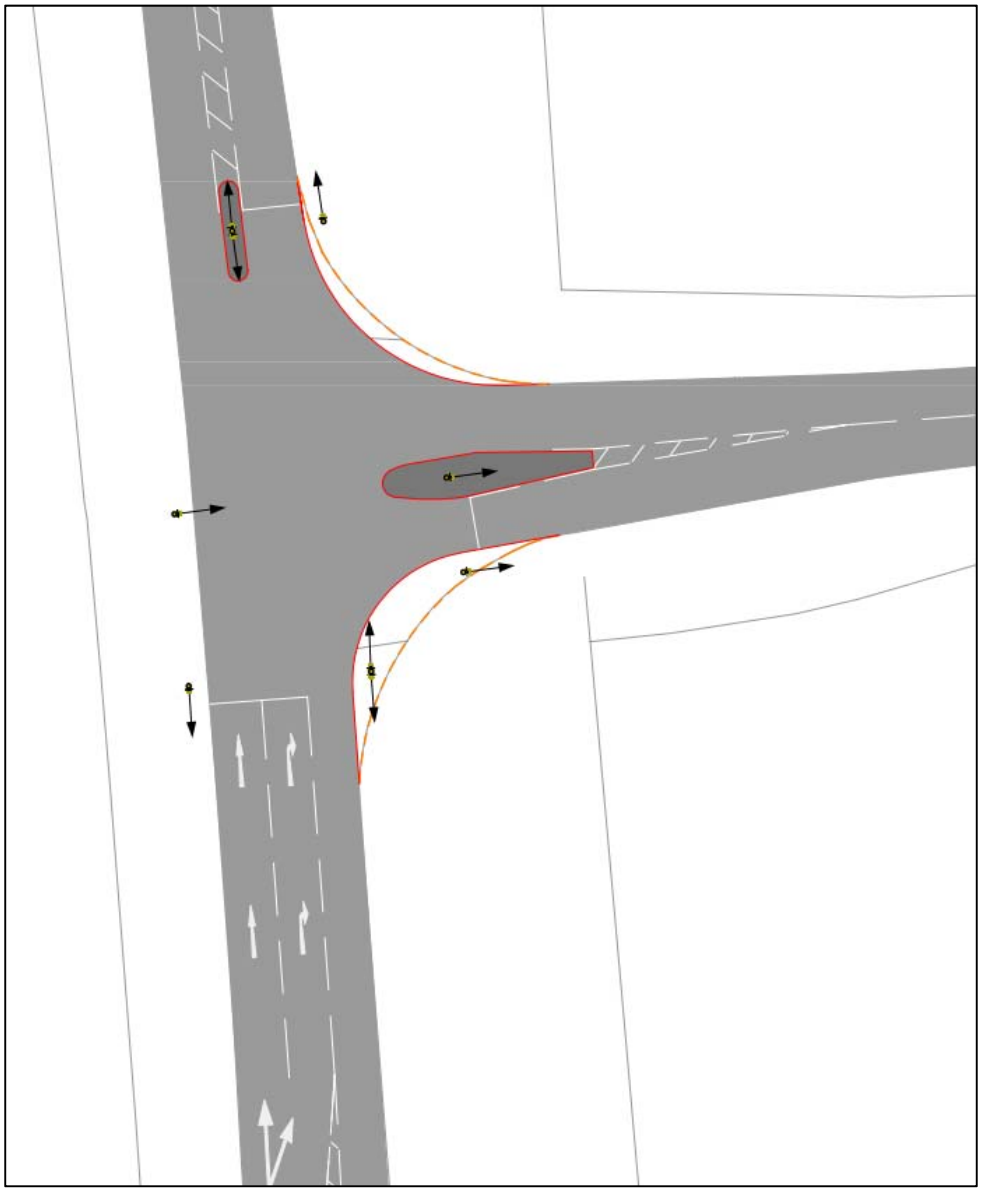
Table 21 – A596 / Jubilee Road Results Without Improvements

Arm	Turn	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
		RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Jubilee Road	Left	0.08	0.1	1.23	24.9	0.03	0	1.76	45.2
	Right	0.06	0.1	1.22	28.7	0.2	0.2	1.71	45.3
A596 (S)	Right	0.05	0.1	0.22	0.3	0.16	0.2	0.3	0.4
Maximum RFC		**0.06**		**1.22**		**0.2**		**1.71**	

Proposed Improvement Scheme

4.4.40. The proposed improvement scheme includes signalising the junction to provide specific green time for vehicles exiting Jubilee Road onto the A596. The concept design is set out in **Figure 24**, below.

Figure 24: A596 / Jubilee Road Proposed Improvement Design



4.4.41. **Table 22**, below, sets out the results of the junction modelling with the proposed new signalised junction in place.

Table 22 – A596 / Jubilee Road Results With Improvements

Arm	Turn	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
		DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
A596 (N)	Ahead/Left	37.20%	5.9	83.90%	19.6	68.40%	15.5	86.90%	23.8
Jubilee Rd	Left/Right	35.90%	1.8	81.50%	12.6	27.60%	1.2	88.40%	12.2
A596 (S)	Ahead/Right	34.80%	3.9	65.40%	12.8	50.80%	6.9	73.30%	16.4
PRC		141.80%		7.20%		31.70%		1.80%	

4.4.42. The results show that by signalising the junction, it operates within capacity in all 2029 scenarios. Additionally, further improvements could be made to this junction with the opportunity to widen Jubilee Road on the open space (currently grass verge). This would improve the operational performance of the junction to further reduce the DoS under 90%.

4.4.43. The cost to implement the proposed improvement is estimated to be £281,000.

A597 / SCAW ROAD (ID 7)

Existing Junction Layout

4.4.44. The existing Scaw Lane / A597 junction consists of a mini-roundabout located at an extremely constrained point of the A597, in High Harrington. New development in the area has resulted in additional traffic travelling through the junction resulting in it operating over capacity.

4.4.45. **Figure 25** and **Table 23**, below, demonstrate how this over-capacity operation will worsen in the future year scenarios without improvements to the junction.

Figure 25: A597 / Scaw Road Operation (2029 Local Plan PM Peak Scenario – Existing Alignment)

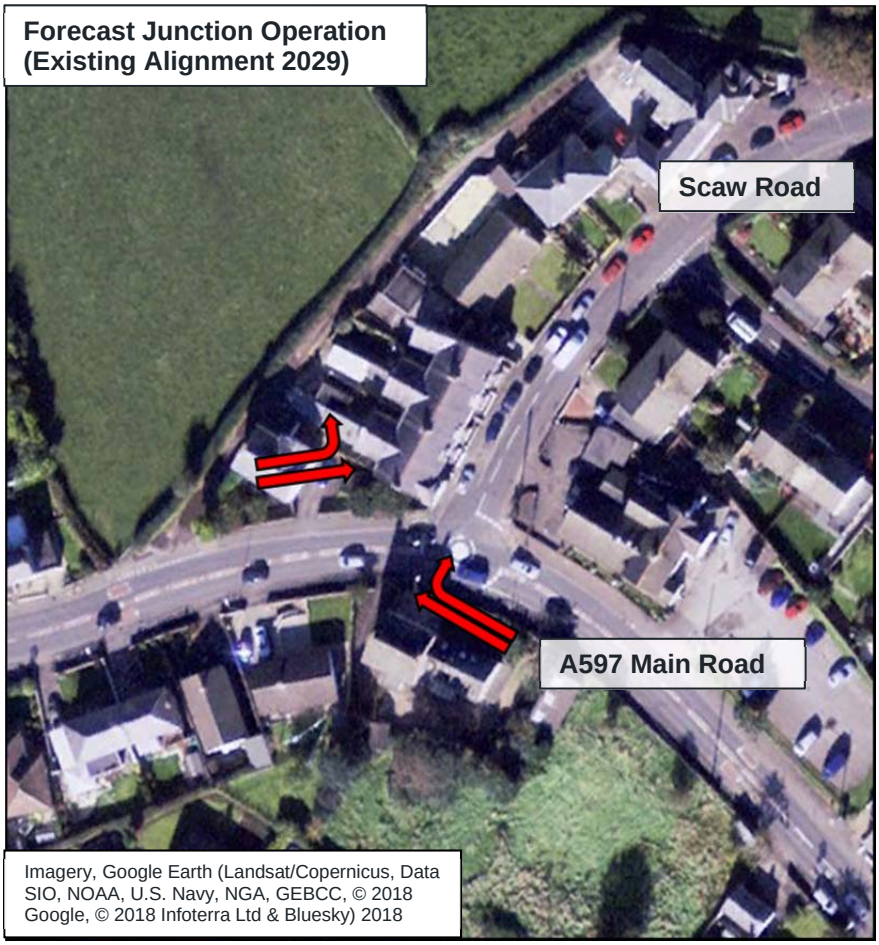


Table 23 – A597 / Scaw Road Results Without Improvements

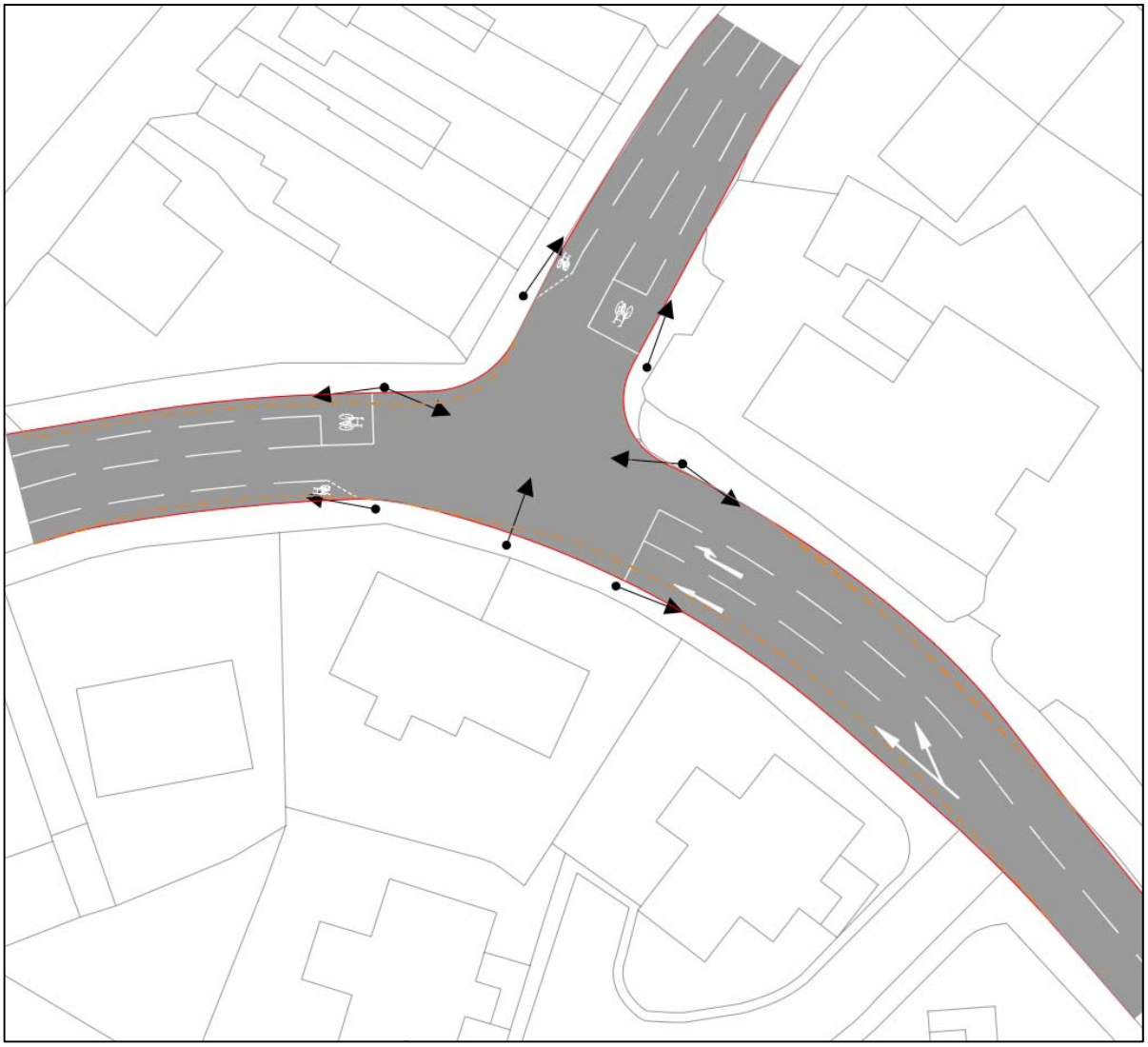
Arm	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
A597 (E)	0.74	2.8	0.83	4.5	1.04	30.9	1.08	41.4
A597 (W)	0.9	7.5	0.99	17.7	0.93	10	1.05	34.2
Scaw Rd	0.54	1.1	0.54	1.2	0.35	0.5	0.46	0.8
Maximum RFC	0.9		0.99		1.04		1.05	

Proposed Improvement Scheme

4.4.46. It is proposed that traffic signals are installed at this junction, in order to provide gaps for traffic right turning into Scaw Road which, in turn, is anticipated to prevent blocking back on the A597.This design can be accommodated within the existing highway boundary, but would require removing part of the footway which is currently used as roadside parking.

4.4.47. This junction is also within the scope of cycling improvement Scheme 5, outlined in Section 3.4, with the proposed cycle route passing through this junction - from the A597 western arm to Scaw Road. As such, advanced stop lines are included in the concept design, which is shown in **Figure 26**, below.

Figure 26: A597 / Scaw Road Proposed Improvement Design



4.4.48. **Table 24**, below, sets out the results of the junction modelling with the proposed new signalised junction in place.

Table 24 – A597 / Scaw Road Results With Improvements

Arm	Turn	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
		DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
A597 (E)	Ahead/Right	42.00%	6.4	30.40%	3.5	54.70%	7.7	57.40%	9
A597 (W)	Ahead/Right	67.20%	14.3	49.50%	7.9	63.70%	11.6	75.90%	16.3
Scaw Rd	Left/Right	65.70%	6.7	49.40%	4.1	62.70%	4.7	71.30%	5.9
PRC		33.90%		81.70%		41.30%		18.50%	

4.4.49. The results show that the proposed junction would operate well within capacity in all 2029 scenarios with the proposed improvement scheme in place.

4.4.50. The cost to implement the proposed improvement is estimated to be £204,000.

A595 / A597 ROUNDABOUT (ID 8)

Existing Junction Layout

4.4.52. The roundabout junction of the A595 / A597 is part of the Strategic Road Network and, as such, is managed by Highways England. The existing junction configuration was recently completed as part of the construction of the Distington Bypass.

4.4.53. **Figure 27** and **Table 25**, below, demonstrate that only one arm of the A595 is forecast to be nearing capacity in the 2029 Local Plan Scenario, with the remainder of the arms operating within capacity.

Figure 27: A595 / A597 Operation (2029 Local Plan AM Peak Scenario – Existing Alignment)

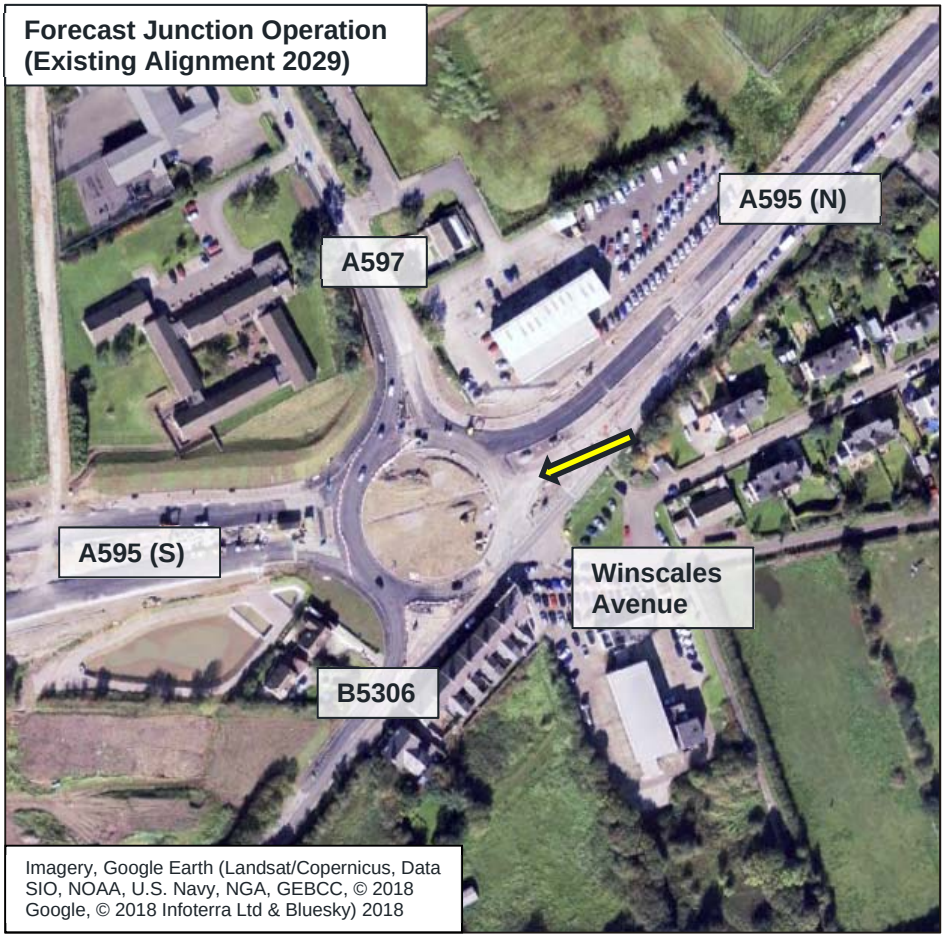


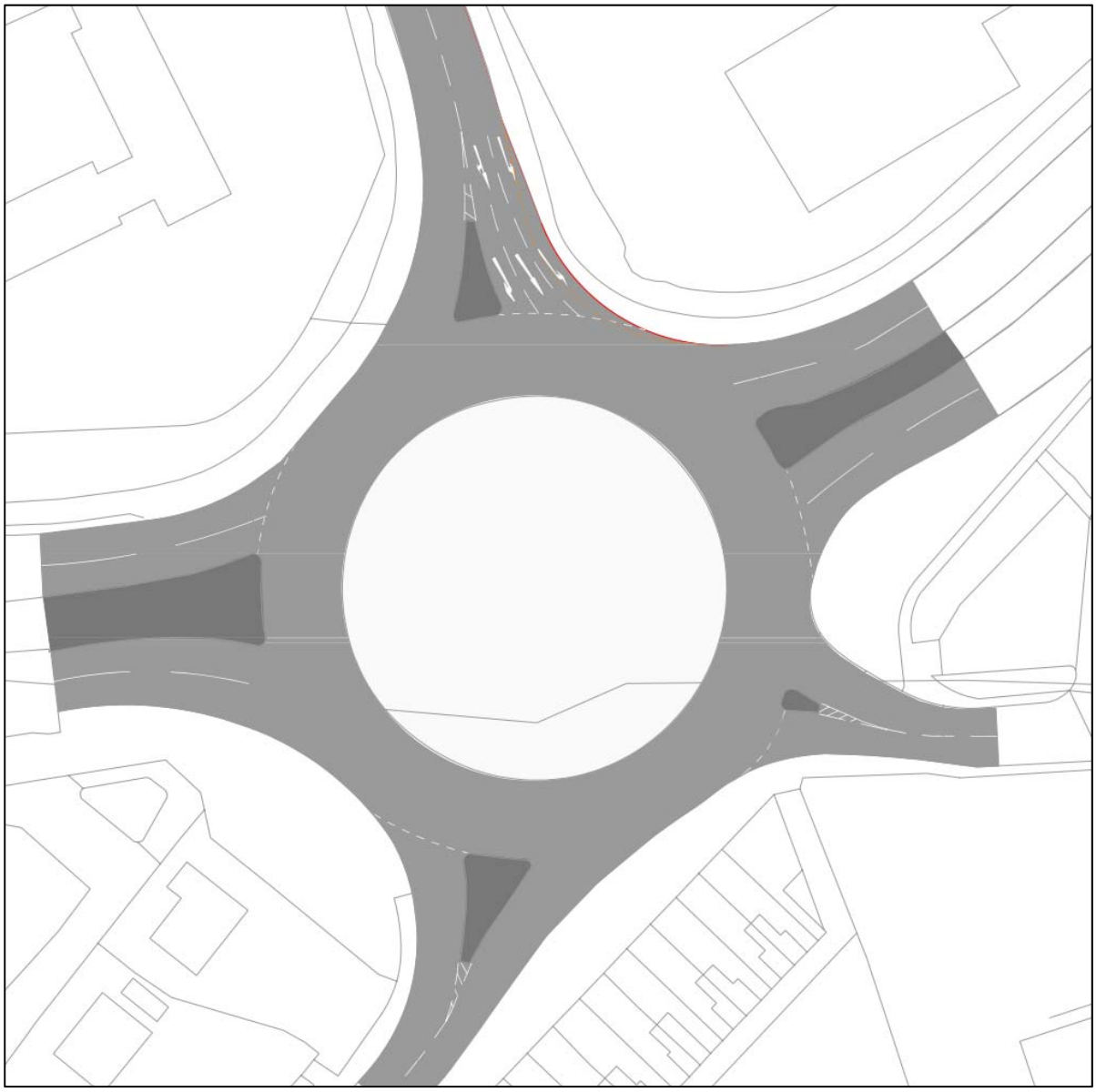
Table 25 – A595 / A597 Results Without Improvements

Arm	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
A595 (N)	0.86	5.8	0.92	10.6	0.85	5.3	0.89	7.7
Winscales Avenue	0.08	0.1	0.09	0.1	0.07	0.1	0.08	0.1
B5306	0.62	1.6	0.7	2.3	0.64	1.7	0.69	2.2
A595 (S)	0.72	2.6	0.76	3.1	0.74	2.8	0.7	2.3
A597	0.57	1.3	0.56	1.2	0.58	1.4	0.6	1.5
Maximum RFC	0.86		0.92		0.85		0.89	

Proposed Improvement Scheme

4.4.54. In order to release additional capacity on the A595 southbound arm, and ensure that all arms operate within capacity in the future year scenario, it is proposed that the entry flare and exit from the roundabout are widened. In addition, an extra lane is proposed on the A597 arm entry to the roundabout in order to prevent traffic blocking back, which was identified as an issue that resulted in vehicles being able to get into the correct lane.

