



Jactin House 24 Hood Street Manchester M4 6WX

**Project:** The Former Marchon Chemical Works High Road, Whitehaven

> Proposed Redevelopment for Residential Development

Client: Persimmon Homes and Whitehaven Developments Limited

Document: Transport Assessment





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## 1 Introduction

#### General

- 1.1 CBO Transport Ltd [CBO] has been commissioned by Persimmon Homes to advise on highway and transportation matters associated with the redevelopment of the former Marchon chemical works in Whitehaven, Cumbria. The location of the site and the local context is shown in **Figure 1.1** of this report.
- 1.2 The site is in Copeland and Copeland Borough Council (CBC) are the local planning authority. Cumbria County Council (CCC) are the local highway authority. Most of the site is a proposed allocation for residential development in CBC's Preferred Options Draft Local Plan.
- 1.3 At the time of writing the reorganisation of Cumbria into two unitary authorities was announced. It is recognised that in the future there will not be separate planning and highway authorities representing this area but the two tier system will be in place while planning permission is being determined.
- 1.4 This Transport Assessment (TA) represents a culmination of this work and is submitted with a hybrid planning application for the scheme.
- 1.5 The former Marchon site is located to the southwest of Whitehaven town centre on the west side of High Road. The proposed residential redevelopment is on the northern part of the site. The southern part has a proposal for a coal mine which is being developed by West Cumbria Mining Limited (WCML). The WCML proposal is to be considered at an appeal.
- 1.6 There is existing residential development on the opposite side of High Road and to the north of the site. There is also new housing being provided to the south by Story Homes.
- 1.7 The proposal is for a residential development that is to be built over several phases. The first phase consists of 139 units for which full planning permission is being applied. Phase 1 is to the north of the site. The remaining phases, for which outline planning approval is being sought are located on the previously developed parts of the site. The remaining phases are referred to collectively in this report as Phase 2.
- 1.8 There is also a small ancillary commercial development proposed in Phase 2 fronting High Road which is likely to include a convenience store and pub / restaurant. Outline planning permission is also being sought for the ancillary commercial development.
- 1.9 There are two exiting accesses to the site on High Road. The proposal is to utilise the northerly of the two to access the first phase residential. The southerly would be used to access the ancillary commercial development and the Phase 2 residential. There is also a new access proposed on High Road to provide a second access to the Phase 2 residential development.
- 1.10 A Masterplan has been prepared for the site which is included in **Appendix A**. The Masterplan shows the detailed Phase 1 layout and indicative arrangements for the Phase 2 and commercial parts of the site. A larger scale plan of the Phase 1 layout is also included in **Appendix A**. The access points are shown on the masterplan. Full planning permission for all the accesses is being sought. In this context detailed plans of the proposed accesses are included in **Appendix B**.
- 1.11 There is one strategic road serving Whitehaven, the A595 trunk road for which Highways England (HE) are the highway authority. The A595 runs north south and divides the town in two. The bulk of Whitehaven is located to the west of the A595 including the town centre. The Marchon site is located to the west of the A595. Although the area to the east is smaller it includes key facilities such as the hospital and high schools.
- 1.12 There are three main connections to the A595 from the western section of the town. To the south is the junction with Mirehouse Road which is traffic signal controlled. To the north is the junction with the A5094 New Road which is priority controlled and between the two is the junction with the A5094 Inkerman Terrace. Meadow Road also provides a secondary connection to the trunk road for the south of the town.
- 1.13 The eastern part of the town is connected to the trunk road at two main junctions with the B5295. To the north is the traffic signal junction with Ribton Moorside. Ribton Moorside is traffic signal controlled and



located about 180m to the south of the Inkerman Terrace junction. To the south is the roundabout junction with Egremont Road which is located about 120m to the north of the Meadow Road junction.

1.14 The A595 is a busy road which experiences slow running traffic at times during the working day. HE have consulted on the need for improvements to the road. If the scheme proceeds it is likely to take the form of an eastern relief road which would bypass the town entirely. The CBC Preferred Options Draft Local Plan includes the road and references its importance to the future of Whitehaven.

### **Existing Uses**

1.15 The site is currently vacant and the chemical works were cleared a number of years ago. It has in the past been a major generator of trips when the chemical works were in full operation.

### **Planning Policy**

- 1.16 The focus of land use planning policy is to deliver sustainable development which supports the need for economic growth. Over the past few years the emphasis has shifted towards the economic driver although this is not at the expense of environmentally and socially sustainable development.
- 1.17 In transport terms this translates itself into policy seeking to encourage development in locations which are readily accessible by a range of transport modes and not overly reliant on the private car. This message is repeated through local and national policy and is a continued theme in the National Planning Policy Framework (NPPF).
- 1.18 It is in the NPPF that the need for planning to support economic growth has become more strongly emphasised.
- 1.19 The NPPF also recognises traffic congestion should not in most instances be a reason for refusal of development unless an impact can be defined as severe.
- 1.20 This policy context is consistent with the local polices in CBC's Local Plan and CCC's Local Transport Plan.
- 1.21 Other policy and guidance which have informed the development of the Masterplan include Manual for Streets (MfS).