Figure 28: A595 / A597 Proposed Improvement Design



4.4.55. **Table 26** overleaf, sets out the results of the junction modelling with the proposed roundabout improvements in place.

Table 26 – A595 / A597 Results With Improvements

Arm	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
A595 (N)	0.74	2.8	0.8	3.9	0.73	2.7	0.77	3.3
Winscales Avenue	0.07	0.1	0.08	0.1	0.07	0.1	0.07	0.1
B5306	0.53	1.1	0.59	1.4	0.54	1.2	0.59	1.4
A595 (S)	0.68	2.1	0.72	2.5	0.7	2.3	0.67	2
A597	0.52	1.1	0.52	1.1	0.54	1.1	0.55	1.2
Maximum RFC	0.74		0.8		0.73		0.77	

4.4.56. The results show that the junction would operate within capacity in all 2029 scenarios, with the proposed improvement scheme in place.

4.4.57. The cost to implement the proposed improvement is estimated to be £65,000.

A66 / GREAT BROUGHTON / BRIGHAM (ID 9)

Existing Junction Layout

4.4.58. The existing A66 / Great Broughton / Brigham junction is a staggered crossroads on the A66, between Workington and Cockermouth. Safety issues have been identified at the junction, with accidents resulting from the high speeds and high traffic flows on the A66, and the conflicting turning movements at Great Broughton. The A66 is part of the Strategic Road Network, managed by Highways England, providing an important connection between West Cumbria and the rest of the country.

4.4.59. As shown in **Figure 29** and **Table 27**, below, the Great Broughton arm is forecast to operate severely over-capacity in all of the future year scenarios.

Figure 29: A66 / Great Broughton / Brigham Operation (2029 Local Plan PM Peak Scenario – Existing Alignment)

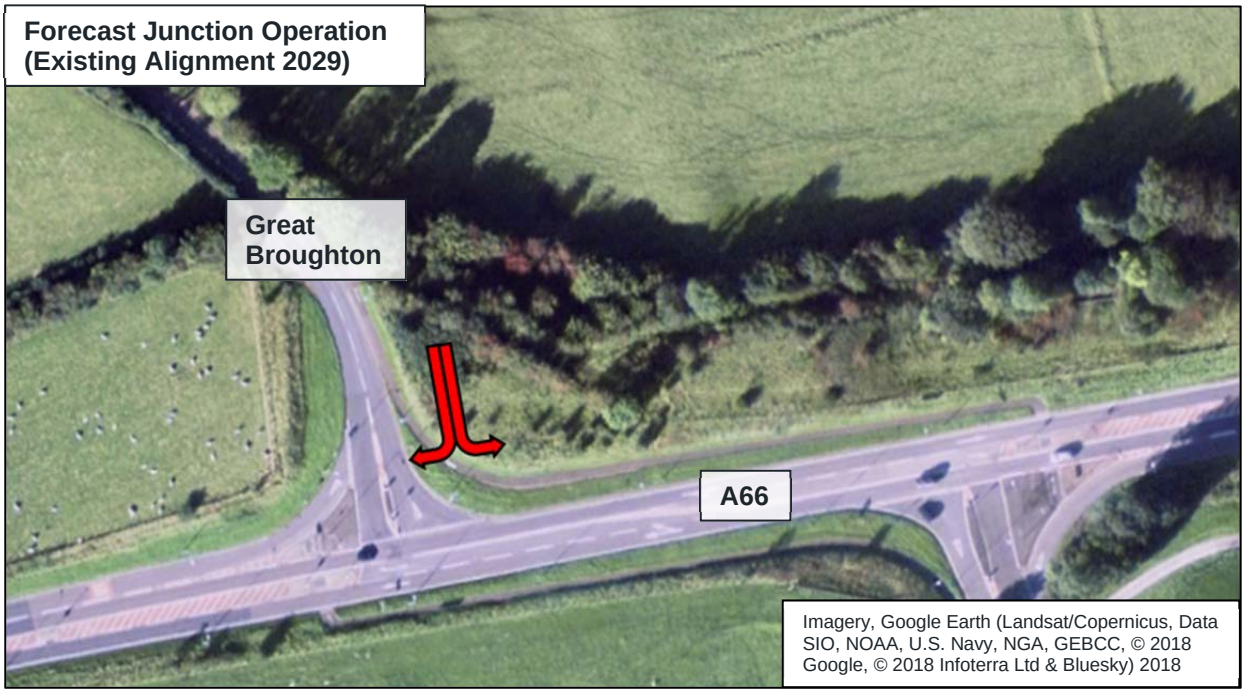


Table 27 – A66 / Great Broughton / Brigham Results Without Improvements

Arm	Turn	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
		RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Great Broughton	Left	277.47	80.5	9999	28.5	9999	82.6	9999	124.9
	Right	269.1	61.4	9999	73.3	9999	60.3	9999	86.4
A66	Right	0.35	0.5	0.41	0.7	0.76	2.9	0.88	5.5
Maximum RFC		269.1		9999		9999		9999	

*9999 indicates that the junction is operating severely over capacity (greater than threshold of software's reporting)

Proposed Improvement Scheme

4.4.60. Highways England are considering improvements at this junction, and developing preliminary designs to address the identified issues. As such, an improvement scheme has not been proposed as part of this study.

A595 / A5086 (ID 10)

Existing Junction Layout

4.4.61. The A5086 meets the A595 at a roundabout junction north of Cockermouth, and acts as an important gateway to the town from the north.

4.4.62. As shown in **Figure 30**, and with detailed results in **Table 28** below, two arms of the junction are forecast to be nearing capacity by 2029.

Figure 30: A595 / A5086 Operation (2029 Local Plan AM Peak Scenario – Existing Alignment)

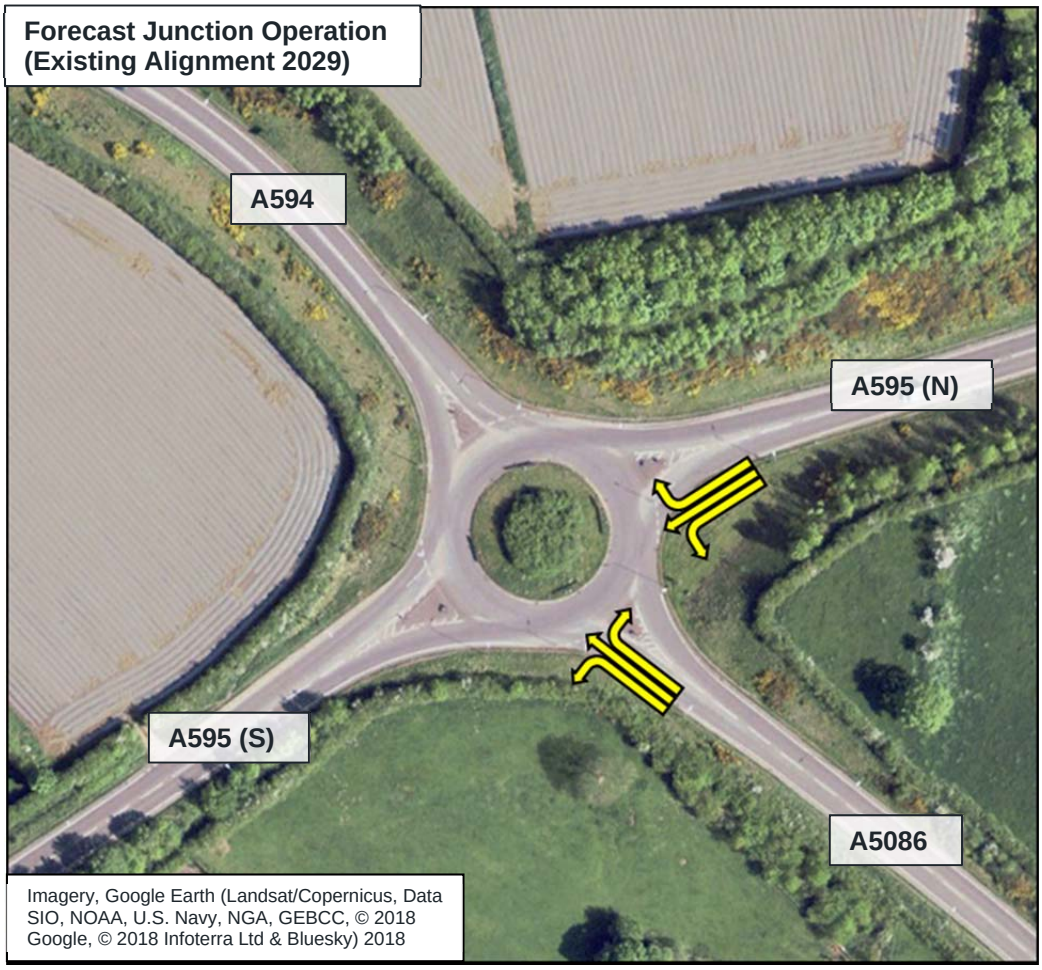


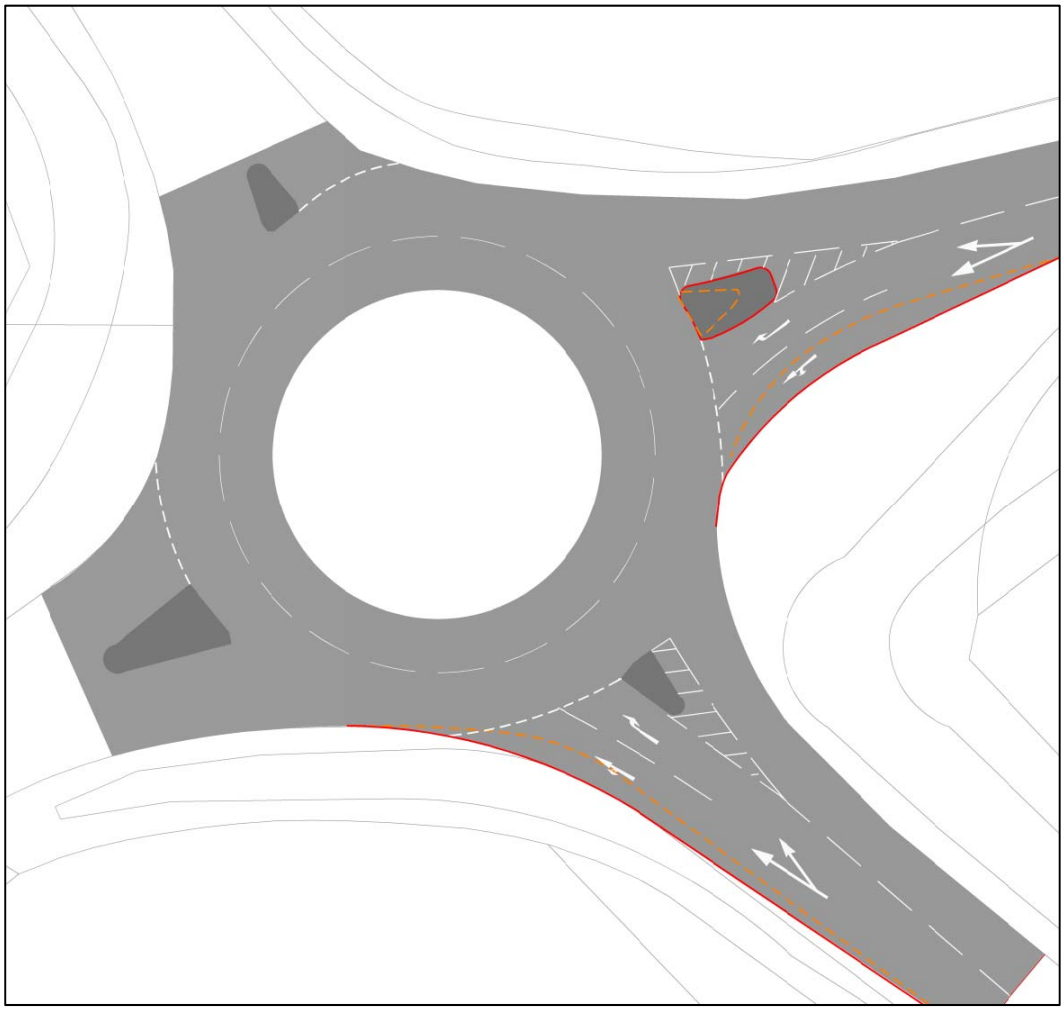
Table 28 –A595 / A5086 Results Without Improvements

Arm	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
A595 (N)	0.83	4.6	0.94	11	0.74	2.7	0.83	4.7
A5086	0.9	7.7	0.98	18	0.72	2.5	0.76	3.1
A595 (S)	0.44	0.8	0.49	0.9	0.36	0.6	0.41	0.7
A594	0.47	0.9	0.5	1	0.79	3.6	0.85	5.2
Maximum RFC	0.9		0.98		0.79		0.85	

Proposed Improvement Scheme

4.4.63. Small scale improvements are proposed for the junction which include widening the entry and exit lanes, and extending the flare lengths, on the two arms forecast as nearing capacity in the future year scenario.

Figure 31: A595 / A5086 Proposed Improvement Design



4.4.64. **Table 29**, below, sets out the results of the junction modelling with the proposed roundabout improvements in place.

Table 29 – A595 / A5086 Results With Improvements

Arm	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
A595 (N)	0.55	1.2	0.62	1.6	0.47	0.9	0.53	1.1
A5086	0.65	0.1	0.7	2.3	0.52	1.1	0.56	1.2
A595 (S)	0.44	2.1	0.49	1	0.36	0.6	0.41	0.7
A594	0.47	1.1	0.5	1	0.79	3.6	0.85	5.3
Maximum RFC	0.65		0.7		0.79		0.85	

4.4.65. The results show that the proposed junction would operate within capacity in all 2029 scenarios, with the improvements implemented. This is particularly evident in the AM peak scenarios, which were where the issues with the existing alignment operation were identified.

4.4.66. The cost to implement the proposed improvement is estimated to be £49,000.

A596 / WOOD STREET (ID 11)

Existing Junction Layout

4.4.67. The existing A596 / Wood Street junction is a signalised crossroads, and is constrained in terms of space by properties to the south and historic monuments to the north.

4.4.68. The results of the detailed modelling, as set out in **Table 30** below, indicate that three of the arms will be nearing capacity in the 2029 future year; these movements are shown in **Figure 32**, also below.

Figure 32: A596 / Wood Street Operation (2029 Local Plan AM Peak Scenario – Existing Alignment)

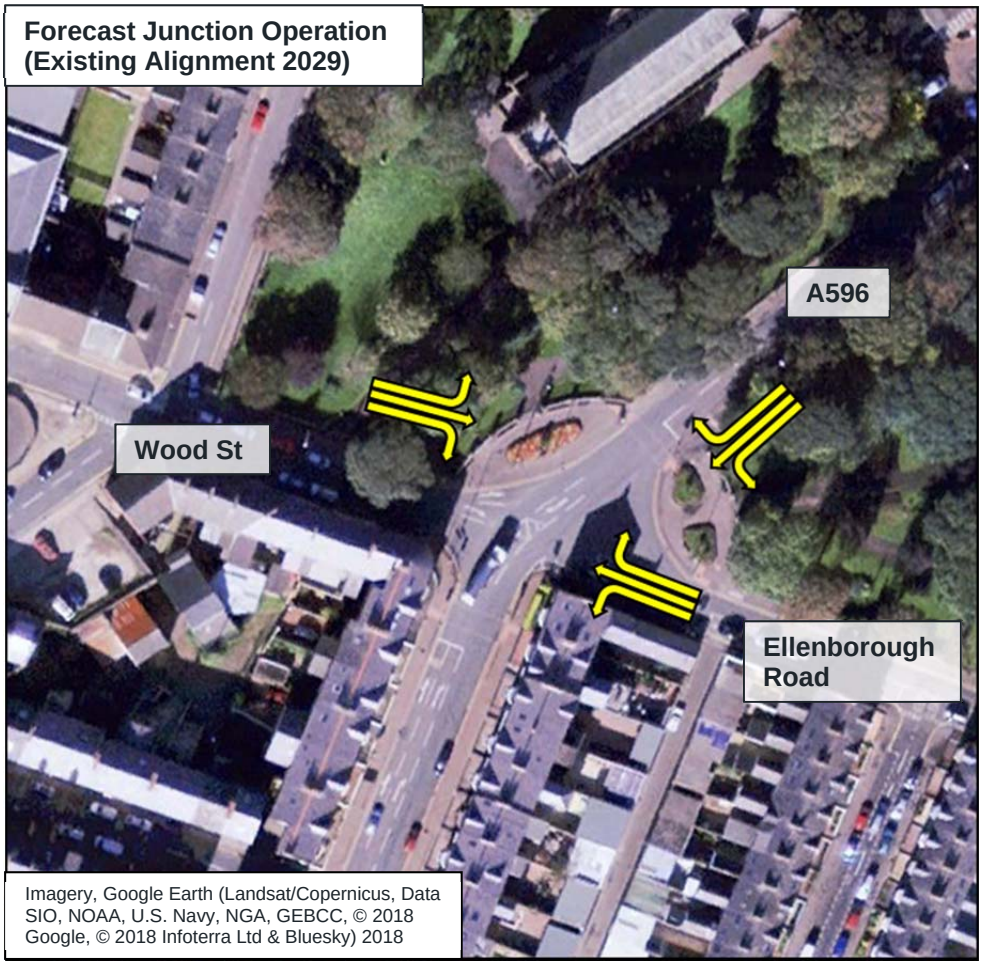


Table 30 – A596 / Wood Street Results Without Improvements

Arm	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
A596 (N)	97.3%	26.7	99.3%	30.8	81.1%	14.4	90.7%	18.7
Ellenborough Rd	99.0%	16.7	100.5%	17.5	80.9%	9.3	89.6%	12.4
A596 (S)	53.1%	7.6	66.1%	10.6	62.9%	9.2	65.6%	9.7
Wood St	94.5%	8.5	96.8%	9.4	72.7%	4.7	84.1%	5.8
PRC	-10.0%		-11.7%		11.0%		-0.8%	

Proposed Improvement Scheme

4.4.69. The junction signal configuration has recently been upgraded to compact-MOVA in order to increase capacity. The improvement scheme proposed here is to increase the cycle time in order to maximise the operational efficiency. As such, **Table 31** shows the results of the junction performing with this optimisation in the compact-MOVA set up. In order to represent the impact of a compact-MOVA system at this junction, the saturation flows have been increased based upon the findings of research conducted by Damian Meehan (2003), which suggests that the installation of MOVA controls at a signalised junction in a large town would expect a 2.90% increase in saturation flows.

Table 31 – A596 / Wood Street Results With Improvements + compact-MOVA system

Arm	Lane	2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
	Turn	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
A596	Ahead/Left /Right	83.4%	23.4	84.5%	24.6	69.4%	16.1	77.4%	19.3
Ellenborough Rd	Ahead/Left /Right	82.8%	13.0	85.7%	13.0	68.1%	10.3	76.4%	12.7
Curzon St	Ahead/Left /Right	45.2%	9.0	55.8%	12.2	53.8%	10.8	56.0%	11.5
Wood St	Ahead/Left /Right	80.9%	7.2	82.8%	7.6	64.6%	5.4	71.9%	5.9
PRC		7.9%		5.0%		29.8%		16.3%	

4.4.70. The results show that the proposed junction would operate within capacity in all 2029 scenarios, with the optimised cycle time and compact-MOVA configuration. However, further improvements could be made to fully maximise the capacity of the junction by implementing full MOVA operation. This would require sensitivity tests to ensure that the improvements are simply not eroded by the attraction of additional vehicles during the peak hour.

A595 / A591 BOTHEL (ID 12)

Existing Junction Layout

4.4.71. The A595 / A591 / Bothel junction is a crossroads junction, with a large island filtering A591 northbound traffic to the west of the crossroads. As a result the junction is configured as a mixed staggered crossroads.