#### **Discussions with Highway Authorities**

- 1.22 There are two highway authorities who are responsible for roads in the vicinity of the site:-
  - Cumbria County Council (CCC) The local roads in Whitehaven including the High Road and the site accesses.
  - Highways England (HE) the A595 including the junctions linking the trunk road with the town as referenced above HE have engaged consultants WSP to advise them technically.
- 1.23 Scoping discussions were held with both highway authorities in 2018 and through the discussions the following have been agreed.
  - The geographical scope of the TA;
  - The use of traffic counts in preference to the West Cumbria Transport Model;
  - The developments which are to be considered as committed;
  - Trip rates and trip generation levels;
  - Trip distribution and assignment;
  - The use of the existing accesses to serve the phase 1 residential and part of the Phase 2 site.
- 1.24 Some time has passed since these scoping discussions, but baseline conditions are unlikely to have changed considerably in this time, so the methodology agreed back in 2018 has been used in this report. Where necessary information has been updated or reference made as to why 2018 data is still appropriate.



1.25 HE have advised that the development would be considered against Department for Transport (DfT) circular 02/2013 "The Strategic Road Network and the Delivery of Sustainable Development." This document requires two tests of the impact on the trunk road, one which considers the full development at year of opening and a second which considers development impact ten years after opening. This document remains current.

### Study Area

- 1.26 The core study area includes the junctions listed below where traffic counts and detailed modelling have been undertaken, the locations of which are shown in **Figure 1.1**.
- 1.27 The A595 junctions with:-
  - Mirehouse Road (traffic signals)
  - Meadow Road (priority junction)
  - B5295 Egremont Road (roundabout)
  - New Road (priority junction)
- 1.28 On the local roads the junctions of:-
  - High Road/Woodhead Road (priority junction);
  - B5345 St Bees Road/Woodhouse Road (priority junction);
  - Ginns to Kells Road/B5345 Meadow Road/Monkway Brow (priority junction);
  - B5345 Meadow Road/Coach Road (priority junction);
  - B5345 Swingpump Lane/Irish Street (traffic signals);
  - B5345 St Bees Road/Mirehouse Road/Wilson Pit Road (two priority junctions);
  - Mirehouse Road single lane bridge crossing (priority controlled);

### Scope and Structure of Report

- 1.29 This report has been produced in 6 sections including this introduction.
- 1.30 Section 2 provides a summary of the accessibility of the site by sustainable modes of transport and identifies local facilities that are either likely to be located on the site or are located in the immediate area.
- 1.31 Section 3 considers existing and baseline highway conditions in the study area. The existing traffic flows have been derived from traffic surveys. The base traffic has been calculated through reference to the agreed schedule of committed developments.
- 1.32 Section 4 then details the development proposals and sets out more detail on the rationale behind the Masterplan and the proposed approach to movement corridors within the site. Based on this it sets out calculations of trip generation for the development and considers the distribution of these trips (where they are travelling to and from).
- 1.33 The traffic impact implications of the full development are considered in Section 5 including capacity assessments of the junctions on the A595.
- 1.34 The conclusions and recommendations of the report are included in Section 6.



# 2 Accessibility by Walking, Cycling and Public Transport

### Overview

- 2.1 The site is in an established residential area to the southwest of Whitehaven town centre. The town centre is about 1.7 km from the northern edge of the site.
- 2.2 New housing is being built further south on High Road by Story Homes and WCML are also proposing to the develop the land to the south. Residential development on the proposal site will fill the gap between these other developments which are further away from the town centre and the existing residential to the north and east of the site. At this most strategic transport planning level residential development on the site is clearly an appropriate form of redevelopment for this predominately brown field site.
- 2.3 There will be a number of points of connection between the site and the existing highway infrastructure on High Road which will provide the opportunity for a well linked and permeable site for all local transport modes including walking and cycling.
- 2.4 In this context the site will form a sustainable urban development within the existing urban area. The area has many local facilities including a number of primary schools and local shops and is served by a regular bus service. Additional local facilities will be provided on the commercial part of the site.
- 2.5 The fact that most of the site is a proposed allocation for residential development in CBC's Preferred Options Draft Local Plan means the local planning authority accept this is a site which can accommodate sustainable and accessible residential development.
- 2.6 Set out in the remainder of this section of the report is a summary of the location of key local facilities and summary descriptions of facilities for pedestrians, cyclists and public transport services.

#### **Local Facilities**

2.7 The site is located to the southwest of Whitehaven. Facilities in this area of the town and in the town centre are within relatively close proximity to future residents on the site, as of course will any facilities provided on the site itself. **Figure 2.1** shows the location of a number of these facilities.

#### Local Schools

- 2.8 There are three local primary schools in close proximity to the site as shown in **Figure 2.1**. St Marys Catholic Primary School and Kells Infant School are located on High Road immediately to the north of the site. Monkwray Junior School is located about 900m from the northern edge of the site.
- 2.9 In terms of secondary education there are two high schools in Whitehaven located on the eastside of the A595 as shown in **Figure 1.1**. They are located between 3.5 and 4km from the site. This it is within the statutory maximum walk distance and is an easy cycling distance. There is a school bus to Whitehaven Academy which runs along High Road.

#### Shops and Health Care

- 2.10 There are a number of convenience stores in the local area and a convenience store is likely to be provided in the commercial development. There are larger foodstores on the southern edge of the town centre including Aldi, Asda and Morrisons. All parts of this site would be within an 800m walk of one or other of these convenience stores. 800m is normally adopted as a maximum desirable walking distance to a convenience store in the context of residential development.
- 2.11 The town centre is 1.7km from the site which is within recommended walking / cycling distances. There is also a regular bus service linking the site with the town centre. There is a range of retail facilities including a post office and banks in the town centre as well as a number of doctor's surgeries.
- 2.12 There is a pharmacy on High Road immediately adjacent to the site's northern access.
- 2.13 West Cumberland Hospital is located on the eastside of the A595 as shown in Figure 1.1. It is about 3.5km from the site. As such it is outside a typical walking catchment but is an easy cycling distance. There are also bus connections to the hospital via the town centre.



#### Employment

- 2.14 West Cumbria Mine will become a major source of local employment and this is located immediately to the south of the site and therefore within an easy walking distance.
- 2.15 There are also significant employment opportunities in the town centre which in terms of journeys to work is within the recognised walking and cycling distance of the site. CBC offices are in the town centre and offices linked to Sellafield are also located there.
- 2.16 There is local industrial type employment at Pow Beck which is within walking distance of the site.

### Pedestrians

- 2.17 The former Marchon site would connect into the existing urban fabric and as such pedestrians would be accommodated on the existing network of footways and crossing points. The footways on High Road and within the existing residential areas are of standard or wider width and dropped crossings are provided at most crossing points.
- 2.18 The roads within the immediate vicinity of the site, including High Road are not heavily trafficked and there is not the requirement for controlled crossing points within the area to link with the proposed development.
- 2.19 There are public footpaths within the site which link to costal paths. These rights of way would be maintained and enhanced through the development of this site. The linkages with the coast will be a key feature of the residential development delivered on the site.

### Cyclists

- 2.20 There are no specific cycle facilities in the area so the majority of cycling takes place on carriageway.
- 2.21 The Coast to Coast cycle route starts in Whitehaven and as such a number of roads and paths in the town are identified as cycle routes. These are of limited use in terms of day to day cycle journeys but there is a cycle route from Whitehaven to Sellafield (NCR 72) which could be used for journeys to work for keen cyclists.

### Public Transport - Bus

- 2.22 The local area is served by bus No 2 which is operated by Stagecoach. The existing stops closest to the site are shown on **Figure 2.1**. The bus provides a local service linking the residential area to the south of the town with the town centre. In the town centre there are connections to other parts of the town including the hospital, high schools and employment areas on the eastern side of the town.
- 2.23 These bus routes are shown on the Stagecoach route map in Figure 2.2.
- 2.24 Bus 2, Mondays to Saturdays, services start at 07:00 and run on a 30 minute frequency until 18:00. There are two buses later in the evening. There is also a reduced service on Sundays.

### Public Transport - Rail

- 2.25 The closest station to the site is Corkickle which is about 1.7km from the site and on the Barrow to Carlisle line. There is typically one train an hour in each direction.
- 2.26 Southbound trains call at Sellafield station as well as Barrow. The journey time to Barrow is about 80 minutes.
- 2.27 Northbound the trains call at Workington as well as Carlisle. The journey time to Workington is about 20 minutes and to Carlisle about 80 minutes.



#### Summary

2.28 The site is in an accessible location with future residents having a choice of transport modes for many journey purposes. A Travel Plan would be in operation to encourage the use of walking, cycling, public transport and car share.