4.4.72. It is forecast that, in the 2029 Local Plan scenario, both of the minor arms will operate over capacity – with the Bothel arm significantly so. These movements are shown in **Figure 33**, below, with the detailed results for each scenario provided in **Table 32**, also below. This is considered likely to be as a result of high traffic flows on the A595 resulting in limited opportunities for vehicles to exit the minor arms. However it should be noted that this junction is within the buffer zone of the West Cumbria Transport Model, and thus the road network in this area is less detailed, which will impact on the accuracy of the forecasted flows.

Figure 33: A595 / A591 Operation (2029 Local Plan AM Peak Scenario – Existing Alignment)

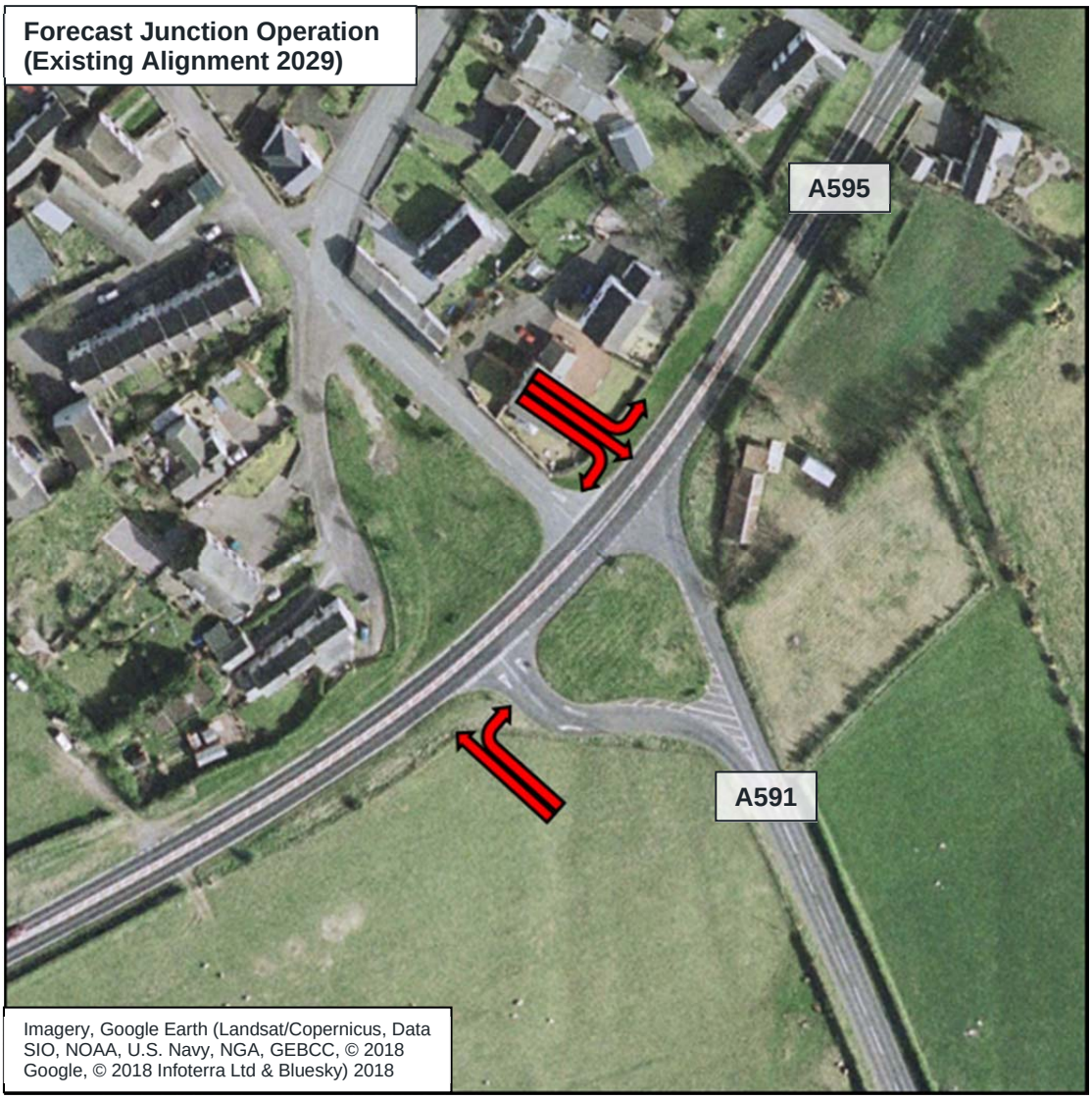


Table 32 – A595 / A591 Results Without Improvements

Arm		2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
		RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
A595 (N)	Right	0.5	1	0.54	1.1	0.26	0.3	0.27	0.4
A591	Left	0	0	0	0	0	0	0	0
	Right	1.01	11.2	1.03	11.8	0.94	7.3	1.06	13.2
A595 (S)	Right	0	0	0	0	0	0	0	0
Bothel	Left/Ahead	4.4	320.1	4.57	309.8	2.32	68.1	2.88	83.4
	Right	4.32	124.3	4.48	118.4	2.28	43.4	2.83	52.8
Maximum RFC		4.4		4.57		2.32		2.88	

Proposed Improvement Scheme

4.4.73. This junction is in a critical location on the wider A595 route. CCC has aspirations to improve journey times and reliability on the A595, and it is recommended that improvements at this location are explored in line with further improvements on the A595 to ensure a comprehensive and coordinated approach to the route. CCC has recently commissioned the A595 Improvement Transport Scheme Development Study and as part of this outline designs will be developed for the A595/A591 Bothel Junction.

A595 / B5304 RED DIAL (ID 13)

Existing Junction Layout

4.4.74. The A595 / B5304 / Red Dial junction is a crossroads junction located south of Wigton. Safety concerns have previously been raised by CCC officers due to poor visibility, traffic speeds on the A595 and the unusual layout. Whilst this is not reflected in the accident record, it should be noted that this does not include near-misses.

4.4.75. **Figure 34**, below, demonstrates that the right turn movement, from the B5304 to the A595, is forecast to operate over-capacity in 2029; the detailed modelling results are set out in **Table 33** and show that this issue is experienced in all of the future scenarios. It should be noted that this junction is within the buffer zone of the West Cumbria Transport Model, and thus the road network in this area is less detailed, which will impact on the accuracy of the forecasted flows

Figure 34: A595 / B5304 Operation (2029 Local Plan AM Peak Scenario – Existing Alignment)

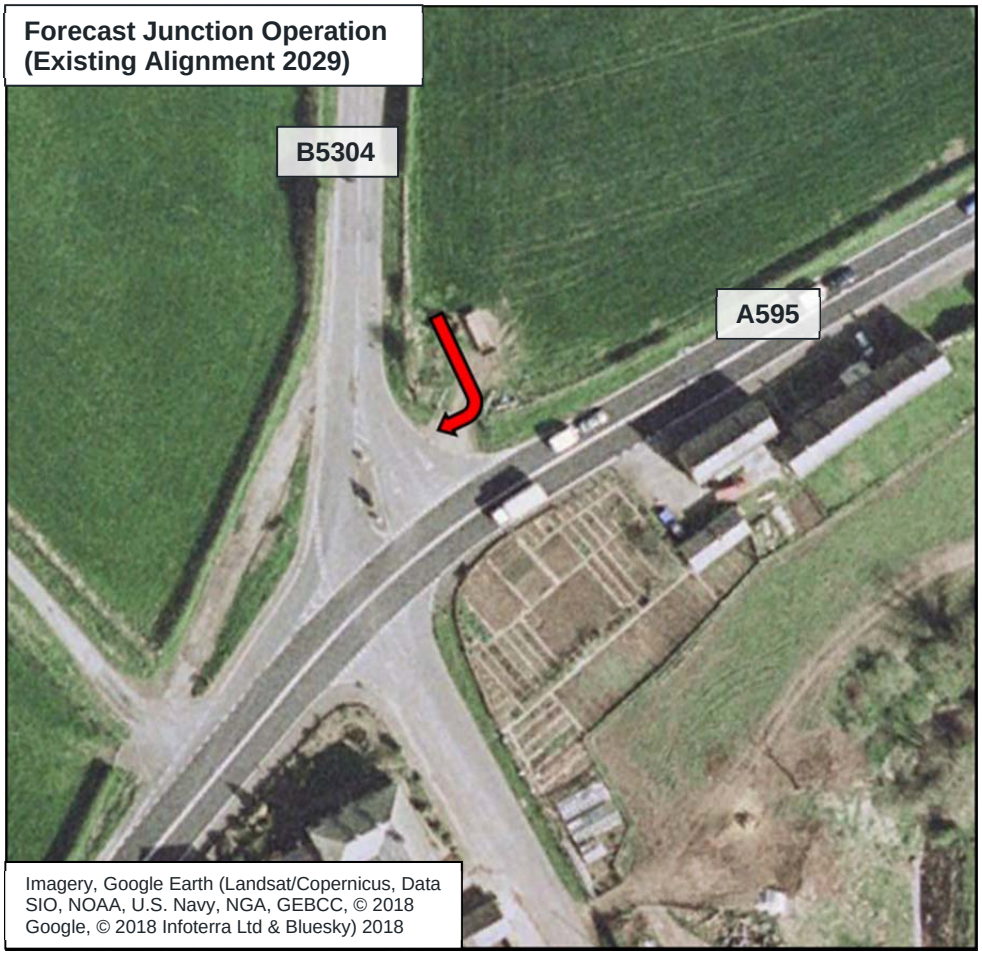


Table 33 – A595 / B5304 Red Dial Results Without Improvements

Arm		2029 Base AM Peak		2029 + LP AM Peak		2029 Base PM Peak		2029 + LP PM Peak	
		RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
A595 (N)	Right	0	0	0	0	0	0	0	0
A595 (S)	Right	0	0	0	0	0	0	0	0
B5304	Left	0	0	0	0	0	0	0	0
	Ahead/Right	1.44	39.2	1.54	48.8	1.16	18.4	1.27	24.8
Maximum RFC		1.44		1.54		1.16		1.27	

4.4.76. In the Table above, every arm except for the B5304 has an RFC of zero which is firstly because the flows recorded from SATURN are zero for those respective movements. This is a result of the model assignment, with traffic between Wigton and the north being routed along alternative paths, such as to the A595 via the B5305, or along the A596. Furthermore, the minor arm to the south has not been modelled because it is not included within the West Cumbria Transport Model, and thus RFCs of zero are recorded for the associated turning movements.

Proposed Improvement Scheme

4.4.77. A new roundabout junction is considered to be the most appropriate solution to addressing the identified capacity issues at this location. However, preliminary work suggests that it may not be possible to accommodate a roundabout design, which conforms to the standards set out in the Design Manual for Roads and Bridges (DMRB), within the existing highway boundary. Further design work is required to consider all options for an improvement scheme at the junction.

A597 CORRIDOR

4.4.78. At the Allerdale Highways and Transport Working Group Meeting, held on 17th November 2017, concerns were raised over the A597 Corridor through Harrington. The following comments were noted:

- High numbers of HGVs using the A597 to access the Port of Workington;
- Parked cars blocking free-flow traffic;
- Narrow widths of the road;
- Safety concerns for Non-Motorised Users; and
- The bridge over National Cycle Route 72, next to Northfield Avenue, was identified as a pinch point on the route.

4.4.79. The junction of Scaw Road with the A597 has been identified as an issue, though no other junctions along this route were forecast to have capacity issues in the future 2029 scenarios.

4.4.80. In light of the above, further analysis has been undertaken for the A597 in order to consider these identified issues; a series of potential solutions, which could be taken forward beyond the scope of this commission, have been identified. This process is set out below.

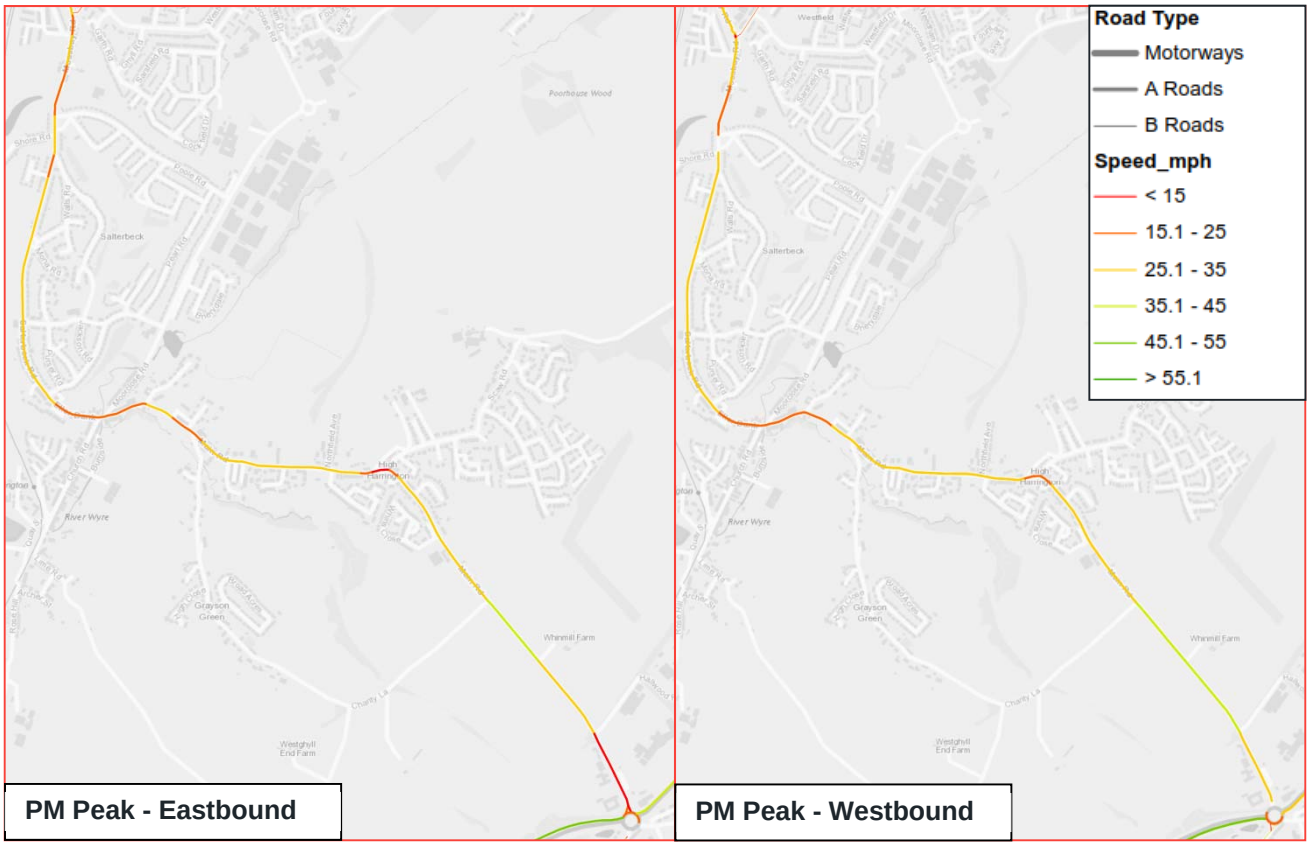
Analysis of Speed Data

4.4.81. Traffic Master is GPS speed data which can illustrate average speeds on a given network. Analysis of Traffic Master data (2015) for the A597, recorded in the morning and evening peaks, suggests that along particular lengths of the route the average speeds drop below 15mph. This analysis is shown, for the AM and PM peaks respectively, in **Figure 35** and **Figure 36**, below.

4.4.82. This appears to be a particular issue between East Avenue and Holden Road, where the staggered crossroads of Moorclose Road and Church Road result in a constraint on capacity and also in safety concerns.

Figure 35: Traffic Master Data (2015 AM Traffic Speeds on the A597 through Harrington)

Figure 36: Traffic Master Data (2015 PM Traffic Speeds on the A597 through Harrington)



Analysis of Corridor Constraints

4.4.83. A review has been undertaken of potential constraints upon the existing corridor along the section with the lowest recorded speeds – between Eller Bank and Scaw Road. This demonstrates that carriageway space on this stretch of the A597 is constrained at a number of locations due to factors including on-street parking, bus stops and historic infrastructure which includes an obsolete railway bridge (**Figure 37**).

4.4.84. It is considered that these constraints are, at least in part, the cause of the relatively low traffic speeds on the corridor, particularly between East Avenue and Holden Road. There are also points at which blocking back of traffic often occurs due to vehicles being unable to pass concurrently; this is exacerbated by the volume of buses and HGVs as the corridor is a main bus route, and as mentioned above, a key link to the Port of Workington.

4.4.85. It was also identified that there is a lack of continuity of road space allocations along the corridor, with short lengths of on-street parking permitted outside residencies in several locations. The majority of the remainder of the route has double-yellow lines restrictions or provision of on-street parking bays; as such, there is an inconsistent approach to on-street parking regulations and restrictions along the corridor, which potentially contribute to the capacity and safety issues raised as part of the consultation.

Figure 37: A597 Corridor Constraints Map

A597 Corridor Recommendations

4.4.86. Three proposals have been identified, which could be considered separately or as a package of improvement schemes in order to address the issues raised. These proposals are:

1. Conversion of Eller Bank staggered junction to a signalised junction, in order to control the flow of traffic and pedestrians.
2. Removal of informal on-street parking between Eller Bank junction and A597 / Scaw Road.
3. Introduction of formal speed reduction measures and speed limits.

4.4.87. Each of these proposals will have an impact on the identified issues and they will thus require further more detailed consideration.

4.5 SUMMARY OF JUNCTION IMPROVEMENT SCHEME COSTS AND TRAFFIC CONTRIBUTION OF LOCAL PLAN SITES

4.5.1. Costs estimates have been provided above for each of the proposed improvement schemes, and these are summarised in **Table 34**, overleaf. Detailed costings are itemised in **Appendix E**.

4.5.2. It is anticipated that developer contributions will be the **primary funding source** for the identified junction improvements required as a result of the additional traffic generated by the Allerdale Local Plan allocated sites.

4.5.3. In order to assess the impact of traffic generated by each of the sites and thus determine potential developer contributions for the proposed junction improvements, the proportion of associated traffic for each site to the total forecasted traffic has been determined for the worst case scenario (2029 + Local Plan) at the eleven junctions. The five Local Plan sites making the most significant contribution, in terms of additional traffic, is set out for each of the eleven junctions in **Table 34**, below. The site references are reflected in **Appendix A**.

Table 34 - Traffic Generated by Local Plan Sites at Key Junctions in Allerdale in the Worst Case Scenario and Proposed Junction Improvements

ID	Junction	Total Flow in Worst Case Peak Hour	Local Plan Traffic Flow	Local Plan Traffic %	Proposed Improvement	Total Cost Estimate	Drawing Number	Top Five Contributing Local Plan Sites
1	Washington St / Ramsay Brow	2,872	391	13.6%	Widening Washington St to provide two lanes in both directions.	£1,237,000	1	WOR/032 WOR/046 WOR/005 WOR/064 WOR/047
2	Washington St / Jane St	3,084	367	11.9%				WOR/032 WOR/046 WOR/005 WOR/064 WOR/047
3	Harrington Rd / A596 High St Roundabout	2,669	325	12.2%	Enlarge roundabout	£216,000	2	WOR/046 WOR/032 WOR/047 WOR/005 WOR/064
4	A596 / Newlands Ln	2,559	379	14.8%	Signalise junction	£251,000	3	WOR/046 WOR/032 WOR/047 WOR/005 WOR/064
5	A596 / Branthwaite Rd	2,324	384	16.5%	New roundabout layout	£964,000	4	WOR/046 WOR/032 WOR/047 WOR/005 MAR/017A
6	A596 / Jubilee Junction	2,161	443	20.5%	Signalise junction	£281,000	5	WOR/046 WOR/032 WOR/047

								WOR/005 MAR/009
7	A597 / Scaw Rd Roundabout	1,820	113	6.2%	Signalise junction	£204,000	6	WOR/073 WOR/056 WOR/046 WOR/084 WOR/032
8	A595 / A597 Roundabout	3,771	371.6	9.9%	Widen entry widths and extend flare lengths on A595 northern arm	£65,000	7	WOR/046 WOR/047 WOR/032 WOR/053 WOR/073
10	A595 / A5086	3,109	157.25	5.1%	Widen entry widths and extend flare lengths on A595 northern arm	£49,000	8	WIG/016 MAR/017A MAR/036 THU/007A COC/019
11	A596 / Wood St	1,705	165.67	9.7%	Increase signal cycle time	n/a	n/a	ASP/006A ASP/014/E ASP/004 MAR/017A WOR/032

5 CONCLUSION

5.1 SUMMARY

5.1.1. WSP was commissioned by Cumbria County Council and Allerdale Borough Council to undertake a transport improvements study for Allerdale.

5.1.2. The study report will form part of Allerdale Borough Council's Local Plan evidence base and it will be used by Allerdale Borough Council to support the Local Plan through the Examination in Public.

5.1.3. This study consists of two key elements:

- Identification of potential sustainable transport improvements, with the target to increase modal share of walking, cycling and public transport trips in Allerdale; and
- Identification of potential highway/junction improvements to improve traffic network capacity

5.1.4. The above key elements are deliverables that are integral to unlocking future growth in Allerdale through the delivery of the specific development sites identified in the Allerdale Local Plan.