## 3 Existing and Baseline Highway Conditions

### **Highway Network**

#### Key Route Network

- 3.1 The strategic road serving Whitehaven is the A595 which runs north south through the town. The road links the A66 with Workington, Whitehaven, Sellafield and Barrow in Furness. To the north of Whitehaven the road is to a dual carriageway, modern, high capacity standard but through Whitehaven and to the south it is a single carriageway which follows its historical alignment.
- 3.2 As well as providing a route for through traffic, it provides the main access route to the town from the north and south and provides a distributor function particularly in terms of journeys between the east and west parts of the town.
- 3.3 The first junction to the north serving the town is with the A5094 New Road which is a T priority junction where northbound (left turning) traffic from the A5094 effectively merges with traffic on the A595. New Road provides a route into the town centre for traffic from the north.
- 3.4 The next significant junction to the south is the signal controlled junction with the A5094 Inkerman Terrace. This is a T junction arrangement with separate lanes for the individual turning movements on the A595. There are controlled pedestrian facilities across the northern side of the junction. Inkermann Terrace provides another route into the town centre which would primarily be used by traffic from the south.
- 3.5 Immediately to the south of Inkerman Terrace is another traffic signal controlled T junction with the B5295 Ribton Moorside. Ribton Moorside provides a key connection with the eastern side of the town and as such the staggered cross movement of the A595 between Inkerman Terrace and Ribton Moorside is the main link between the town centre and eastern Whitehaven.
- 3.6 About 1km to the south is the junction with the B5295 Egremont Road. This is a 4 arm roundabout, the fourth arm provided by Homewood Road. Egremont Road and Homewood Road are key access routes for the eastern part of the town including West Cumbria Hospital.
- 3.7 The junction with Meadow Road is about 120m south of the roundabout. Meadow Road links a large area of housing with the A595 and forms a well used east to west cross route across the A595 with Egremont Road and Homewood Road. The junction is priority controlled and there is a ghost island on the A595.
- 3.8 Further south is the T junction with Mirehouse Road which is traffic signal controlled. There are separate lanes for each movement at the junction and a controlled pedestrian crossing is provided across Mirehouse Road. Mirehouse Road provides access to the southern residential area of the town.
- 3.9 To the south of Whitehaven the A595 provides access to the Westlakes Science park which is a major employer in the area. Further south the road provides access to Sellafiled which is even more significant in terms of local employment. Traffic conditions on the A595 from Workington, through Whitehaven to Sellafield are significantly influenced by the shift patterns at Sellafield.

#### Local Road Network

- 3.10 The site has frontage to High Road. High Road is a standard width single carriageway road with footways to both sides and is lit. The section fronting the site has a 30mph speed limit but further west the speed limit changes to 40mph and the road becomes known as Wilson Pit Road.
- 3.11 Residential development fronts High Road on its eastern side and there is some limited residential development on the west side. Some on street parking takes place as a result of this frontage development.
- 3.12 There are two existing access points to the site. To the south and about 40m south of Woodhouse Road is a large access which is currently gated this access is the proposed access point for the commercial development and one of the two accesses serving the Phase 2 residential.
- 3.13 The northern access is about 350m to the north and some 40m to the south of Rydal Avenue. This access is not gated and provides access to a small car park to the rear of the pharmacy which is located on the northside of the junction. There is a footway on the northside of this access. This is the proposed access for the Phase 1 residential development.



- 3.14 High Road continues north to serve the Kells area but about 120m to the north of this site the priority route swings to the east (Ennerdale Terrace and Ginns to Kells Road) and runs down the hill to join the B5345 Meadow View. The B5345 is the main distributor route in south Whitehaven and to the north links with the town centre.
- 3.15 The junction between Ginns to Kells Road and Meadow View is priority controlled. Monkwray Brow also connects at this junction making an unconventional priority junction layout albeit Monkwray Brow is lightly trafficked.
- 3.16 To the north of Ginns to Kells Road there is a priority controlled junction with Coach Road. Coach Road provides an informal distributor route around the south of the town centre. To the north of Coach Road there are a number of accesses on the B5345 (here called Preston Road) with edge of centre type development including Asda and Aldi before the first junction in the town centre with Irish Street.
- 3.17 The B5345 junction with Irish Street is a traffic signal controlled T junction with controlled pedestrian facilities on all arms. Irish Street is one way westbound, the north south arms are two way. The public realm around the junction is to a high standard and the junction forms a gateway for the town centre from the south.
- 3.18 There is a network of streets within the town centre, many of which are one way which form a relatively convoluted road network. North south routes dominate the town centre traffic patterns which form connections between the A5094 New Road and the B5345. As such the most convenient route between the site and the A595 north is through the town centre.
- 3.19 To the south of the site Wilson Pit Road (which is the southern extension of High Road) also connects with the B5345, here knows as St Bees Road. The junction is priority controlled. The Story Homes development is accessed from Wilson Pit Road.
- 3.20 Immediately to the north of the Wilson Pit Road junction is a junction between St Bees Road and Mirehouse Road which, as referenced above provides a connection to the A595. The St Bees Road Mirehouse Road junction is priority controlled. It has a relatively unconventional arrangement for traffic turning left into Mirehouse Road in that it is required to give way to right turning traffic without there being a clear splitter island.
- 3.21 To the east of the St Bees Road junction there is a junction with Skiddaw Road which links to Meadow Road. As referenced above Meadow Road provides a second connection to the A595 from south Whitehaven and is a well used route between south and east Whitehaven.
- 3.22 Between Skiddaw Road and Mirehouse Road there is a narrow bridge crossing the railway. The bridge is only wide enough for one traffic lane and the flow over the bridge is priority controlled.
- 3.23 To the north of Mirehouse Lane there is a junction with on the B5345 with Woodhouse Road. Woodhouse Road provides a link through the existing residential estate to High Road. For parts of the site Woodhouse Road will form the most convenient connection with the B5345.
- 3.24 Mirehouse Road via either Wilson Pit Road or Woodhouse Road provides the most convenient connection to the A595 south for the site. These roads also provide the most convenient connection between the site and the eastern parts of Whitehaven (via the Egremont Road roundabout) with some drivers likely to use Meadow Road to access the A595 for this movement.
- 3.25 There is a second route to the town centre from High Road via Harbour Road and Albion Street. Albion Street connects into the town centre road network at a junction with Swingpump Lane, immediately to the north of the Irish Street traffic signals which are described above. Parts of this route are narrow and only wide enough for a single vehicle.

### **Existing Traffic Flows**

- 3.26 Traffic surveys on the local road network were undertaken in November 2018. The identified peak hours across the network were between 08:00 and 09:00 in the morning while the evening peak hour was between 16:30 to 17:30.
- 3.27 The flows are pre the Covid 19 pandemic. The pandemic has resulted in significant changes in travel patterns which are starting now to reach a post pandemic stability in some parts of the country. How much this will reflect a new normal is uncertain, there may now be a more gradual return to the old normal or there may be some fundamental shift which will change travel patterns for good.



- 3.28 Notwithstanding this uncertainty traffic flows from the few years prior to the pandemic will provide a robust basis for current transport assessment work and in this context flows from November 2018 form a robust basis for the report. Peak period traffic flows on the local network including the A595 will not be any higher now than they were in 2018 and in all likelihood they will be a degree lower.
- 3.29 In this context the peak hour traffic flows in the study area are shown in **Figures 3.1 and 3.2**. All the traffic flow figures are presented in two parts Figure x.xa relates to the flows on the local roads in the vicinity of the site and Figure x.xb relates to flows on the A595. Traffic flows are presented in vehicle numbers, including the number of HGVs and buses and passenger car units (pcus).

### Existing Traffic Conditions

- 3.30 High Road is a relatively lightly trafficked road and there is no evidence of issues of traffic queueing in the immediate vicinity of the site.
- 3.31 The B5345 corridor running south from the town centre is a busier route particularly in the evening peak period. There is some evidence of traffic queuing on this section of road but this seems to be as a result of on street parking which takes place outside residential properties on Meadow View.
- 3.32 Meadow View is located to the south of the Ginns to Kells junction and the on street parking, which can extend to over 100m in length, creates a long section over which there is insufficient width for two vehicles to pass. This can result in periods of extended queuing in one direction or another, as once traffic in one direction has established priority it can be difficult for the opposing traffic to proceed.
- 3.33 To the south of Meadow Terrace a lot of traffic leaves the B5345 on Meadow Road so St Bees Road and the junctions with Woodhouse Road, Mirehouse Road and Wilson Pit Road are relatively lightly trafficked and traffic queuing is not experienced at these junctions.
- 3.34 As referenced in the introduction the A595 is a busy road and does experience slow moving traffic during parts of the day. The shift change times at Sellafield have a notable impact on traffic flows and conditions so there are periods of higher flow early morning and mid afternoon as well as the conventional peak periods. The level of traffic flow on the A595 reflects the fact that the road provides a strategic, distributor and access function.
- 3.35 The traffic levels on the A595 do not however tend to result in extended queuing on the side roads at the key junctions.
- 3.36 On the A5094 New Road northbound traffic, which is the predominate movement, merges with the northbound traffic on the A595 rather than giving way in a conventional sense. While right turning, southbound A595 to New Road, traffic does give way in a conventional sense, there is a long right turn lane so the queue does not often imped the through movement on the A595. Given the northbound traffic on the A595 is relatively slow moving right turners can use shorter gaps in the flow and it is the type of traffic where drivers will create gaps by slowing down to allow traffic to turn right.
- 3.37 At the Inkerman Terrace / Ribton Moorside traffic signal junction queues can at time build up on Inkerman Terrace which has a single lane approach. On Ribton Moorside however, which has two approach lanes traffic does not tend to queue extensively.
- 3.38 Traffic on the local road approaches to the B5295 Egremont Road roundabout does not tend to queue extensively as the turning flows create gaps in the through flows on the A595.
- 3.39 At the Meadow Road junction almost all the traffic on the side road is heading to and from the north (left out and right in) which are easier manoeuvres at a priority junction particularly where the opposing northbound movement is relatively slow moving. There is a ghost island right turn lane on the A595 so the right turning traffic queue does not often impede ahead traffic.
- 3.40 At Mirehouse Road the traffic signals allow right turning traffic to enter the southbound traffic flow on the A595.