5.1.5. A key thrust of the vision underpinning the Local Plan is for Allerdale to develop as a highly accessible, sustainable and healthy borough. Consequently there is a strong desire to identify and pursue sustainable transport improvements both to help accommodate growth through reducing pressures on the highway network securing modal shift and through recognition of the wider benefits sustainable modes of travel can entail for the population.

5.1.6. A range of sustainable transport measures have been included in this report, specifically related to improvements to walking, cycling and public transport infrastructure.

5.1.7. The junctions selected for review and redesign were selected in consultation with Cumbria County Council, based on outputs from the West Cumbria transport model, using criteria relating to junction operational performance.

5.1.8. A total of 13 junctions were selected with particular focus on junctions within Workington and on the A595.

5.1.9. Traffic flow data for base and future years utilised the West Cumbria transport model, created and operated by Cumbria County Council.

5.1.10. Existing performance of the identified junctions was undertaken using industry standard junction modelling software, specifically LinSig and Junctions 9 (PICADY and ARCADY). These models presented information on existing junction capacity and queue lengths on each junction arm.

5.1.11. Where junctions were found to have capacity issues, potential junction improvements were identified with the intention of improving traffic flow on these arms without compromising the operation of the junction as a whole. Suggested improvements range from amending traffic signals and new junction layouts to improve traffic management through to the creation of additional road space to increase capacity.

5.1.12. These potential improvements were then remodelled to assess the capacity improvements.

5.1.13. Highway improvement and sustainable infrastructure schemes have all been listed with supplied estimated costs, based either on existing figures supplied by Cumbria County Council, past WSP experience, or through review of other similar schemes in the UK.

5.2 DELIVERY OF INFRASTRUCTURE

5.2.1. This report identifies the potential measures that will help deliver Local Plan growth in Allerdale by providing extra capacity on the borough's roads, more and better connected cycleways, and measures to improve sustainable transport to enhance people's journey quality, health, and improve travel choices.

5.2.2. There is no overall standard, statutory or prescribed process, or framework for seeking funding for a programme of infrastructure improvements such as that identified in this report. This is because in general, public and private sector funding tends to be attached to or associated with individual schemes which consider the costs and benefits of each scheme in isolation. Therefore a bespoke composite solution, promoted by one party, and delivered by many parties, for the specific programme of infrastructure improvements is the best compromise in the absence of any standard model.

5.2.3. Therefore, this study is limited to highlighting the need for highway improvement schemes over the plan period and to identifying the outline design and associated costs of these improvements. The report does not present a delivery model of how these schemes may be funded and constructed. However, it is likely that the following sources of funding would form part of a delivery model for any one of the schemes.

- Private Developer Funding (**primary funding source**)
- Cumbria Local Enterprise Partnership Funding
- Local Growth Fund
- European Regional Development Fund
- Department for Transport

5.3 CONCLUSIONS

5.3.1. The following conclusions have been drawn from the study as summarised above:

- There are a number of opportunities to deliver improved sustainable transport infrastructure in Allerdale, for pedestrians, cyclists and public transport users, especially in the towns of Workington and Maryport.
- A number of junctions in Allerdale are operating at and above capacity, and without interventions traffic flows would be expected to worsen as Local Plan development is completed.
- There are a number of opportunities to enhance junction capacity at a number of pinch point junctions, through the redesign of junctions.
- Detailed junction modelling supports that proposed highway improvements are capable of enhancing capacity on the Allerdale road network and therefore enabling future development growth.

Appendix A

LOCAL PLAN SITE ALLOCATIONS

Appendix A.1

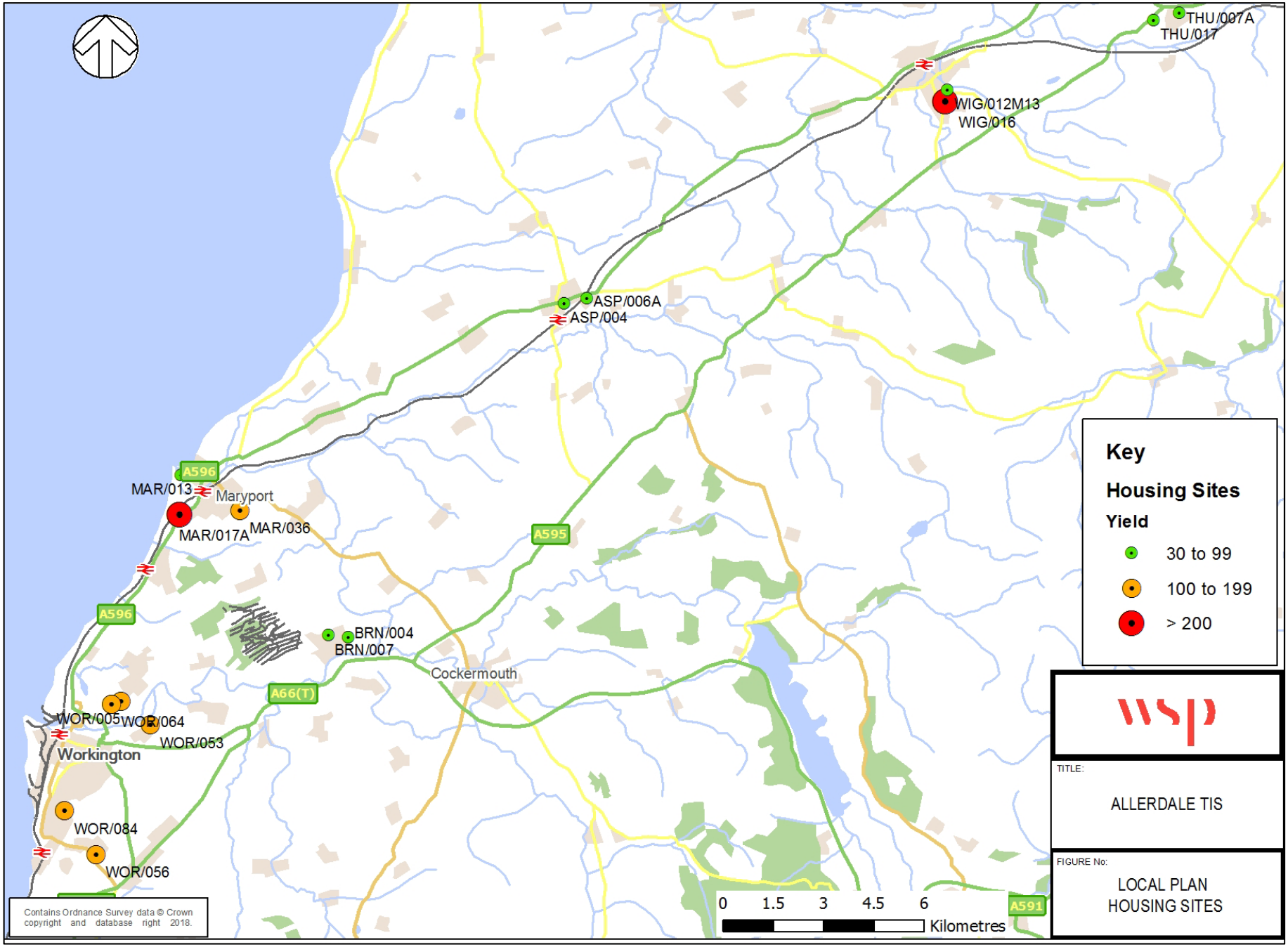
LOCAL PLAN SITE ALLOCATIONS INFORMATION

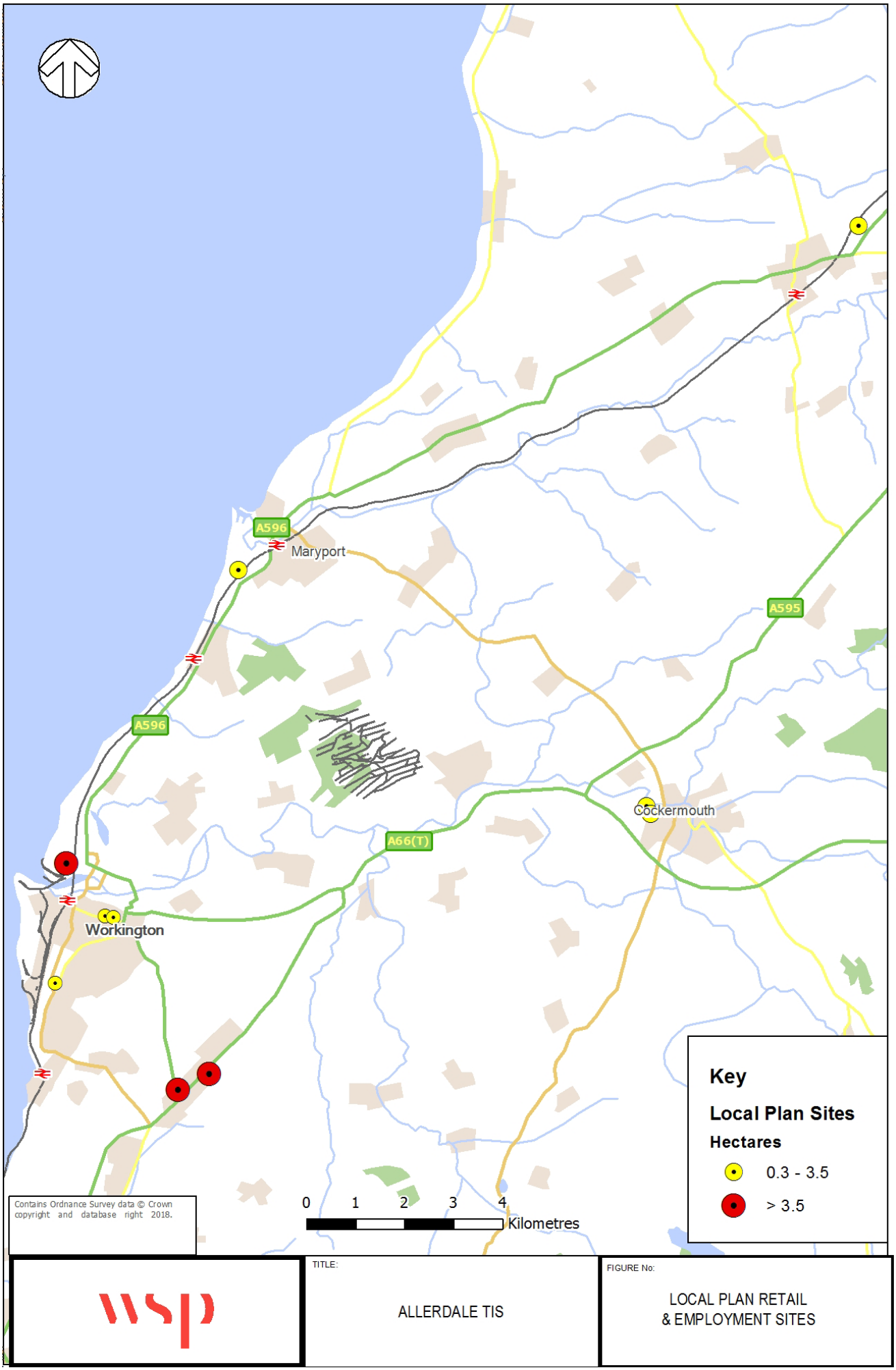
Allerdale ref	Category	Site Name	Street or Village	Town	Yield	Site Area (Hectares)
1/WOR/053/R	Residential	Stainburn House Farm & adjoining land	Stainburn	Workington	130	2.42
1/WOR/056/R	Residential	Land at Main Road	High Harrington	Workington	115	4.28
3/WOR/084/R	Residential	Southfield School site (excludes pitch)	Moorclose Road	Workington	100	2.62
4/WOR/110/R	Residential	Thwaite Bank	Seaton	Workington	25	1.5
1/WOR/005/R	Residential	Land adj Coronation Ave	Seaton	Workington	150	7.3
1/WOR/064/R	Residential	Land opposite Yearl Rise	Seaton	Workington	145	7.1
1/WIG/016/R	Residential	Land south of Lowmoor Road	Lowmoor Road	Wigton	200	9
1/WIG/012M13/M	Residential	Land adjoining auction mart and school	-	Wigton	50	2.66
4/WIG/034/R	Residential	Land off Syke Road	Syke Road	Wigton	20	1
1/MAR/013/R	Residential	Land at Maryport Marina	Marine Road	Maryport	30	0.7
3/MAR/036/R	Residential	land rear of Ellenfoot drive	Broughton Moor Road	Maryport	170	9.3
1/MAR/017A/R	Residential	Land adjacent Whitecroft	A596	Maryport	300	12.8
1/ASP/004/R	Residential	Land off Station Road (a)	Station Road	Aspatria	60	2.1
1/ASP/006A/R	Residential	Land off Noble Croft	Harriston Road	Aspatria	90	4.2
4/ASP/014/R	Residential	Land off Station Road (b)	Station Road	Aspatria	20	0.8
1/BRN/004/R	Residential	Land north of Broughton Park	Broughton Park	Broughton	64	3
1/BRN/007/R	Residential	Land at Rose Farm	-	Broughton	55	2.8
1/THU/007A/R	Residential	Land north of the Steadings	-	Thursby	80	4.3
4/THU/017/R	Residential	Land west of Story's site	-	Thursby	55	3.2
1/PRO/001/A/R	Residential	Land to the rear of Bank House	-	Prospect	25	1.1
4/FLI/013/R	Residential	land at Flimby Brow	-	Flimby	5	0.5
3/FLI/008/R	Residential	Land at Flimby Brow	-	Flimby	15	1.4
1/FLI/002A/R	Residential	Land to rear of Marona, West Lane	-	Flimby	9	0.7
3/WOR/086/S	Retail	Land at Central Road Car Park	Central Way	Workington	-	0.9
4/WOR/101/R	Retail	The Royal British Legion Club	St. John's Court	Workington	-	0.2
1/WOR/073A/M#R	Retail	Former Moorclose sports centre	Moor Close Road	Workington	-	1.55
1/WOR/047EM049M#E/E	Employment	Land at Lillyhall North	Branthwaite Road	Workington	-	19.5

1/WOR/046EM048M#E/E	Employment	Land at Lillyhall West	A596	Workington	-	20.7
1/WOR/032M034A/E	Employment	Land at Port of Workington	A596	Workington	-	23
1/MAR/009A/E	Employment	Land at Glasson Industrial Est	Glasson Industrial Estate Road	Maryport	-	3.5
3/COC/019/E	Employment	Land at Low Road	Low Road	Cockermouth	-	1
3/COC/025/E	Employment	Land at Laithwaite Park	Low Road Close	Cockermouth	-	0.3
3/ASP/014/E	Employment	Land at Aspatria Business Park	Park Road	Aspatria	-	2

Appendix A.2

MAP OF LOCAL PLAN SITE ALLOCATIONS


THU/007A
THU/017
WIG/012M13
WIG/016
ASP/006A
ASP/004
A596
MAR/013
Maryport
MAR/017A
MAR/036
A595
A596
BRN/004
BRN/007
Cockermouth
A66(T)
WOR/005
WOR/064
WOR/053
Workington
WOR/084
WOR/056
A591
Key
Housing Sites
Yield
30 to 99
100 to 199
> 200
0 1.5 3 4.5 6
Kilometres
Contains Ordnance Survey data © Crown copyright and database right 2018.
wsp
TITLE:
ALLERDALE TIS
FIGURE No:
LOCAL PLAN
HOUSING SITES



wsp

TITLE:

ALLERDALE TIS

FIGURE No:

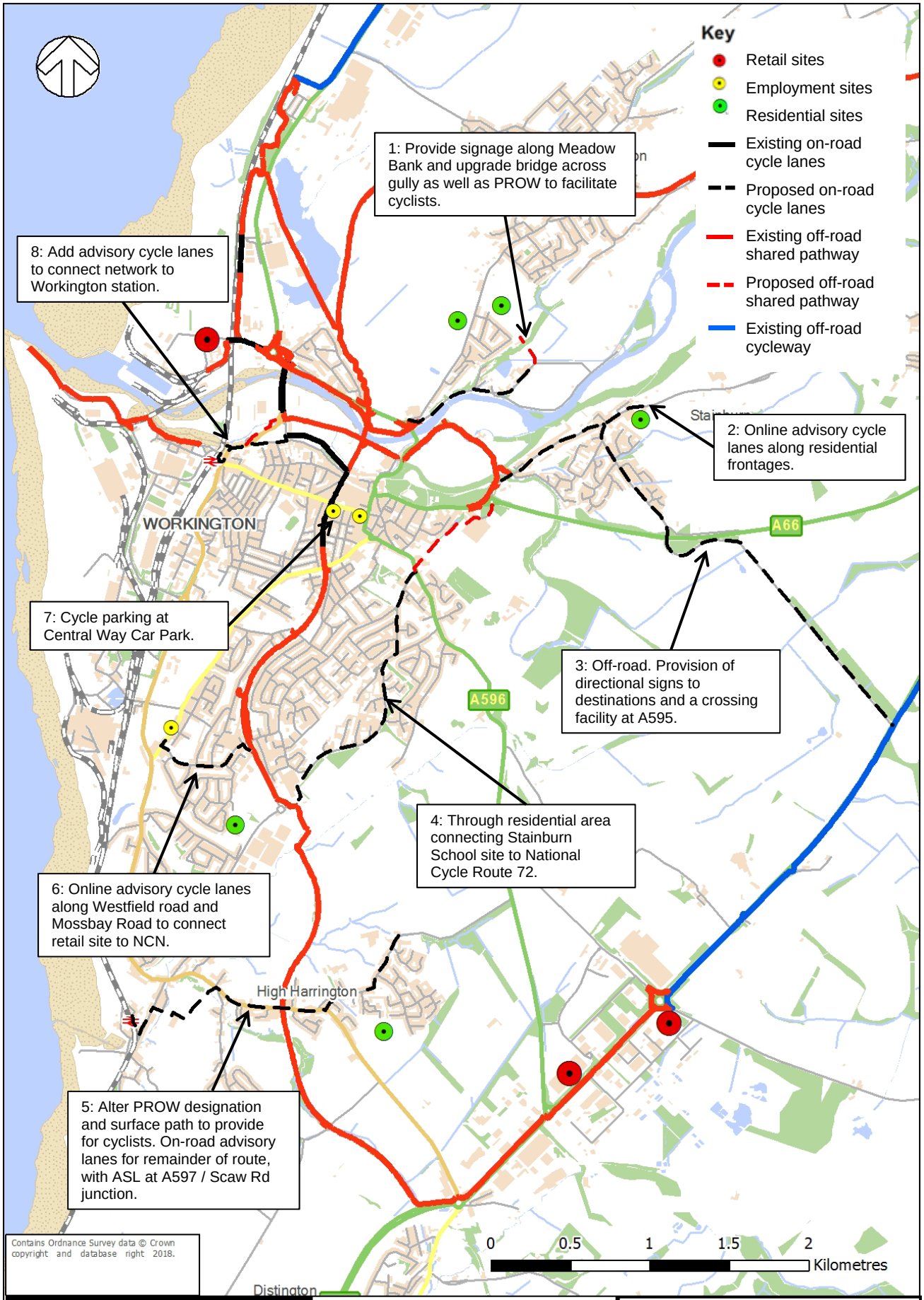
LOCAL PLAN RETAIL & EMPLOYMENT SITES

Appendix B

PROPOSED CYCLE NETWORK

Appendix B.1

SCHEMES IN WORKINGTON



wsp

TITLE:

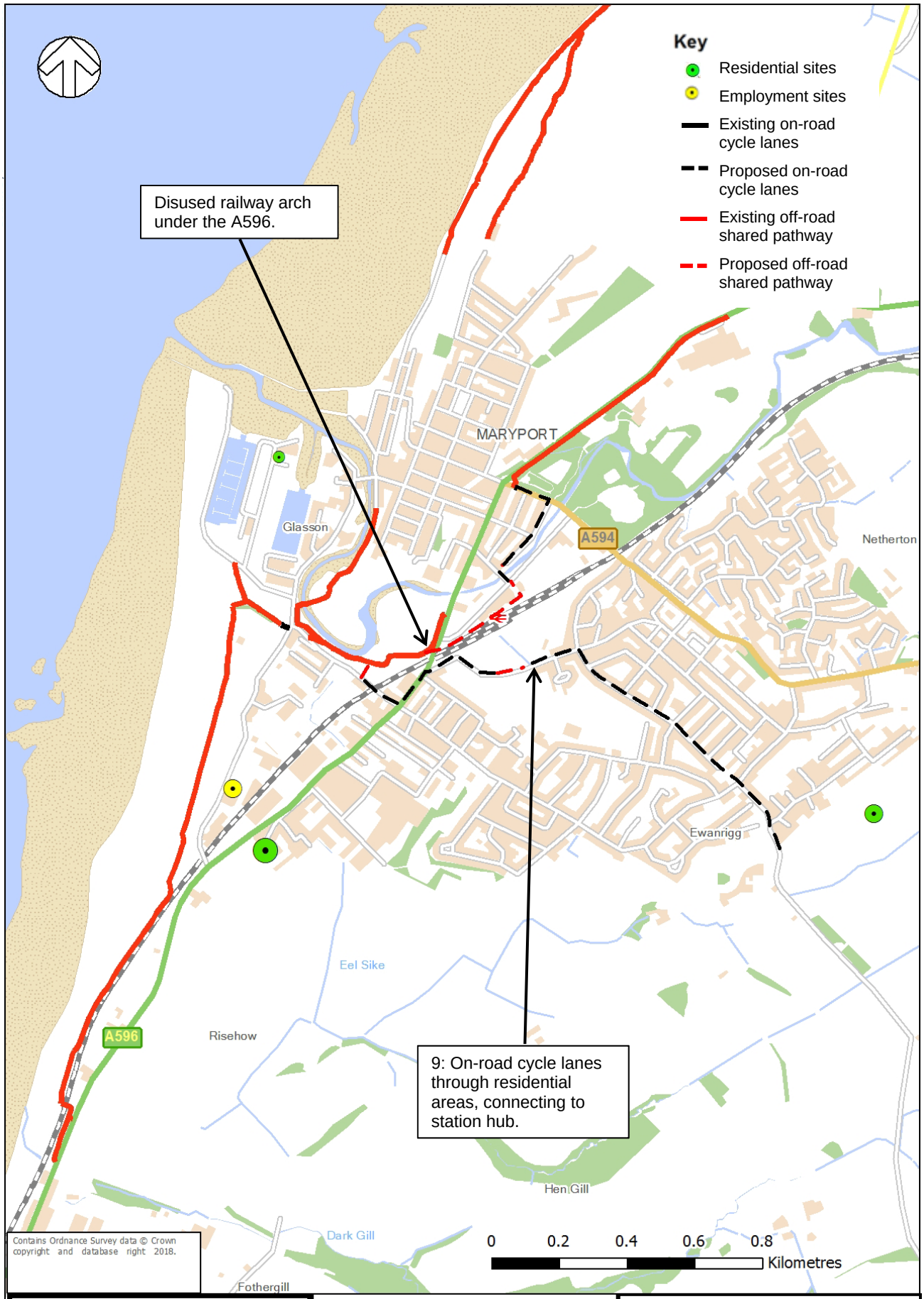
ALLERDALE TIS

FIGURE No:

PROPOSED CYCLE SCHEMES IN WORKINGTON

Appendix B.2

SCHEMES IN MARYPORT



wsp

TITLE:

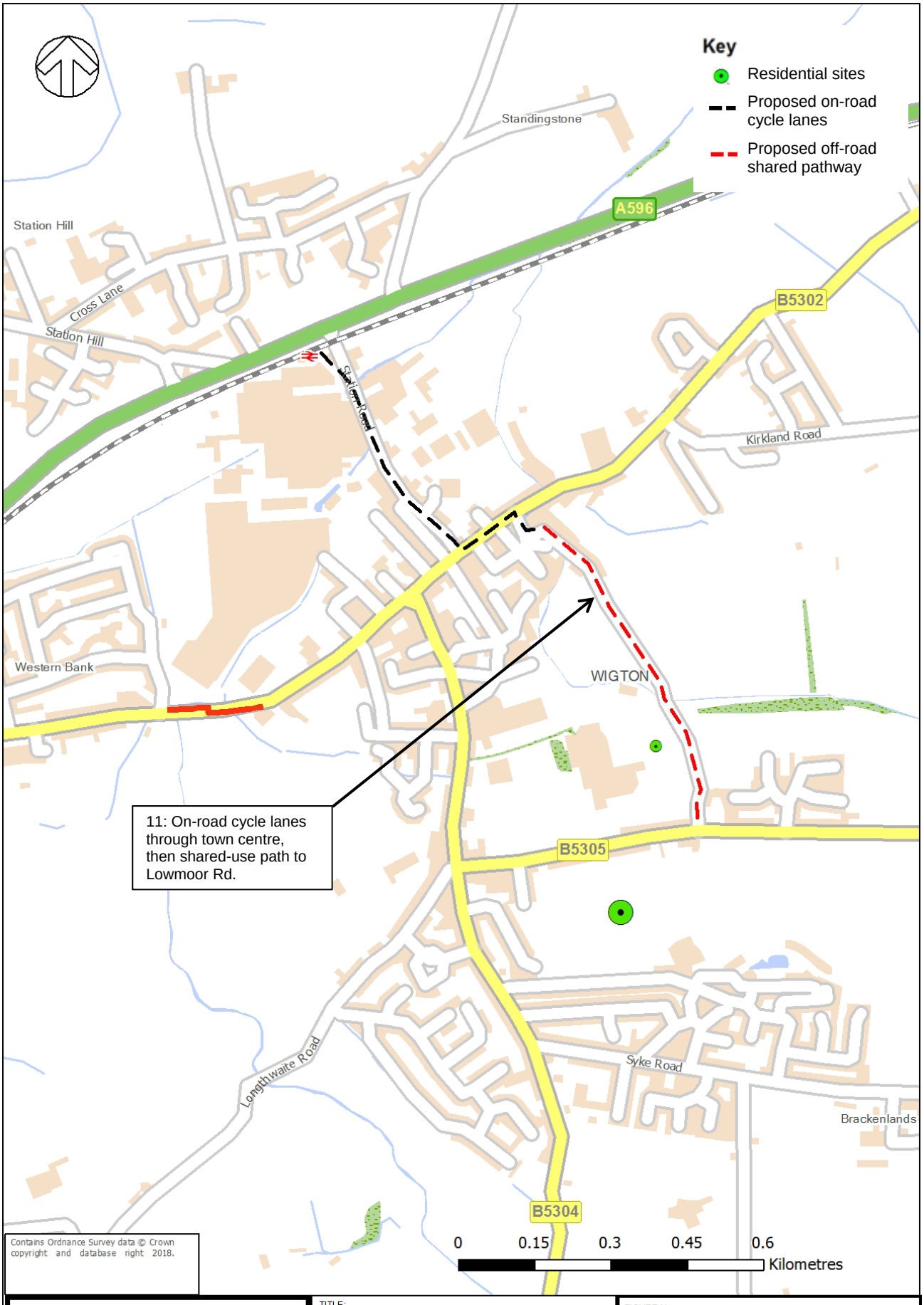
ALLERDALE TIS

FIGURE No:

PROPOSED CYCLE SCHEMES IN MARYPORT

Appendix B.3

SCHEMES IN WIGTON



wsp

TITLE:

ALLERDALE TIS

FIGURE No:

PROPOSED CYCLE SCHEMES IN WIGTON

Appendix B.4

SCHEMES IN COCKERMOUTH

wsp

TITLE:

ALLERDALE TIS

FIGURE No:

PROPOSED CYCLE SCHEMES IN COCKERMOUTH

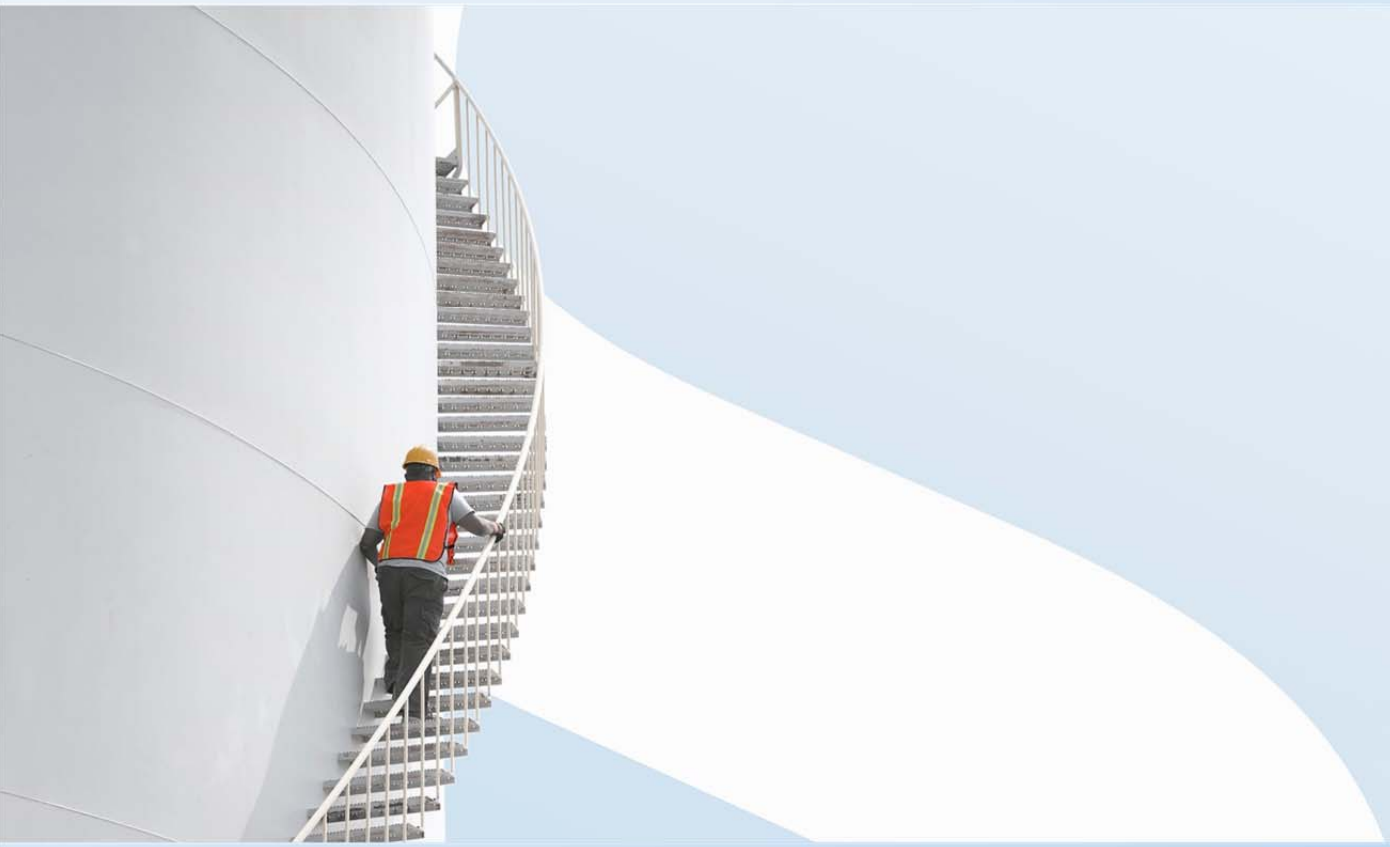
Appendix C

JUNCTIONS SIFTING TECHNICAL NOTE

Cumbria County Council

ALLERDALE TRANSPORT IMPROVEMENT STUDY

Identification of Locations for Interventions



JUNCTIONS
FEBRUARY 2018

CONFIDENTIAL

Cumbria County **Council**

ALLERDALE TRANSPORT IMPROVEMENT STUDY

Identification of Locations for Interventions

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 70039832
OUR REF. NO. JUNCTIONS

DATE: FEBRUARY 2018

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3	Revision 4
Remarks					
Date	24/11/17	07/12/17	18/12/17	19/01/18	01/02/18
Prepared by	Michael Dodds	Michael Dodds	Michael Dodds	Michael Dodds	Michael Dodds
Signature					
Checked by	Claire Whitfield	Vinny Holden	Vinny Holden	Vinny Holden	Vinny Holden
Signature					
Authorised by	Vinny Holden	Claire Whitfield	Claire Whitfield	Claire Whitfield	Claire Whitfield
Signature					
Project number	70039832	70039832	70039832	70039832	70039832
Report number	01	01	01	01	01
File reference					

CONTENTS

TABLES

1 INTRODUCTION

1.1.1. WSP has been commissioned by Cumbria County Council (CCC) to undertake the 'Allerdale Transport Improvement Study', which aims to identify transport schemes that will enable and support the successful delivery of growth, as set out in Allerdale Borough Council's Local Plan.

1.1.2. To inform the identification and development of potential highway improvements, a review and sifting exercise is being undertaken considering existing junctions on Allerdale's road network. This Technical Note sets out the methodology for this appraisal, and details the criteria used to sift the junctions and identify those to be taken forward for further consideration.

2 ASSESSMENT METHODOLOGY

2.1 MODELLING REPORT (JANUARY 2018 UPDATE)

2.1.1. The 'Allerdale Local Plan Transport Modelling Report' details the assessment of the cumulative transport impact of Local Plan proposals, as of January 2018. This was an update to the January 2017 modelling, incorporating the agreed Local Plan site allocations that were confirmed in December 2017. Revised TEMPRO forecast growth factors were also applied, reflecting the changes made in late 2017.

MODELLING ASSUMPTIONS

2.1.2. Two of the future year demand scenarios considered as part of the modelling work undertaken in January 2018 are used here. They are as follows:

- Scenario 1 - 2029 Base: Includes committed developments and background traffic growth.
- Scenario 2 - 2029 Local Plan: As Scenario 1 plus Local Plan development proposals.

2.1.3. Scenario 1, 2029 Base, is the reference case scenario. It includes developments which have planning permission and live applications with the potential to gain permission soon; developments that are considered likely to gain planning permission and be constructed by 2029 have been included where information is available. This is not meant to be prejudicial to the planning process and is based on guidance on uncertainty as defined by Table A2 in TAG Unit M4 forecasting and uncertainty.

2.1.4. Scenario 2, 2029 Local Plan, is the Local Plan scenario. As well as the development in Scenario 1, it includes all Local Plan proposals for housing, employment and retail.

FORECAST TRAFFIC DEMAND

2.1.5. The forecast traffic demand including the development sites, for both the morning and evening peak, is shown in Table 1, below.

Table 1 – Forecast Traffic Demand with Trips Generated by Development Sites

Time period	2015 Base	2029 Base	2029 Local Plan
Morning Peak (08:00-09:00)	36,201	43,087	45,325
Evening Peak (16:00-17:00)	33,061	39,722	41,861

RESULTS FROM THE STUDY

2.1.6. The model outputs forecast that delivery of the Allerdale Local Plan proposals would lead to a general increase in congestion across the district, when compared to the base scenario, based upon the difference in the maximum Ratio of Flow to Capacity (RFC) of junctions. Average speeds are also forecast to decrease across the network, in line with this increase in congestion.

2.1.7. The majority of both Committed development and Local Plan development is located in Workington and, as such, the majority of traffic impact on the highway network is experienced within Workington. Key junctions, forecast to suffer from increased congestion, were identified in the Modelling Report.

2.1.8. The main impact of the Local Plan allocations in Maryport is observed on junctions on the A596, in particular the A596/A594 junction in the town centre.

2.1.9. Due to the extent of committed residential development in Cockermouth, there are no proposed Local Plan residential sites, and only two small scale employment sites. The Local Plan is therefore not forecast to have a significant impact upon the local highway network.

2.1.10. Local Plan allocations in Wigton are forecast to result in detrimental impact at junctions on the A595. No locations have been identified as suffering from congestion in Aspatria, however, network model coverage in these areas is more limited, and the full traffic impacts may not be captured.

2.1.11. Whilst the model forecasts have been used to identify junctions in Allerdale that are likely to experience increased queuing and delay as a result of traffic associated with Local Plan proposals, it should be noted that

this list is not exhaustive, particularly in some of the smaller settlements which are not covered in detail in the model.

2.1.12. The Modelling Report identified the next step to be using the results of the assessment to help identify locations on the transport network where improvements may be required to mitigate the transport impact of the Local Plan.

2.1.13. The modelling study also suggests that the results could be used to identify locations on the transport network where improvements may be required to mitigate the transport impact of the Local Plan. It does, however, note that the outputs should be assessed in conjunction with other known pinch-points on the transport network when identifying where improvements would be required.

2.1.14. Finally, the study concluded that mitigation to support delivery of the Local Plan should include measures to increase the attractiveness and subsequent mode share of walking, cycling and public transport, as well as delivering highway improvements where appropriate.

DETAILED ANALYSIS OF THE RESULTS OF THE JANUARY 2018 STUDY

2.1.15. The outputs from the Transport Modelling Study have been interrogated by WSP to further understand the impacts of the Local Plan development on the transport network in Allerdale. Specifically, the SATURN model outputs have been reviewed, and an assessment undertaken, for each junction identified as having a capacity issue in any of the existing modelled scenarios.

2.1.16. The report detailed an initial 46 junctions which were identified as having a capacity issue in the AM or PM peak for either of the Scenarios tested. These 46 junctions were those that displayed an RFC greater than 0.85 in the SATURN model; they are listed in Table 2, below.

Table 2 – Junctions Identified with Capacity Issues in the 2018 Modelling Study

Junction					
1	Washington St / Ramsay Brow	17	A596 / Branthwaite Rd	33	A596 / Lowca Ln
2	Washington St / Oxford St	18	A596 / Scaw Rd	34	A596 / Netherhall School
3	Oxford St / Vulcan's Ln	19	A596 / Jubilee Junction	35	A596 / Wood st
4	A597 Gyratory / Station Rd	20	Stainburn Rd / Park End Rd	36	Seaton Rd / Church Rd W
5	A597 / William St / Black Path Roundabout	21	Stainburn Rd / Park End Rd	37	Low Rd / Gote Rd
6	A596 / Northside Rd Roundabout	22	A595 / A66 Roundabout	38	Crown St / Sullart St
7	A597 / Hillcrest	23	A596 / Ladies Walk	39	A5086 / Papcastle Rd
8	A597 / B5296 Junction	24	A596 Northside / Calva Brow	40	A5086 / A595 Roundabout
9	B5296 / Harrington Rd Signalised Junction	25	A595 / Blackwood Rd	41	A595 / Low Rd / A66 Roundabout
10	Gray St / Harrington Rd Junction	26	Blackwood Rd / Joseph Noble Rd	42	A66 / Brigham Rd
11	Harrington Rd / A596 High St Roundabout	27	A595 / A596 Roundabout	43	A66 / Great Broughton
12	A596 High St / King St	28	A595 / A597 Roundabout	44	A594 / B5301
13	A596 High St / Park End Rd	29	Eller Bank / Church Rd	45	B5304 / Red Dial Cottages
14	A596 High St	30	A597 / Scaw Rd Roundabout	46	Syke Rd / A595 Roman Rd
15	A596 / Newlands Ln	31	Main Rd / Moor Rd		
16	A596 High St / Ashfield Dr	32	Seaton Rd / Lowca Ln		

2.2 ADDITIONAL JUNCTIONS

2.2.1. The Modelling Report, and its outcomes, were discussed at the inception meeting for the Allerdale Transport Improvements Study, held on 31st October 2017. At this time a further four junctions, which were not included within the SATURN model used for the Allerdale Local Plan Transport Modelling, were identified for consideration as part of this study. As such, there is no calculated RFC for these junctions, however all four will be taken forward for assessment.

2.2.2. The four junctions are located in Wigton and Aspatria and are listed in Table 3.

Table 3 – Junctions Identified at the Project Inception Meeting

Junction			
1	A596 / B5302 (east)	3	A596 / B5302 (west)
2	A596 / Station Road	4	A596 / B5299

2.3 JUNCTION SIFTING

RFC ANALYSIS

2.3.1. The 46 junctions identified as part of the earlier modelling work have been filtered based upon the RFC output from SATURN, with a higher RFC threshold of 0.95 used for the purpose of this Strategic Transport Study. This threshold was identified to maintain consistency with the RFC analysis adopted in the Carlisle and Barrow Transport Improvement Studies and has been agreed with CCC.

2.3.2. From the RFC analysis, 33 junctions with an RFC equal to or greater than 0.95 were taken forward for further assessment.

SATURN CODING

2.3.3. The 33 junctions have been analysed in detail in an attempt to understand why the RFC was greater than 0.95 in any of the model scenarios, with the worst performing model scenario reviewed for each junction in order to identify the issues.

2.3.4. While undertaking this review a number of discrepancies within the SATURN model network coding were identified, when comparing the model to the existing layout on the ground. For example it was noted that there number of roundabouts where representative saturation flows for the presence of flares or turning lanes had not been considered. These junctions were therefore amended to reflect the existing layout at the sites. For the majority of these locations the resolution in the SATURN coding resulted in improved performance of the junction; they are therefore considered not to require any further design assessment, as it can be demonstrated that there is sufficient capacity to allow for future Local Plan development associated traffic.

2.3.5. The review also highlighted that capacity issues at certain junctions were the result of traffic blocking back from a neighbouring junction; as such, it is considered that improvements to the identified junctions would not resolve the issue and, instead, options to reduce congestion at the neighbouring junction needs to be prioritised.

2.3.6. Table 4, overleaf, provides a summary of the junctions sifted out of further assessment following the review of SATURN coding and blocking back from adjacent junctions.

Table 4 – Junctions sifted out of further assessment following review of SATURN coding and consideration of blocking back from adjacent junctions

Junction	RFC	Review of SATURN coding
A597 / Hillcrest	1.22	The issue is a result of blocking back from the A596 / Northside Rd roundabout, not the junction itself. In addition, the model does not include the right turn ghost island on the A596.
A596 High St / Park End Rd	1.09	The issue is a result of blocking back from the Pelican crossing on the A596 High Street (note 1635), not the junction itself.
Main Rd / Moor Rd	1.12	Saturation flows on Middlegate approach are very low and an increase resolves the issue.
A596 / Netherhall School	1.03	More routes do exist for access to the school than is currently represented in the SATURN model (4 instead of 1). It is likely that the model is over-representing the demand on one arm when numerous other accesses exist.