### **Highway Safety**

- 3.41 Full accident records for the core study area have been obtained from CC covering the five year period January 2014 to December 2018. Plans provided by CCC showing the location of accidents are included in **Appendix C**.
- 3.42 Set out below is a summary of the key observations



- There was one injury accident on High Road and Wilson Pit road which involved a car losing control in wet weather and hitting the wall of the chemist.
- There were three accidents at the High Road / Ennerdale Terrace junction all of which involved a car from High Road north colliding with a car travelling south to east the south to east movement has priority.
- There is no particular issue of highway safety on the B5345 south of the town centre and no accidents at the Ginns to Kells Road junction which could be attributed to the unusual arrangement with Monkwray Brow.
- There were nine accidents at the B5345 St Bees Road and Mirehouse Road junction involving collisions between right tuning south to east traffic and southbound ahead traffic. There is no obvious reason why this manoeuvre should result in a high number of collisions as there is no issue with visibility for vehicles making this manoeuvre. As referenced above the arrangement for left turning traffic from St Bees Road to Mirehouse Road is unusual which may be confusing drivers although the accidents to not appear to be involving this left turn specifically. The one fatality in the vicinity of the junction appeared to result from a driver dying at the wheel there was no collision with another vehicle.
- There has been just one accident at the narrow bridge on Mirehouse Road which involved a car hitting the bridge.
- There were no accidents at the A595 / Mirehouse Road junction since it was signalised.
- There were only three collisions recorded at the A595 / Meadow Road junction despite it being a priority controlled junction onto the busy trunk road. Two involved vehicles turning right from Meadow Road and the other involved a northbound cyclist being hit by a vehicle turning left from Meadow Road this resulted in a serious injury.
- Two accidents on the A595 between Mirehouse Road and the Egremont Road roundabout involved pedestrians. In the first, at the controlled crossing adjacent to Rutland Avenue a child was hit when the traffic had priority and the second involved a pedestrian being hit by a reversing delivery vehicle. The other accidents (six accidents) on this section involved rear end shunts or other driver misjudgements.
- Two accidents at the Egremont Road roundabout involved pedestrians, one a child and the other an elderly person both resulted in slight injuries. There were six other accidents at the junction 4 involving rear end shunts.
- Three accidents at the A595 / Inkerman Terrace junction involved pedestrians. For one of these no details were provided, the other two appeared either to be away from the controlled crossing points or when traffic had priority. Of the other eight accidents at the junction five involved southbound traffic turning right into Inkerman Terrace colliding with ahead traffic while the other three involved rear end shunts.
- One accident on the A595 in the vicinity of the A5094 New Road involved a child pedestrian. It was reported that the child was playing chicken. Three accidents in the vicinity of the junction involved rear end shunts. Four accidents in the vicinity of the junction took place at the right turn stub on New Road, three involving vehicles turning right from New Road to A595 south and one turning right in from A595 north. This second manoeuvre would normally be accommodated at the ghost island right turn further to the north. Two accidents were recorded at the PFS at the junction one involving a vehicle existing to New Road and the other to the A595. There were two other accidents in the vicinity of the junction which appeared to result from parked vehicles pulling away into the path of oncoming vehicles.
- There were no accidents at the New Road junction which could clearly be attributed to the two predominate movements of left out merge arrangement and right turn in from the ghost island.
- 3.43 Based on the data to 2018 it is not considered that there are particular highway safety issues within the study area other than potentially at the St Bees Road / Mirehouse Road junction with the high number of accidents making the right turn movement at a relatively lightly trafficked junction.



- 3.44 Considering the Crashmap data for 2019 and 2020 there are no indications that this general pattern of accidents has changed on the local roads in the vicinity of the site. In this two year period there has only been one further injury accident at the St Bees Road / Mirehouse Road junction with a scattering of accidents elsewhere on the network.
- 3.45 On the A595 there have been two injury accidents at the Mirehouse Road traffic signal junction but no further accidents at the Meadow Road junction or the B5295 Egremont Road roundabout. There have been no further accidents at the A5094 New Road junction but there has continued to be a scattering of accidents to the south in the vicinity of the petrol filling station. Again, on the truck road there is no indication that patterns of accidents are changing.

### Other Proposed and Committed Development

3.46 The section of the TA sets out the committed developments (developments which have planning permission but have not been built or have been partially built) which have been included in the assessments.

### West Cumbria Mining Limited

- 3.47 The West Cumbria Mining Limited have proposals for coal mine on the site immediately adjacent to the proposed residential development. The proposals are long standing and have been recommended for planning approval by CCC. The planning application has however been called in by the Secretary of State so does not yet and may never have planning permission. However, for the purposes of this report we have assumed the scheme is in place.
- 3.48 The traffic flows for this development were derived from the West Cumbria Transport Model and presented in a Transport Assessment and Environmental Statement by consultant Aecom.
- 3.49 Flows were prepared for the construction and operational phases of the development. The flows used in this report are the 2029 flows when the mine would be fully operational. The flows presented in the Aecom work identify the differences between the with and without mine model runs. These show that the increases in traffic would be relatively modest which is partly explained by shift changes occurring outside peak times and partly through the model reassigning traffic to other routes.
- 3.50 The northern extent of the Aecom work on the A595 was the Egremont Road roundabout. As the flow changes at this junction were minimal the lack of data for this development on the junctions to the north will not be significant.
- 3.51 On this basis the peak hour traffic flows for the WCML development, taken from the Aecom work are shown in **Figures 3.3 and 3.4**. Traffic arriving in the morning is split relatively evenly north south, with traffic from the north coming from the town centre via Ginns to Kells Road and High Road and traffic from the south using Mirehouse Lane. We have assumed that some of the traffic from the town centre originates to the north and uses the A595 / A5094 New Road junction although Aecoms work did not extend this far. Traffic leaving in the evening follows a similar pattern and again we have assigned some of the northbound traffic to the New Road junction.