2.3.7. The review also identified a number of junctions on the Strategic Road Network where issues could be resolved through the correction of coding in SATURN; however, we will liaise with Highways England to compare our assessment with the enhanced junction performance and will assess further if required. These junctions are presented in Table 5, below:

Table 5 – Junctions to be considered further with Highways England.

Junction	RFC	Detail
A595 / A66 Roundabout	1.1	Highways England are progressing capacity improvements which are likely to address the identified issues. We will liaise with Highways England to ensure this is the case.
A595 / Low Rd / A66 Roundabout	1.09	Highways England are progressing capacity improvements which are likely to address the identified issues. We will liaise with Highways England to ensure this is the case. In addition, the RFCs for this junction do not increase from the 2029 Base to the 2029 Local Plan scenario, indicating that capacity issues are not exacerbated by Local Plan developments. This is likely because it is located in proximity to Cockermouth, where there are no developments planned.

2.3.8. Following the review of SATURN coding, 6 junctions have been discounted and so 27 junctions were taken forward for further assessment.

REALISTIC DEMAND ASSESSMENT

2.3.9. The base traffic flows used in the SATURN model were compared against traffic counts recorded in Transport Assessments for local developments. Whilst the traffic surveys for these assessments were not conducted in the base year for the SATURN model (2015), they were either 2014 or 2016, and are thus deemed to be appropriate for comparison.

2.3.10. The turning flows within the SATURN model were found to be different than the observed counts that were reported in the Transport Assessments at six junctions; these junctions are as follows:

- Washington St / Ramsay Brow
- Washington St / Jane St
- Harrington Road / A596 High St Roundabout
- A596 High St / Ashfield Dr
- A595 / A596 Roundabout
- Seaton Road / Lowca Lane

2.3.11. The SATURN flows at these junctions are likely to be over-estimated because the model does not include all minor routes and therefore trips are distributed on fewer routes, resulting in aggregation of the flows. The

model may also be over-representing trips from certain zones, in particular those in rural areas which are large, because not all of the routes are included.

2.3.12. These six junctions have been included for further assessment, and a sensitivity test will be undertaken to determine if they are likely to be over-capacity with the lower demand set out in the associated Transport Assessments. As such, all 27 of the junctions sifted in the previous stage are considered further.

REVIEW OF JUNCTION CONTEXT

2.3.13. The 27 remaining junctions, and the 4 additional junctions identified at the project inception meeting (Section 2.2), have then been assessed to determine whether it would be feasible and/or appropriate to develop new design options. The following factors were considered:

- Geometry of the junction and surrounding land use;
- Location of the junction and context of residential streets;
- Whether the problem is a result of queuing back from another junction;
- Location of development site allocations in the Local Plan; and
- Whether it is desirable to improve capacity and attract additional trips through the location.

2.3.14. Constraints to developing possible design options were identified at three junctions and therefore they have not been included for further assessment. Table 6, provides information on these junctions:

Table 6 – Junctions where a scheme is not deliverable within the constraints identified.

Junction	RFC	Reason for exclusion from further assessment
Stainburn Rd / Park End Rd	1.17	Undesirable route for traffic. No improvement proposed as route should be discouraged.
Crown St / Sullart St	1.03	There is limited Local Plan development located in Cockermouth and through consultation with stakeholders it is understood that significant capacity improvements to junctions within the town's historic core are not desirable. They are therefore not included within this study.
A5086 / Papcastle Rd	1.00	

2.3.15. Of the total 31 junctions, 3 were discounted following assessment of their context, leaving 28 junctions.

OFFICER WORKSHOP

2.3.16. The sifted junctions were presented to officers from Cumbria County Council and Allerdale Borough Council at a workshop on 4th January 2018. Each junction was discussed in turn, considering the issues identified through the modelling and inception discussions; to gauge opinion on proposed infrastructure changes, and to seek professional and local views. Through discussion with the officers, it was agreed that a number of junctions would not be considered further and these are detailed in Table 7.

Table 7 – Junctions where a scheme was not considered desirable or necessary.

Junction	RFC	Reason for exclusion from further assessment
A596 / Scaw Rd	1.06	Undesirable route for traffic. No improvement proposed as use of the route through High Harrington should be discouraged.
A596 Northside / Calva Brow	1.29	No further improvements to be taken forward given the existing physical and land ownership constraints.
A596 / B5032 (North)	<0.85	The safety issues raised were deemed to be minor and all reasonable measures to improve safety have already been implemented.
A596 / B5032 (North)	<0.85	
A596 / Station Road	<0.85	
A596 / B5296	<0.85	

2.3.17. The minutes from the meeting detail the comments received for each junction and have been provided separately.

2.3.18. These 6 junctions were therefore excluded at this stage of the sifting process and therefore 22 junctions were carried forward for detailed modelling.

2.4 DETAILED JUNCTION MODELLING

2.4.1. In order to further sift the remaining 22 junctions, more detailed junction assessment has been undertaken using the following software:

- Junctions 9 ARCADY (Assessment of Roundabout Capacity and Delay) module: for roundabouts;
- Junctions 9 PICADY (Priority Intersection Capacity and Delay) module: for priority T-junctions and priority crossroads; and
- LINSIG 3 for signalised junctions and gyratories.

2.4.2. Junctions 9 uses the RFC to assess the operation of a junction, whereas LINSIG 3 uses the Degree of Saturation (DoS), which is the ratio of demand flow to the maximum possible flow.

2.4.3. There are existing models for 12 of the junctions; these models will be updated, and new junctions models will be created for the remaining 10 junctions.

2.4.4. The traffic flows used within the junction models were from the specific demand scenario testing which produced the maximum RFC or DoS for each junction respectively. For the majority of the junctions to be assessed, this will be the 2029 Local Plan evening peak. However, for the junctions that have higher traffic flows in the SATURN model than recorded in the Transport Assessments (See Section 2.3.14), sensitivity testing was undertaken to provide a range of possible RFCs / DoSs. This entailed extracting the traffic growth from SATURN between the base year (2015) and the future forecast year (2029) with Local Plan development, and adding this to the observed traffic flows recorded from the Transport Assessments. This will allow a more realistic assessment of junction capacity.

2.4.5. Using these more detailed models, the RFC or DoS for each of the 22 junctions was determined and these are presented as a percentage in Table 8.

Table 8 – Junctions taken forward for detailed modelling analysis.

Junction	RFC / DoS	Model	Modelling Scenario	Progress or Discard
Washington St / Ramsay Brow	0.98	Linsig 3	PM 2029 Local Plan	Progress
Washington St / Jane St	0.99	Linsig 3	PM 2029 Local Plan	Progress
A596 / Northside Rd Roundabout	0.84	Junctions 9	AM 2029 Local Plan	Discard
B5296 / Harrington Rd Signalised Junction	0.62	Linsig 3	PM 2029 Local Plan	Discard
Harrington Rd / A596 High St Roundabout	1.44	Junctions 8	PM 2029 Local Plan	Progress
A596 / Newlands Ln	1.28	Junctions 8	PM 2029 Local Plan	Progress
A596 High St / Ashfield Dr	0.65	Junctions 8	PM 2029 Local Plan	Discard
A596 / Branthwaite Rd	15.85	Junctions 8	AM 2029 Local Plan	Progress
A596 / Jubilee Junction	1.76	Junctions 8	PM 2029 Local Plan	Progress
A595 / Blackwood Rd	0.77	Junctions 9	AM 2029 Local Plan	Discard
A595 / A596 Roundabout	0.68	Junctions 8	AM 2029 Local Plan	Discard

A595 / A597 Roundabout	0.89	Junctions 8	PM 2029 Local Plan	Progress
Eller Bank / Church Rd	0.74	Junctions 8	PM 2029 Local Plan	Progress
A597 / Scaw Rd Roundabout	1.08	Junctions 8	PM 2029 Local Plan	Progress
Seaton Rd / Lowca Ln	0.42	Junctions 9	AM 2029 Local Plan	Discard
A596 / Lowca Ln	0.75	Junctions 9	AM 2029 Local Plan	Discard
A596 / Wood St	0.96	Linsig 3	AM 2029 Local Plan	Progress
A5086 / A595 Roundabout	0.98	Junctions 9	AM 2029 Local Plan	Progress
A66 / Great Broughton	9999*	Junctions 8	AM 2029 Local Plan	Progress
A595 / A591	4.57	Junctions 8	AM 2029 Local Plan	Progress
B5304 / Red Dial Cottages	1.36	Junctions 8	AM 2029 Local Plan	Progress
Syke Rd / A595 Roman Rd	0.54	Junctions 8	AM 2029 Local Plan	Discard

*9999 indicates that the junction is operating severely over capacity (greater than threshold of software's reporting)

2.4.6. The priority junctions with a RFC greater than 0.85 are identified as operating over capacity, and for signalised junctions a threshold DoS of 0.90 was applied to identify over-capacity junctions. A lower threshold RFC and DoS was used here than that applied to the SATURN outputs because of the greater level of accuracy in the junction models.

2.4.7. When these thresholds were applied to the detailed models, 13 junctions were found to be over-capacity and are therefore subject to optioneering.

2.4.8. At the Officer Workshop, safety and capacity issues were raised about the Eller Bank / Church Road junction. It was requested that improvements for the junction were considered despite the modelled RFC not exceeding the capacity threshold of 0.85. It is therefore taken forward to result in a total of 14 junctions for which improvements will be developed.

3 NEXT STEPS

3.1.1. The 14 identified junctions will be subject to optioneering, taking into consideration the comments received at the Officer Workshop. This will involve developing concept designs and cost estimates for each junction which will be presented and discussed with the client team.

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Appendix D

JUNCTION IMPROVEMENT DRAWINGS

DO NOT SCALE

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE

REV	DATE	BY	DESCRIPTION	CHK	APP
A	16/03/2018	AHW	RESIZING OF JUNCTION TO ALLOW HGV ACCESS	PWW	NM

DRAWING STATUS: S2 - FOR INFORMATION

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CLIENT: CUMBRIA COUNTY COUNCIL

ARCHITECT: -

SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: WASHINGTON ST / RAMSAY BROW (1010) JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:	APPROVED:
1:250	P.WATCHMAN	N.MACDONALD

PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70039832	A.WHITWORTH	A.WHITWORTH	16/03/2018

DRAWING No: 9832-DR-RP-0001 REV: A

DO NOT SCALE

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE
- PRIVATE LAND ACQUISITION REQUIREMENT.

REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION

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ARCHITECT: -

SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: WASHINGTON ST / JANE ST (1020) JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:		APPROVED:
1:250	P.WATCHMAN		N.MACDONALD
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70039832	A.WHITWORTH	A.WHITWORTH	19/03/2018

DRAWING No: 9832-DR-RP-0002-OPTION 1 REV: -

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DO NOT SCALE

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE

REV	DATE	BY	DESCRIPTION	CHK	APP
A	19/03/2018	AHW	ALTERATION TO REDUCE LAND TAKE	PWW	NM

DRAWING STATUS: S2 - FOR INFORMATION

wsp
Amber Court, William Armstrong Drive, Newcastle upon Tyne, NE4 7YQ, UK
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wsp.com

CLIENT: CUMBRIA COUNTY COUNCIL

ARCHITECT: -

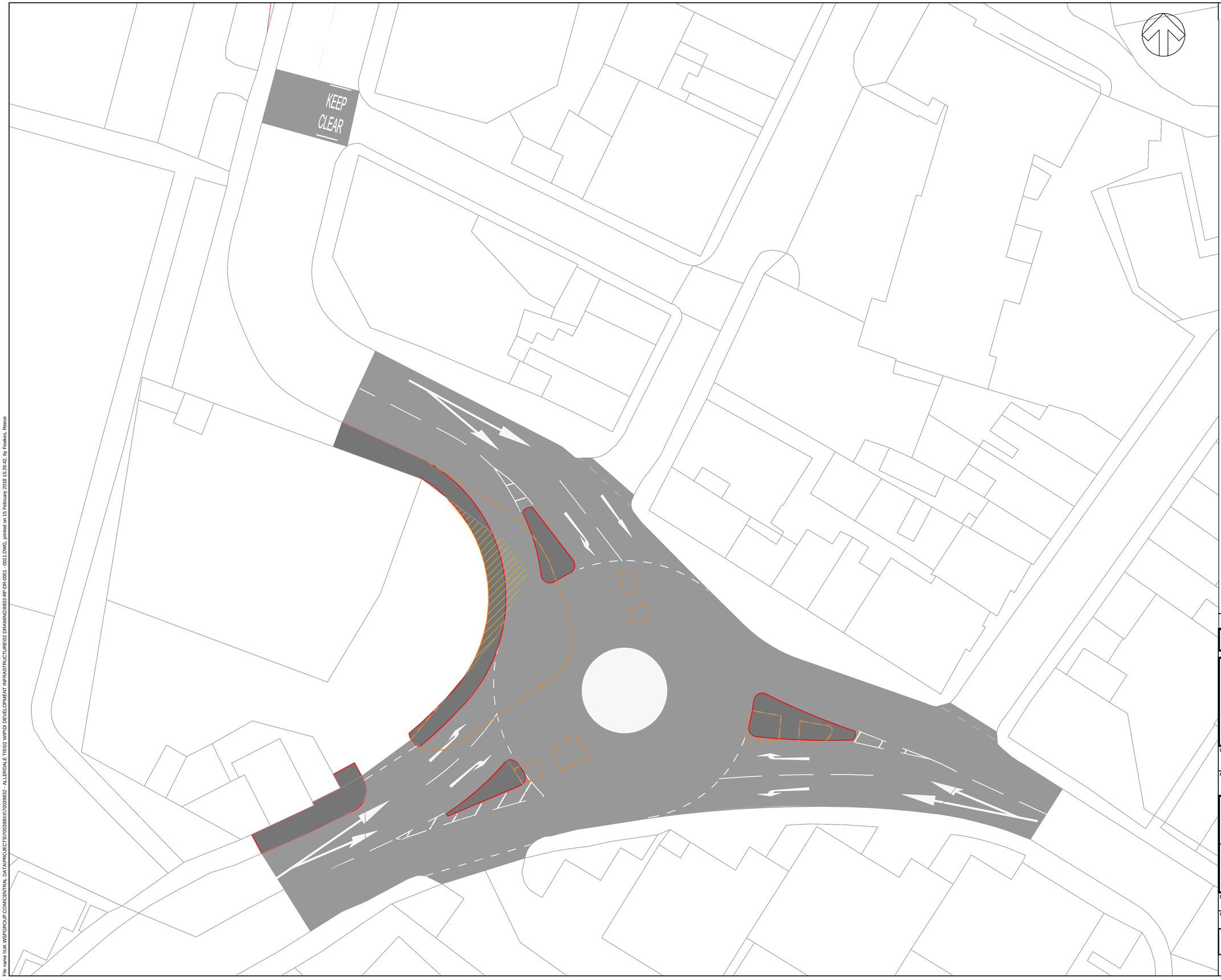
SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: WASHINGTON ST / JANE ST (1020) JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:		APPROVED:
1:250	P.WATCHMAN		N.MACDONALD
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70039832	A.WHITWORTH	A.WHITWORTH	19/03/2018

DRAWING No: 9832-DR-RP-0002-OPTION 2 REV: -

File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70039832XX\70039832 - ALLERDALE TIS\02 WIP\DI DEVELOPMENT INFRASTRUCTURE\02 DRAWING\9832-RP-DR-0001 - 0011.DWG, printed on 19 March 2018 11:23:57, by Whitworth, Alex



DO NOT SCALE

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE
- PRIVATE LAND ACQUISITION REQUIREMENT.

REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION

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CLIENT: CUMBRIA COUNTY COUNCIL

ARCHITECT: -

SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: HARRINGTON RD / A596 HIGH STREET (1480) JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:		APPROVED:
1:200	P.WATCHMAN		N.MACDONALD
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70039832	R.FOWKES	R.FOWKES	FEBRUARY 18

DRAWING No:	REV:
9832-DR-RP-0003	-

DO NOT SCALE

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE

REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION

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CLIENT: CUMBRIA COUNTY COUNCIL

ARCHITECT: -

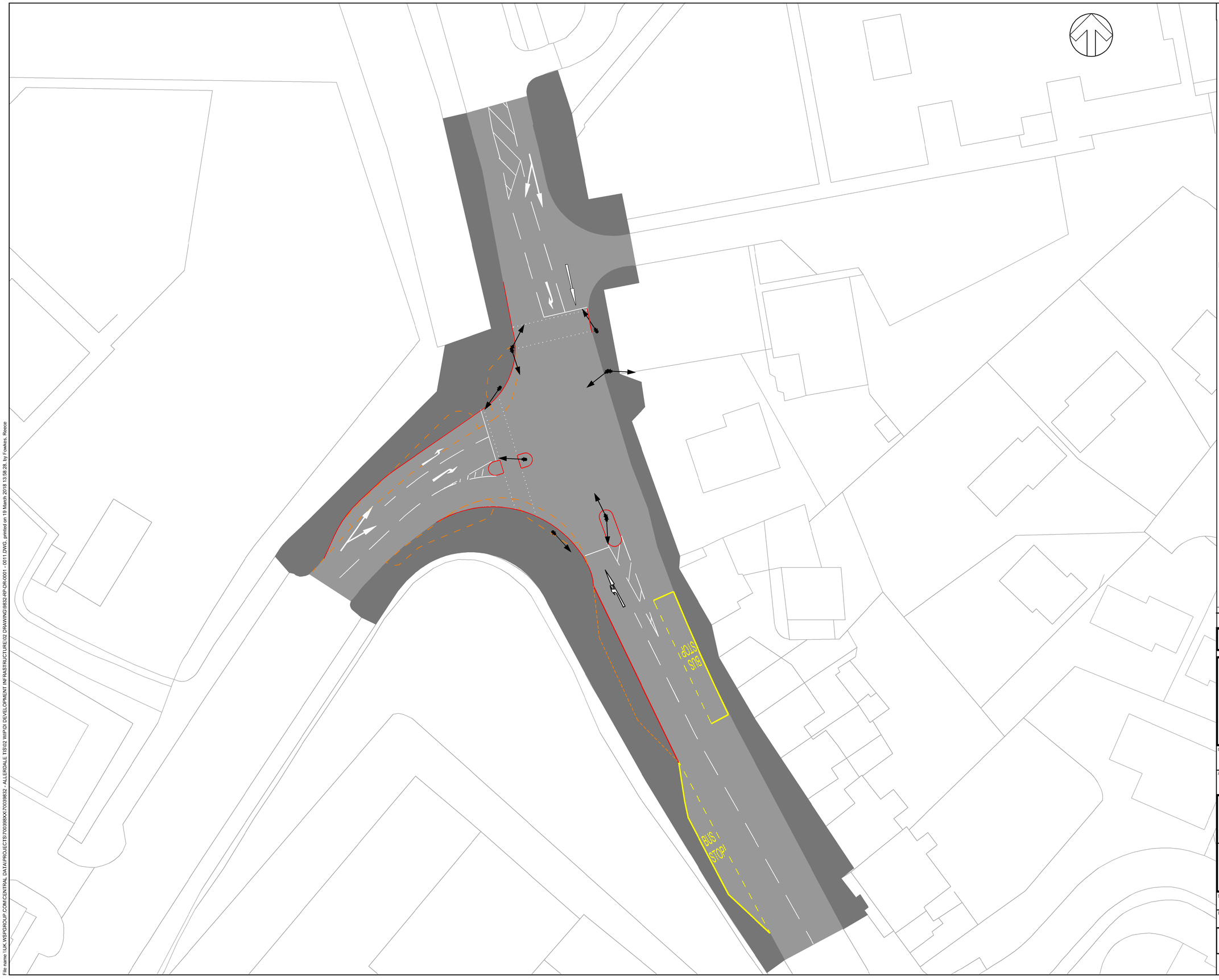
SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: HARRINGTON RD / A596 HIGH STREET (1480) JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:		APPROVED:
1:200	P.WATCHMAN		N.MACDONALD
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70039832	R.FOWKES	R.FOWKES	MARCH 18

DRAWING No: 9832-DR-RP-0003 - OPTION 2 | REV: -

File name:\\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70039832\X\70039832 - ALLERDALE TIS\02 WIP\DI DEVELOPMENT INFRASTRUCTURE\02 DRAWING\9832-RP-DR-0001 - 0011.DWG, printed on 15 March 2018 16:16:19, by Watchman, Patrick



DO NOT SCALE

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE

REV	DATE	BY	DESCRIPTION	CHK	APP
A	19.03.18	RF	BUS STOPS RELOCATED	PWW	PWW

DRAWING STATUS: S2 - FOR INFORMATION

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CLIENT: CUMBRIA COUNTY COUNCIL

ARCHITECT: -

SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: A596 / NEWLANDS LANE (1640) JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:	APPROVED:
1:250	P.WATCHMAN	N.MACDONALD

PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70039832	R.FOWKES	R.FOWKES	FEBRUARY 18

DRAWING No: 9832-DR-RP-0004 - OPTION 2 REV: A

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NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE

REV	DATE	BY	DESCRIPTION	CHK	APP
A	20.03.18	RF	ALIGNMENT ADJUSTED TO AVOID HEDGEROW	PWW	PWW

DRAWING STATUS: S2 - FOR INFORMATION

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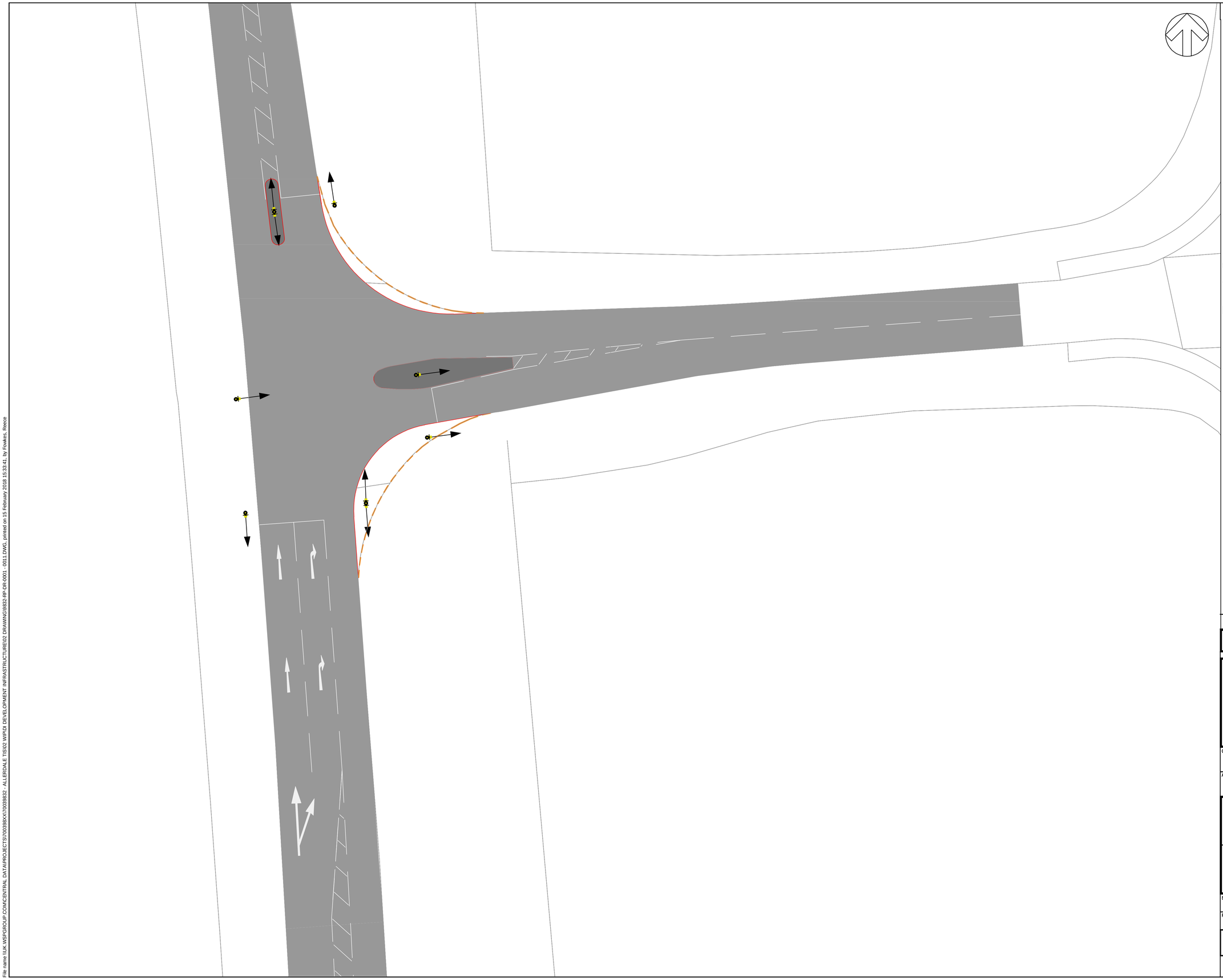
ARCHITECT: -

SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: A596 / BRAITHWAITE ROAD (1664) JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:		APPROVED:
1:400	P.WATCHMAN		N.MACDONALD
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70039832	A.WHITWORTH	A.WHITWORTH	FEBRUARY 18

DRAWING No: 9832-DR-RP-0005 REV: A



DO NOT SCALE

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE

REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION

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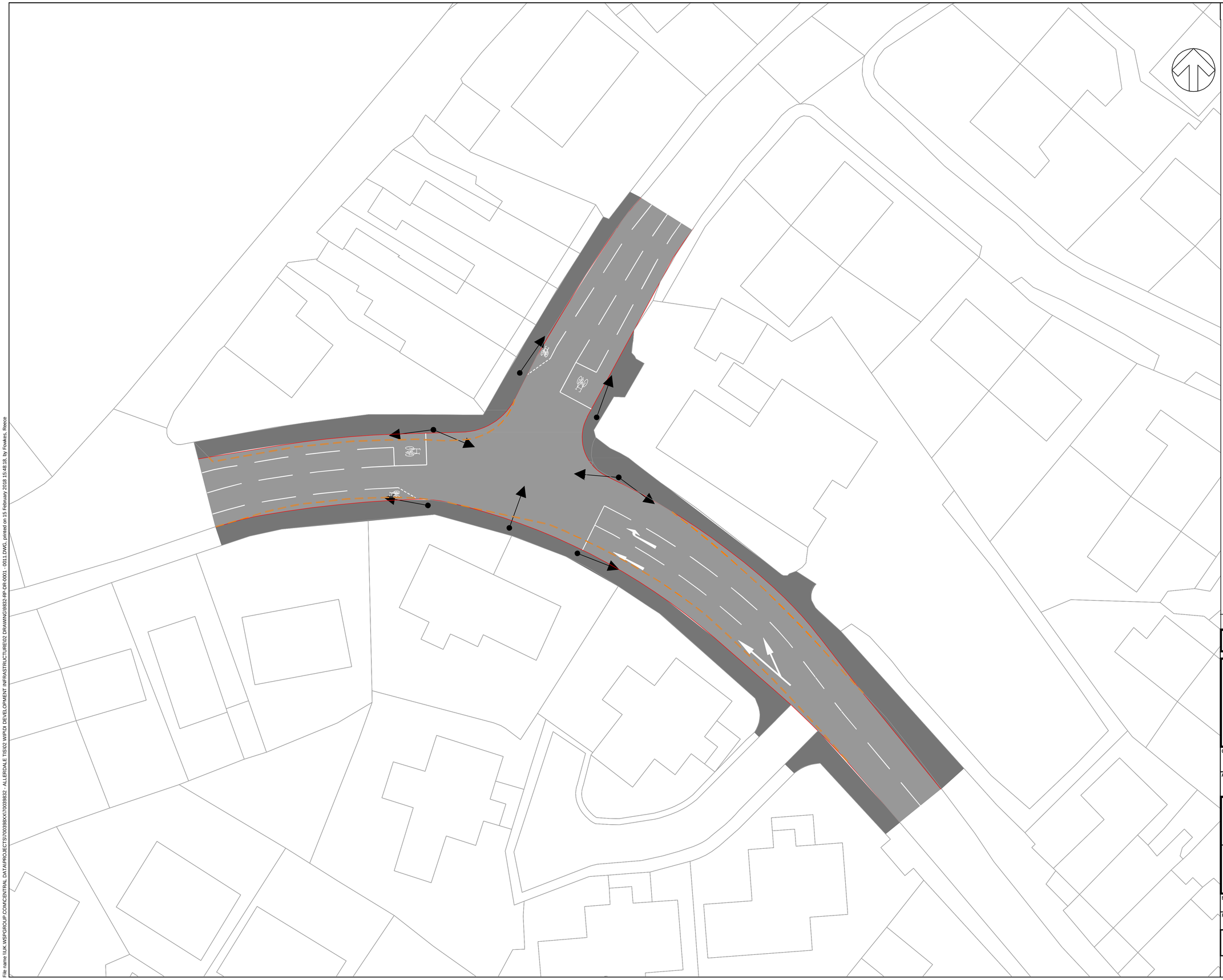
ARCHITECT: -

SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: A596 / JUBILEE ROAD (1675) JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:		APPROVED:
1:200	P.WATCHMAN		N.MACDONALD
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70039832	A.WHITWORTH	A.WHITWORTH	FEBRUARY 18

DRAWING No:	REV:
9832-DR-RP-0006	-



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NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE

REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION

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CLIENT: CUMBRIA COUNTY COUNCIL

ARCHITECT: -

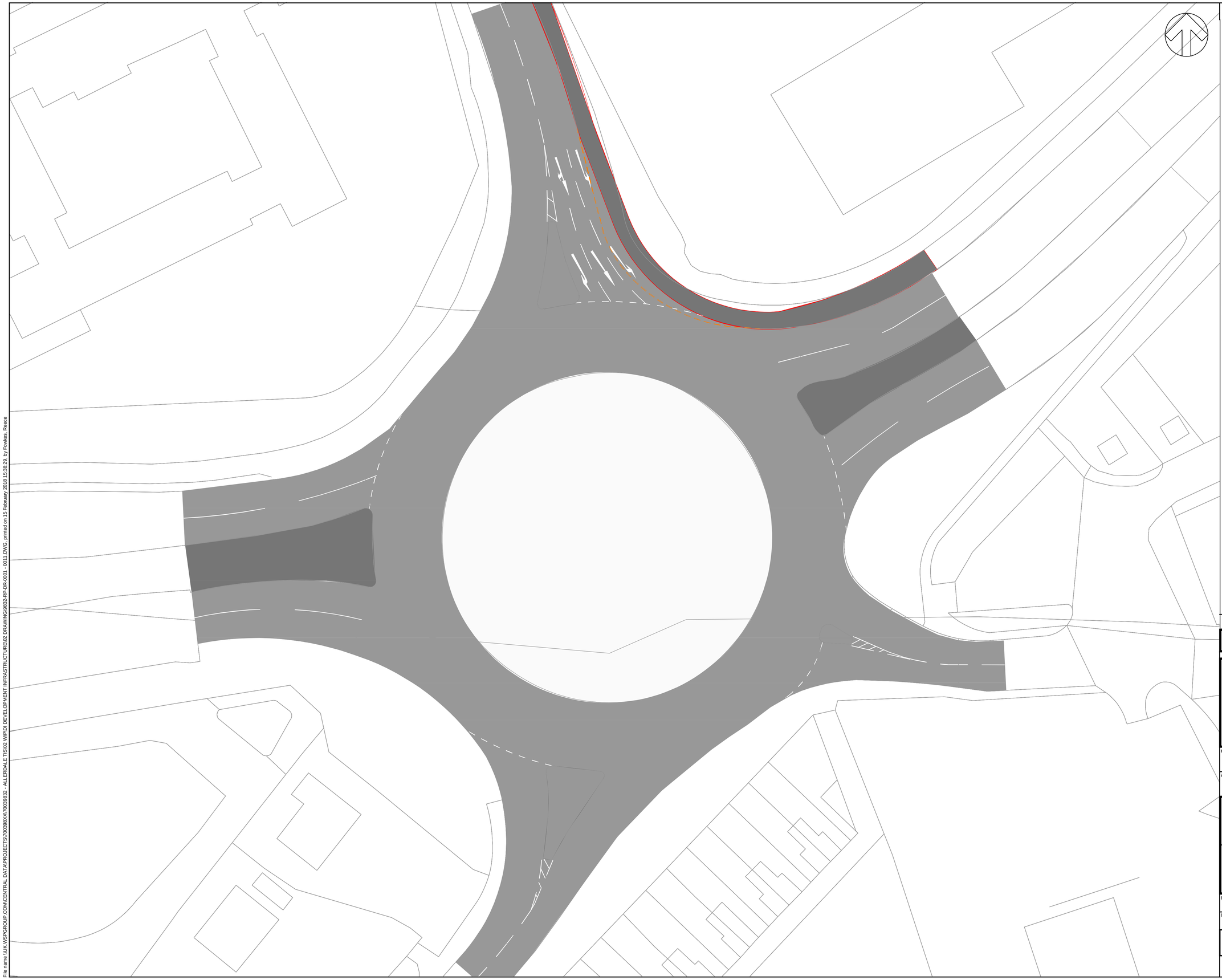
SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: A597 / SCAW ROAD (1830) JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:		APPROVED:
1:200	P.WATCHMAN		N.MACDONALD
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70039832	R.FOWKES	R.FOWKES	FEBRUARY 18

DRAWING No: 9832-DR-RP-0009 REV: -

File name:\\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70039BXX\70039832 - ALLERDALE TIS\02 WIP\DI DEVELOPMENT INFRASTRUCTURE\02 DRAWINGS\9832-RP-DR-0001 - 0011.DWG, printed on 15 February 2018 15:48:18, by Fowkes, Reece



DO NOT SCALE

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE

REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION

wsp
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CLIENT: CUMBRIA COUNTY COUNCIL

ARCHITECT: -

SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: A595 / A597 (1790) JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:		APPROVED:
1:250	P.WATCHMAN		N.MACDONALD
PROJECT NO: 70039832	DESIGNED: R.FOWKES	DRAWN: R.FOWKES	DATE: FEBRUARY 18

DRAWING No: 9832-DR-RP-0007 REV: -

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NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALLERDALE TRANSPORT IMPROVEMENT STUDY, REPORT REFERENCE: 70039832-RE-02

KEY

- PROPOSED ROAD MARKINGS
- PROPOSED KERB LINES
- ROAD SURFACE
- PROPOSED TRAFFIC SIGNAL
- EXISTING KERB LINE (TO BE REMOVED)
- FOOTWAY SURFACE

REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION

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CLIENT: CUMBRIA COUNTY COUNCIL

ARCHITECT: -

SITE/PROJECT: ALLERDALE TRANSPORT IMPROVEMENT STUDY

TITLE: A5086 / A595 ROUNDABOUT JUNCTION IMPROVEMENTS

SCALE @ A1:	CHECKED:		APPROVED:
1:200	P.WATCHMAN		N.MACDONALD
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70039832	R.FOWKES	R.FOWKES	FEBRUARY 18

DRAWING No:	REV:
9832-DR-RP-0010	-

Appendix E

JUNCTION MITIGATION COST SUMMARY

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0001 & 0002 (1010 & 1020) Washington Street

SPONS Highways Series Nr					Description		Total Amount	Notes on Pricing
		1	0	0	**Preliminaries**			**Source of Unit Rates : SPONS Civil and Highways 2014**
					Page 1		£15,532.56	
					Page 2		£4,009.82	
					Page 3		£250,000.00	**For Increased Costs : 2.00% Per year added for 4 years (2015, 2016, 2017 & 2018) = 8.00%**
		2	0	0	**Site Clearance**			
					Page 1		£10,840.39	
					Page 2		£2,710.22	
					Page 3			**Labour unit rates are for all labour (and small plant and tools) up to lst Tier supervision (chargehand or the like). All other Supervision is part of Overheads %age.**
		3	0	0	**Fencing**		£0.00	
		4	0	0	**Road Restraint Systems (Vehicle and Pedestrian)**		£67,380.38	
		5	0	0	**Drainage and Service Ducts**			
					Page 1		£1,688.36	
					Page 2		£26,361.61	
		6	0	0	**Earthworks**			
					Page 1		£6,595.78	
					Page 2		£0.00	
		7	0	0	**Pavements**		£156,628.99	
	1	1	0	0	**Kerbs, Footways and Paved Areas**		£51,267.98	
	1	2	0	0	**Traffic Signs and Road Markings**			
					Page 1		£4,340.04	
					Page 2		£1,737.66	
	1	3	0	0	**Road Lighting Columns & Brackets, CCTV Masts & Cantilever Masts**		£330,000.00	
	1	4	0	0	**Electrical Work for Road Lighting and Traffic Signs**			
					Page 1		£15,299.82	
					Page 2		£0.00	
	1	5	0	0	**Motorway Communications**			
	1	6	0	0	**Piling and Embedded Retaining Walls**		£0.00	
	1	7	0	0	**Structural Concrete**		£0.00	
	1	8	0	0	**Steelwork For Structures**			
	1	9	0	0	**Protection of Steelwork against Corrosion**			
	2	0	0	0	**Waterproofing for Structures**			
	2	1	0	0	**Bridge Bearings**			
	2	3	0	0	**Bridge Expansion Joints and Sealing of Gaps**		£0.00	
					Direct Works - Sub-total Carried Forward		**£944,393.62**	

Allerdale Transport Improvement Study								
Cost Estimate								
Junction Ref: 0001 & 0002 (1010 & 1020) Washington St								
SPONS Highways Series Nr					Description			
					Direct Works - Sub-total Brought Forward		£944,393.62	
2	4	0	0		Brickwork, Blockwork and Stonework			
2	5	0	0		Special Structures			
2	7	0	0		Accomodation Works, Works for Statutory Undertakers		£0.00	
3	0	0	0		Landscaping and Ecology			
5	0	0	0		Maintenance Painting of Steelwork			
				A	Direct Works Total		£944,393.62	
				B	Overheads (Supervision, Attendances, Engineering, HSE, Management, etc) + Profit : Add 10.00% of A		£94,439.36	
				C	Add Estimate Cost of Out-of-Hours Working : 10.00 % of A & B		£103,883.30	
				D	Risk (Increased Rates for materials, additional quantities, Unforeseen charges) : 5.00% of A		£47,219.68	
				E	Add Estimate of Costs of Staututory Udertaker Costs 5.00 % of A		£47,219.68	Utility costs are percetage approximations only. Costs are subject to consutation and estimation with
				F	Add Estimate of Cost for Land Purchase		£0.00	Not Included
				G	Add Estimate of Cost for Culvert			
					Second Pass Estimated Total Cost =		£1,237,155.65	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0003 (1480) Harrington Road / A596 - Roundabout

SPONS Highways Series Nr					Description		Total Amount	Notes on Pricing
		1	0	0	**Preliminaries**			**Source of Unit Rates : SPONS Civil and Highways 2014**
					Page 1		£2,919.24	
					Page 2		£2,687.90	
					Page 3		£100,000.00	**For Increased Costs : 2.00% Per year added for 4 years (2015, 2016, 2017 & 2018) = 8.00%**
		2	0	0	**Site Clearance**			
					Page 1		£4,366.69	
					Page 2		£37.07	
					Page 3			**Labour unit rates are for all labour (and small plant and tools) up to lst Tier supervision (chargehand or the like). All other Supervision is part of Overheads %age.**
		3	0	0	**Fencing**		£0.00	
		4	0	0	**Road Restraint Systems (Vehicle and Pedestrian)**		£0.00	
		5	0	0	**Drainage and Service Ducts**			
					Page 1		£3,751.92	
					Page 2		£2,976.85	
		6	0	0	**Earthworks**			
					Page 1		£337.28	
					Page 2		£0.00	
		7	0	0	**Pavements**		£40,002.70	
	1	1	0	0	**Kerbs, Footways and Paved Areas**		£6,239.46	
	1	2	0	0	**Traffic Signs and Road Markings**			
					Page 1		£500.77	
					Page 2		£1,045.42	
	1	3	0	0	**Road Lighting Columns & Brackets, CCTV Masts & Cantilever Masts**		£0.00	
	1	4	0	0	**Electrical Work for Road Lighting and Traffic Signs**			
					Page 1		£0.00	
					Page 2		£0.00	
	1	5	0	0	**Motorway Communications**			
	1	6	0	0	**Piling and Embedded Retaining Walls**		£0.00	
	1	7	0	0	**Structural Concrete**		£0.00	
	1	8	0	0	**Steelwork For Structures**			
	1	9	0	0	**Protection of Steelwork against Corrosion**			
	2	0	0	0	**Waterproofing for Structures**			
	2	1	0	0	**Bridge Bearings**			
	2	3	0	0	**Bridge Expansion Joints and Sealing of Gaps**		£0.00	
					Direct Works - Sub-total Carried Forward		**£164,865.31**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0003 (1480) Harrington Road / A596 - Roundabout

SPONS Highways Series Nr					Description			
					Direct Works - Sub-total Brought Forward		**£164,865.31**	
2	4	0	0		**Brickwork, Blockwork and Stonework**			
2	5	0	0		**Special Structures**			
2	7	0	0		**Accomodation Works, Works for Statutory Undertakers**		£0.00	
3	0	0	0		**Landscaping and Ecology**			
5	0	0	0		**Maintenance Painting of Steelwork**			
				A	**Direct Works Total**		**£164,865.31**	
				B	**Overheads (Supervision, Attendances, Engineering, HSE, Management, etc) + Profit : Add 10.00% of A**		**£16,486.53**	
				C	**Add Estimate Cost of Out-of-Hours Working : 10.00 % of A & B**		**£18,135.18**	
				D	**Risk (Increased Rates for materials, additional quantities, Unforeseen charges) : 5.00% of A**		**£8,243.27**	
				E	**Add Estimate of Costs of Staututory Udertaker Costs 5.00 % of A**		**£8,243.27**	Utility costs are percetage approximations only. Costs are subject to consutation and estimation with
				F	**Add Estimate of Cost for Land Purchase**		**£0.00**	Not Included
				G	**Add Estimate of Cost for Culvert**			
					<u>Second</u> Pass Estimated Total Cost =		**£215,973.55**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0004-2 (1640) A596 Newlands Lane - Traffic Signals

SPONS Highways Series Nr					Description		Total Amount	Notes on Pricing
		1	0	0	**Preliminaries**			**Source of Unit Rates : SPONS Civil and Highways 2014**
					Page 1		£2,313.36	
					Page 2		£0.00	
					Page 3		£50,000.00	**For Increased Costs : 2.00% Per year added for 4 years (2015, 2016, 2017 & 2018) = 8.00%**
		2	0	0	**Site Clearance**			
					Page 1		£4,036.28	
					Page 2		£0.00	
					Page 3			**Labour unit rates are for all labour (and small plant and tools) up to lst Tier supervision (chargehand or the like). All other Supervision is part of Overheads %age.**
		3	0	0	**Fencing**		£0.00	
		4	0	0	**Road Restraint Systems (Vehicle and Pedestrian)**		£0.00	
		5	0	0	**Drainage and Service Ducts**			
					Page 1		£0.00	
					Page 2		£0.00	
		6	0	0	**Earthworks**			
					Page 1		£224.86	
					Page 2		£0.00	
		7	0	0	**Pavements**		£28,780.47	
	1	1	0	0	**Kerbs, Footways and Paved Areas**		£4,549.61	
	1	2	0	0	**Traffic Signs and Road Markings**			
					Page 1		£500.77	
					Page 2		£519.11	
	1	3	0	0	**Road Lighting Columns & Brackets, CCTV Masts & Cantilever Masts**		£97,051.02	
	1	4	0	0	**Electrical Work for Road Lighting and Traffic Signs**			
					Page 1		£3,693.06	
					Page 2		£5,022.00	
	1	5	0	0	**Motorway Communications**			
	1	6	0	0	**Piling and Embedded Retaining Walls**		£0.00	
	1	7	0	0	**Structural Concrete**		£0.00	
	1	8	0	0	**Steelwork For Structures**			
	1	9	0	0	**Protection of Steelwork against Corrosion**			
	2	0	0	0	**Waterproofing for Structures**			
	2	1	0	0	**Bridge Bearings**			
	2	3	0	0	**Bridge Expansion Joints and Sealing of Gaps**		£0.00	
					Direct Works - Sub-total Carried Forward		**£196,690.54**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0004-2 (1640) A596 Newlands Lane - Traffic Signals

SPONS Highways Series Nr					Description			
					Direct Works - Sub-total Brought Forward		**£196,690.54**	
2	4	0	0		**Brickwork, Blockwork and Stonework**			
2	5	0	0		**Special Structures**			
2	7	0	0		**Accomodation Works, Works for Statutory Undertakers**		£0.00	
3	0	0	0		**Landscaping and Ecology**			
5	0	0	0		**Maintenance Painting of Steelwork**			
				A	**Direct Works Total**		**£196,690.54**	
				B	**Overheads (Supervision, Attendances, Engineering, HSE, Management, etc) + Profit : Add 10.00% of A**		**£19,669.05**	
				C	**Add Estimate Cost of Out-of-Hours Working : 10.00 % of A & B**		**£21,635.96**	
				D	**Risk (Increased Rates for materials, additional quantities, Unforeseen charges) : 5.00% of A**		**£9,834.53**	
				E	**Add Estimate of Costs of Staututory Udertaker Costs 5.00 % of A**		**£9,834.53**	Utility costs are percetage approximations only. Costs are subject to consutation and estimation with
				F	**Add Estimate of Cost for Land Purchase**		**£0.00**	Not Included
				G	**Add Estimate of Cost for Culvert**			
					<u>Second</u> Pass Estimated Total Cost =		**£257,664.61**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0005 (1664) A595 / Branthwaite Road - Roundabout

SPONS Highways Series Nr				Description		Total Amount	Notes on Pricing
1	0	0		**Preliminaries**			**Source of Unit Rates : SPONS Civil and Highways 2014**
				Page 1		£13,109.04	
				Page 2		£3,481.06	
				Page 3		£250,000.00	**For Increased Costs : 2.00% Per year added for 4 years (2015, 2016, 2017 & 2018) = 8.00%**
2	0	0		**Site Clearance**			
				Page 1		£8,767.81	
				Page 2		£880.85	
				Page 3			**Labour unit rates are for all labour (and small plant and tools) up to Ist Tier supervision (chargehand or the like). All other Supervision is part of Overheads %age.**
3	0	0		**Fencing**		£2,401.92	
4	0	0		**Road Restraint Systems (Vehicle and Pedestrian)**		£0.00	
5	0	0		**Drainage and Service Ducts**			
				Page 1		£102,405.60	
				Page 2		£25,684.52	
6	0	0		**Earthworks**			
				Page 1		£15,530.40	
				Page 2		£5,734.80	
7	0	0		**Pavements**		£243,968.75	
1	0	0		**Kerbs, Footways and Paved Areas**		£12,998.88	
2	0	0		**Traffic Signs and Road Markings**			
				Page 1		£2,503.87	
				Page 2		£1,540.62	
3	0	0		**Road Lighting Columns & Brackets, CCTV Masts & Cantilever Masts**		£8,763.16	
4	0	0		**Electrical Work for Road Lighting and Traffic Signs**			
				Page 1		£27,285.42	
				Page 2		£10,755.94	
5	0	0		**Motorway Communications**			
6	0	0		**Piling and Embedded Retaining Walls**		£0.00	
7	0	0		**Structural Concrete**		£0.00	
8	0	0		**Steelwork For Structures**			
9	0	0		**Protection of Steelwork against Corrosion**			
0	0	0		**Waterproofing for Structures**			
1	0	0		**Bridge Bearings**			
3	0	0		**Bridge Expansion Joints and Sealing of Gaps**		£0.00	
				Direct Works - Sub-total Carried Forward		**£735,812.64**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0005 (1664) A595 / Branthwaite Road - Roundabout

SPONS Highways Series Nr					Description			
					Direct Works - Sub-total Brought Forward		**£735,812.64**	
2	**4**	**0**	**0**		**Brickwork, Blockwork and Stonework**			
2	**5**	**0**	**0**		**Special Structures**			
2	**7**	**0**	**0**		**Accomodation Works, Works for Statutory Undertakers**		£0.00	
3	**0**	**0**	**0**		**Landscaping and Ecology**			
5	**0**	**0**	**0**		**Maintenance Painting of Steelwork**			
					Direct Works Total (not including street lighting provision)		***£689,008.11***	
				A	**Direct Works Total**		**£735,812.64**	
				B	**Overheads (Supervision, Attendances, Engineering, HSE, Management, etc) + Profit : Add 10.00% of A**		**£73,581.26**	
				C	**Add Estimate Cost of Out-of-Hours Working : 10.00 % of A & B**		**£80,939.39**	
				D	**Risk (Increased Rates for materials, additional quantities, Unforeseen charges) : 5.00% of A**		**£36,790.63**	
				E	**Add Estimate of Costs of Staututory Undertaker Costs 5.00 % of A**		**£36,790.63**	Utility costs are percetage approximations only. Costs are subject to consutation and estimation with Statutory
				F	**Add Estimate of Cost for Land Purchase**		**£0.00**	Not Included
				G	**Add Estimate of Cost for Culvert**			
					Second Pass Estimated Total Cost (not including street lighting provision) =		***£902,600.63***	
					Second Pass Estimated Total Cost =		**£963,914.55**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0006 (1675) A596 Jubilee Road

SPONS Highways Series Nr					Description		Total Amount	Notes on Pricing
		1	0	0	**Preliminaries**			**Source of Unit Rates : SPONS Civil and Highways 2014**
					Page 1		£0.00	
					Page 2		£0.00	
					Page 3		£50,000.00	**For Increased Costs : 2.00% Per year added for 4 years (2015, 2016, 2017 & 2018) = 8.00%**
		2	0	0	**Site Clearance**			
					Page 1		£1,737.09	
					Page 2		£244.44	
					Page 3			**Labour unit rates are for all labour (and small plant and tools) up to lst Tier supervision (chargehand or the like). All other Supervision is part of Overheads %age.**
		3	0	0	**Fencing**		£0.00	
		4	0	0	**Road Restraint Systems (Vehicle and Pedestrian)**		£0.00	
		5	0	0	**Drainage and Service Ducts**			
					Page 1		£11,204.57	
					Page 2		£4,465.27	
		6	0	0	**Earthworks**			
					Page 1		£131.17	
					Page 2		£364.50	
		7	0	0	**Pavements**		£15,213.56	
	1	1	0	0	**Kerbs, Footways and Paved Areas**		£2,437.29	
	1	2	0	0	**Traffic Signs and Road Markings**			
					Page 1		£500.77	
					Page 2		£0.00	
	1	3	0	0	**Road Lighting Columns & Brackets, CCTV Masts & Cantilever Masts**		£104,381.58	Includes traffic signal provision
	1	4	0	0	**Electrical Work for Road Lighting and Traffic Signs**			
					Page 1		£16,507.22	
					Page 2		£7,407.94	
	1	5	0	0	**Motorway Communications**			
	1	6	0	0	**Piling and Embedded Retaining Walls**		£0.00	
	1	7	0	0	**Structural Concrete**		£0.00	
	1	8	0	0	**Steelwork For Structures**			
	1	9	0	0	**Protection of Steelwork against Corrosion**			
	2	0	0	0	**Waterproofing for Structures**			
	2	1	0	0	**Bridge Bearings**			
	2	3	0	0	**Bridge Expansion Joints and Sealing of Gaps**		£0.00	
					Direct Works - Sub-total Carried Forward		**£214,595.39**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0005 (1675) A596 Jubilee Road

SPONS Highways Series Nr					Description			
					Direct Works - Sub-total Brought Forward		**£214,595.39**	
2	**4**	**0**	**0**		**Brickwork, Blockwork and Stonework**			
2	**5**	**0**	**0**		**Special Structures**			
2	**7**	**0**	**0**		**Accomodation Works, Works for Statutory Undertakers**		£0.00	
3	**0**	**0**	**0**		**Landscaping and Ecology**			
5	**0**	**0**	**0**		**Maintenance Painting of Steelwork**			
					Direct Works Total (not including street lighting provision)		***£186,298.65***	
				A	**Direct Works Total**		**£214,595.39**	
				B	**Overheads (Supervision, Attendances, Engineering, HSE, Management, etc) + Profit : Add 10.00% of A**		**£21,459.54**	
				C	**Add Estimate Cost of Out-of-Hours Working : 10.00 % of A & B**		**£23,605.49**	
				D	**Risk (Increased Rates for materials, additional quantities, Unforeseen charges) : 5.00% of A**		**£10,729.77**	
				E	**Add Estimate of Costs of Staututory Udertaker Costs 5.00 % of A**		**£10,729.77**	Utility costs are percetage approximations only. Costs are subject to consutation and estimation with
				F	**Add Estimate of Cost for Land Purchase**		**£0.00**	Not Included
				G	**Add Estimate of Cost for Culvert**			
					Second Pass Estimated Total Cost (not including street lighting provision) =		***£244,051.23***	
					Second Pass Estimated Total Cost =		**£281,119.96**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0009 (1830) A597 / Scaw Road

SPONS Highways Series Nr				Description		Total Amount	Notes on Pricing
1	0	0	**Preliminaries**			**Source of Unit Rates : SPONS Civil and Highways 2014**
			Page 1		£0.00	
			Page 2		£0.00	
			Page 3		£50,000.00	**For Increased Costs : 2.00% Per year added for 4 years (2015, 2016, 2017 & 2018) = 8.00%**
2	0	0	**Site Clearance**			
			Page 1		£1,224.96	
			Page 2		£5.56	
			Page 3			**Labour unit rates are for all labour (and small plant and tools) up to lst Tier supervision (chargehand or the like). All other Supervision is part of Overheads %age.**
3	0	0	**Fencing**		£0.00	
4	0	0	**Road Restraint Systems (Vehicle and Pedestrian)**		£0.00	
5	0	0	**Drainage and Service Ducts**			
			Page 1		£0.00	
			Page 2		£0.00	
6	0	0	**Earthworks**			
			Page 1		£74.95	
			Page 2		£0.00	
7	0	0	**Pavements**		£19,404.63	
1	1	0	0	**Kerbs, Footways and Paved Areas**		£7,311.87	
1	2	0	0	**Traffic Signs and Road Markings**			
				Page 1		£250.39	
				Page 2		£409.60	
1	3	0	0	**Road Lighting Columns & Brackets, CCTV Masts & Cantilever Masts**		£75,000.00	Includes Traffic Signals
1	4	0	0	**Electrical Work for Road Lighting and Traffic Signs**			
				Page 1		£2,002.26	
				Page 2		£0.00	
1	5	0	0	**Motorway Communications**			
1	6	0	0	**Piling and Embedded Retaining Walls**		£0.00	
1	7	0	0	**Structural Concrete**		£0.00	
1	8	0	0	**Steelwork For Structures**			
1	9	0	0	**Protection of Steelwork against Corrosion**			
2	0	0	0	**Waterproofing for Structures**			
2	1	0	0	**Bridge Bearings**			
2	3	0	0	**Bridge Expansion Joints and Sealing of Gaps**		£0.00	

Direct Works - Sub-total Carried Forward **£155,684.22**

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0009 (1830) A597 / Scaw Road

SPONS Highways Series Nr					Description			
					Direct Works - Sub-total Brought Forward		**£155,684.22**	
	2	**4**	**0**	**0**	**Brickwork, Blockwork and Stonework**			
	2	**5**	**0**	**0**	**Special Structures**			
	2	**7**	**0**	**0**	**Accomodation Works, Works for Statutory Undertakers**		£0.00	
	3	**0**	**0**	**0**	**Landscaping and Ecology**			
	5	**0**	**0**	**0**	**Maintenance Painting of Steelwork**			
				A	**Direct Works Total**		**£155,684.22**	
				B	**Overheads (Supervision, Attendances, Engineering, HSE, Management, etc) + Profit : Add 10.00% of A**		**£15,568.42**	
				C	**Add Estimate Cost of Out-of-Hours Working : 10.00 % of A & B**		**£17,125.26**	
				D	**Risk (Increased Rates for materials, additional quantities, Unforeseen charges) : 5.00% of A**		**£7,784.21**	
				E	**Add Estimate of Costs of Staututory Udertaker Costs 5.00 % of A**		**£7,784.21**	Utility costs are percetage approximations only. Costs are subject to consutation and estimation with
				F	**Add Estimate of Cost for Land Purchase**		**£0.00**	Not Included
				G	**Add Estimate of Cost for Culvert**			
					<u>Second</u> Pass Estimated Total Cost =		**£203,946.33**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0007 (1790) A595 / A597

SPONS Highways Series Nr					Description		Total Amount	Notes on Pricing
		1	0	0	**Preliminaries**			**Source of Unit Rates : SPONS Civil and Highways 2014**
					Page 1		£0.00	
					Page 2		£0.00	
					Page 3		£10,000.00	**For Increased Costs : 2.00% Per year added for 4 years (2015, 2016, 2017 & 2018) = 8.00%**
		2	0	0	**Site Clearance**			
					Page 1		£1,481.24	
					Page 2		£912.76	
					Page 3			**Labour unit rates are for all labour (and small plant and tools) up to Ist Tier supervision (chargehand or the like). All other Supervision is part of Overheads %age.**
		3	0	0	**Fencing**		£8,129.81	
		4	0	0	**Road Restraint Systems (Vehicle and Pedestrian)**		£0.00	
		5	0	0	**Drainage and Service Ducts**			
					Page 1		£1,875.96	
					Page 2		£2,126.06	
		6	0	0	**Earthworks**			
					Page 1		£0.00	
					Page 2		£0.00	
		7	0	0	**Pavements**		£11,460.96	
	1	1	0	0	**Kerbs, Footways and Paved Areas**		£12,686.54	
	1	2	0	0	**Traffic Signs and Road Markings**			
					Page 1		£166.92	
					Page 2		£268.00	
	1	3	0	0	**Road Lighting Columns & Brackets, CCTV Masts & Cantilever Masts**		£730.26	
	1	4	0	0	**Electrical Work for Road Lighting and Traffic Signs**			
					Page 1		£0.00	
					Page 2		£0.00	
	1	5	0	0	**Motorway Communications**			
	1	6	0	0	**Piling and Embedded Retaining Walls**		£0.00	
	1	7	0	0	**Structural Concrete**		£0.00	
	1	8	0	0	**Steelwork For Structures**			
	1	9	0	0	**Protection of Steelwork against Corrosion**			
	2	0	0	0	**Waterproofing for Structures**			
	2	1	0	0	**Bridge Bearings**			
	2	3	0	0	**Bridge Expansion Joints and Sealing of Gaps**		£0.00	
					Direct Works - Sub-total Carried Forward		**£49,838.52**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0007 (1790) A595 / A597

SPONS Highways Series Nr					Description			
					Direct Works - Sub-total Brought Forward		**£49,838.52**	
	2	**4**	**0**	**0**	**Brickwork, Blockwork and Stonework**			
	2	**5**	**0**	**0**	**Special Structures**			
	2	**7**	**0**	**0**	**Accomodation Works, Works for Statutory Undertakers**		£0.00	
	3	**0**	**0**	**0**	**Landscaping and Ecology**			
	5	**0**	**0**	**0**	**Maintenance Painting of Steelwork**			
				A	**Direct Works Total**		**£49,838.52**	
				B	**Overheads (Supervision, Attendances, Engineering, HSE, Management, etc) + Profit : Add 10.00% of A**		**£4,983.85**	
				C	**Add Estimate Cost of Out-of-Hours Working : 10.00 % of A & B**		**£5,482.24**	
				D	**Risk (Increased Rates for materials, additional quantities, Unforeseen charges) : 5.00% of A**		**£2,491.93**	
				E	**Add Estimate of Costs of Staututory Udertaker Costs 5.00 % of A**		**£2,491.93**	
				F	**Add Estimate of Cost for Land Purchase**		**£0.00**	Not Included
				G	**Add Estimate of Cost for Culvert**			
					<u>Second</u> Pass Estimated Total Cost =		**£65,288.46**	

Allerdale Transport Improvement Study

Cost Estimate

Junction Ref: 0010 A595 / A5086 (Papcastle) - Roundabout

SPONS Highways Series Nr					Description		Total Amount	Notes on Pricing
		1	0	0	Preliminaries			Source of Unit Rates : SPONS Civil and Highways 2014
					Page 1		£0.00	
					Page 2		£0.00	
					Page 3		£15,000.00	For Increased Costs : 2.00% Per year added for 4 years (2015, 2016, 2017 & 2018) = 8.00%
		2	0	0	Site Clearance			
					Page 1		£2,387.60	
					Page 2		£11.12	
					Page 3			Labour unit rates are for all labour (and small plant and tools) up to Ist Tier supervision (chargehand or the like). All other Supervision is part of Overheads %age.
		3	0	0	Fencing		£0.00	
		4	0	0	Road Restraint Systems (Vehicle and Pedestrian)		£0.00	
		5	0	0	Drainage and Service Ducts			
					Page 1		£1,875.96	
					Page 2		£1,488.42	
		6	0	0	Earthworks			
					Page 1		£10.15	
					Page 2		£0.00	
		7	0	0	Pavements		£10,998.53	
	1	1	0	0	Kerbs, Footways and Paved Areas		£4,224.64	
	1	2	0	0	Traffic Signs and Road Markings			
					Page 1		£0.00	
					Page 2		£361.20	
	1	3	0	0	Road Lighting Columns & Brackets, CCTV Masts & Cantilever Masts		£730.26	
	1	4	0	0	Electrical Work for Road Lighting and Traffic Signs			
					Page 1		£640.88	
					Page 2		£0.00	
	1	5	0	0	Motorway Communications			
	1	6	0	0	Piling and Embedded Retaining Walls		£0.00	
	1	7	0	0	Structural Concrete		£0.00	
	1	8	0	0	Steelwork For Structures			
	1	9	0	0	Protection of Steelwork against Corrosion			
	2	0	0	0	Waterproofing for Structures			
	2	1	0	0	Bridge Bearings			
	2	3	0	0	Bridge Expansion Joints and Sealing of Gaps		£0.00	
					Direct Works - Sub-total Carried Forward		**£37,728.76**	

Allerdale Transport Improvement Study								
Cost Estimate								
Junction Ref: 0010 A595 / A5086 (Papcastle) - Roundabout								
SPONS Highways Series Nr					Description			
					Direct Works - Sub-total Brought Forward		£37,728.76	
2	4	0	0		Brickwork, Blockwork and Stonework			
2	5	0	0		Special Structures			
2	7	0	0		Accomodation Works, Works for Statutory Undertakers		£0.00	
3	0	0	0		Landscaping and Ecology			
5	0	0	0		Maintenance Painting of Steelwork			
				A	Direct Works Total		£37,728.76	
				B	Overheads (Supervision, Attendances, Engineering, HSE, Management, etc) + Profit : Add 10.00% of A		£3,772.88	
				C	Add Estimate Cost of Out-of-Hours Working : 10.00 % of A & B		£4,150.16	
				D	Risk (Increased Rates for materials, additional quantities, Unforeseen charges) : 5.00% of A		£1,886.44	
				E	Add Estimate of Costs of Staututory Udertaker Costs 5.00 % of A		£1,886.44	Utility costs are percetage approximations only. Costs are subject to consutation and estimation with Statutory Undertakers
				F	Add Estimate of Cost for Land Purchase		£0.00	Not Included
				G	Add Estimate of Cost for Culvert			
					Second Pass Estimated Total Cost =		£49,424.68	

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