#### Story Homes

- 3.52 There are up to 570 residential units with planning permission at the Story Homes site to the south of the proposed residential development and on the opposite side of High Road / Wilson Pit Road. At the time of the traffic counts 161 units had been occupied (information from CBC). This TA therefore includes the traffic from the 409 uncompleted units.
- 3.53 Traffic flows for this development have been derived from the TA submitted with the Story Homes application by subtracting without development flows from with development taken from flow diagrams. In this context the peak hour traffic flows are included in **Figures 3.5 and 3.6**.
- 3.54 We understand these traffic flows were derived from a traffic model which will have taken some account of the displacement of background traffic and which also mean flow increases do not always follow logically through the network.



- 3.55 In the morning peak hour more traffic leaves to the north than south with over 100 extra vehicles on the B5345 corridor north of GInns to Kells Road, with majority coming from Ginns to Kells Road. There are also over 60 southbound movements on this corridor with all using Ginns to Kells Road.
- 3.56 Similarly in the evening peak hour more traffic returns to the site from the north with about 70 extra vehicles turning right from the B5345 to Ginns to Kells Road. The traffic model also assigned some traffic from the north to the Albion Road and Harbour Road route as the southbound flow increase on High Road was nearly 100 vehicles. Northbound traffic in the evening has also been predominately assigned to the Harbour View and Albion Road route which gives an indication that there are delays in the model at the B5345 / Ginns to Kells Road junction or further north on the B5345 corridor.
- 3.57 Taking account of both the WCML proposal and the Story Homes committed development there are some notable increases in traffic flows on the B5345 corridor north of Ginns to Kells Road and on Ginns to Kells Road itself. It is clear that the junction between these roads is a key node for development accessed from High Road.

### Harras Moor Residential Development

- 3.58 When the work for this report was scoped in 2018 there were 480 residential units proposed at Harras Moor on the east side of the A595 which we were asked to take account of on the assumption that planning permission would be granted imminently. It would appear from CBCs online system that planning permission for the majority of these units was not granted but as the site remains a key allocation in the local plan we have included it.
- 3.59 Traffic flows for this development have been derived from the TA submitted for a second phase of development on the site which incorporated 370 units (which is the part that does not appear to have permission). In that report the first phase development (110 units) was included as a committed development.
- 3.60 The extent of the information in the TA did not extend to the west of the A595 nor to the south of the Egremont Road roundabout. Traffic flows have been estimated on other parts of the study network. Very little traffic from this site would use Mirehouse Road, the B5345 or High Road and this is reflected in the peak hour traffic flows for this site which are included in **Figures 3.7 and 3.8**.

### **Total Other Proposed and Committed Development Flows**

3.61 Combining the traffic from all the committed developments gives the morning and evening committed development traffic flows shown in **Figures 3.9 and 3.10** respectively. These flows diagrams highlight the level of traffic from the proposed WCML site and the committed Story Homes site which would be using Ginns to Kells Road and the B5345 north of Ginns to Kells Road.

### **Traffic Growth**

- 3.62 Typical traffic assessment methodology would add a level of background traffic growth to the existing flows as well as the traffic associated with the committed development.
- 3.63 Background growth rates are calculated by The Department for Transport TEMPRO 7 software. Based on an opening year of 2023 and an assessment year 10 years post opening as required by HE development management policy gives the growth rates from 2018 set out in Table 3.1. These are based on the averages of the rates for the 3 medium super output areas (MSOA) which make up Whitehaven.

	2018 to 2023	2018 to 2033
Morning Peak Period	1.06	1.12
Evening Peak Period	1.05	1.11

#### Table 3.1: TEMPRO Growth Rates



- 3.64 These figures show that theoretically TEMPRO predicts very significant levels of growth in Whitehaven with much of this happening in the 5 years between 2018 and 2023 and then a similar level of growth in the 10 years between 2023 and 2033. There is clearly no evidenced basis for these figures. Not only are they contrary to trends over the past 10 to 15 years which has shown very little levels of growth in traffic flows but they also take no account of the implications of Covid.
- 3.65 Calculating future year traffic flows is always an estimate and no one can pretend that it is an exact science. The Transport Planning profession has been consistently over estimating the level of traffic growth since 1990 as shown in the graph in **Appendix D**. The graph shows actual traffic growth against that predicted by DfT Forecasts. These are national figures and show how the growth in traffic flow started to slow in the early 1990's and flattened of in the early 2000's but this picture is mirrored across the Country. Notwithstanding this growth forecasts, of which TEMPRO is the latest incarnation, continue to predict a notable upward trajectory.
- 3.66 There is considerable debate about the approach to growth within the Transport Planning profession both in the context of assessing future demand in developing transport schemes and in the TA procedure. This debate is being driven by a number of issues; a recognition that current procedures have consistently significantly over estimated traffic demand as outlined above; inconsistency between policy which is focused on sustainable travel and reducing the need to travel and traffic growth predictions and uncertainty over the future where alternatively powered and autonomous vehicles and the sharing economy are now necessary considerations within medium to long term planning.
- 3.67 The assessment methodology for transport improvement schemes now requires a range of scenarios to be considered to take account of this uncertainty. While this approach has yet to filter through to standard Transport Assessment methodology it now generally recognised that a one size fits all approach is not appropriate and a number of factors need to be taken into account in considering the potential transport impacts of proposed development. Covid 19 has added to the number of factors which should be considered.
- 3.68 Specifically in a Whitehaven context we would consider the A595 has very little scope to accommodate additional through traffic movements at certain times of the day due to the constraints of the road to the south of Whitehaven where the standard reduces significantly. Here there are parts of the road which follow an historic alignment and the constrained capacity of these will limit the level to which traffic can increase along the corridor.
- 3.69 We have calculated three sets of base flows as set out below:-
  - Considering the traffic growth from just the committed and other proposed developments we would consider that these are the most likely estimate of future year traffic flows and in places on the network still result in significant levels of traffic increase (Figures 3.11 and 3.12).
  - Applying the 2023 growth factor to 2018 flows and adding the traffic from the committed and other proposed developments we would consider these are a worst case estimate of future year traffic flows and if they were ever to materialise it would be in a time frame well beyond 2023 (Figures 3.13 and 3.14).
  - Applying the 2033 growth factor to 2018 flows and adding the traffic from the committed and other proposed developments we would consider these are unrealistic estimates of future year traffic flows which in all likelihood would not or could not materialise (Figures 3.15 and 3.16).



# 4 The Development, Person Trip Generation and Distribution

### Basis of Masterplan and Access Proposals

- 4.1 The key access and transport considerations to the design and layout of the site have been:
  - The provision of a number of points of access to High Road to provide convenient access to the site and to maintain the residential nature of this part of the road provided through the development on the opposite side.
  - To reuse the northern existing site access junction to access a Phase 1 development of 139 units.
  - To reuse the southern existing access to serve the ancillary commercial development and provide one of the two accesses to the Phase 2 residential development of up to 400 units.
  - To provide a new access to serve as the other access to the Phase 2 development.
  - Access to existing bus services in the local area.
  - Pedestrian and cycle access to local streets and the provision of routes through the site to maintain existing PROW access to the coast.
- 4.2 The Phase 1 development would be accessed from the existing northern access. Modification would be made to the access road to provide a wider footway which will require modifications to junction radii at High Road.
- 4.3 On this basis the proposed access is shown in drawing number CBO-0542-003 Rev A in **Appendix B**. The use of this junction to serve the Phase 1 development has been agreed with CCC.
- 4.4 Drawing CBO-0542-005 in **Appendix B** shows that the southern existing access is appropriate to serve the ancillary commercial development and form one of two accesses to the Phase 2 development. The reuse of this junction has been agreed with CCC.
- 4.5 The other proposed access to the Phase 2 development is shown in drawing CBO-0542-007 in **Appendix B**.
- 4.6 Full planning permission is being sought for these access points. Full planning permission is also being sought for the Phase 1 residential development. Outline planning permission is being sought for the Phase 2 development including the ancillary commercial development.

### **Development Content**

- 4.7 The proposed development is for residential development of up to 539 residential units with 139 in Phase 1 to the north of the site and up to 400 in Phase 2.
- 4.8 A small ancillary commercial development would also be provided on the site. This development would be primarily aimed at serving the development itself and the local area. It is not anticipated that it would include uses which would attract trips from further afield.
- 4.9 For the purposes of this report it has been assumed that the ancillary commercial development consists of the following:
  - 450m<sup>2</sup> convenience store
  - 850m<sup>2</sup> pub / restaurant

### **Travel Plan**

- 4.10 The use of public transport, walking and cycling would be encouraged through a Travel Plan which would be prepared for the site. The travel plan would be coordinated with CCC and CBC (or their predecessors) through a travel plan coordinator (TPC).
- 4.11 The Travel Plan would provide information to residents on travel options by all modes of transport and encourage car sharing. There would probably be a web site set up to provide links to other sites where travel information is available.



### Trip Generation – Residential

- 4.12 The methodology for calculating trip generation and distribution was agreed with CCC and HE back in 2018. The approach used the then current data from TRICS and the National Travel Survey (NTS). More up to date information is now available from TRICS but this predicts slightly lower levels of trip generation than the 2018 information so we have continued to use the previously agree figures. Similarly, there are now newer versions of the NTS but the figures used in the methodology have only changed marginally so we have used the originally agreed data.
- 4.13 As above trip generation has been based on TRICS using the "Houses Privately Owned" category. The trip rates are based on edge of town and suburban sites in the UK outside London and excluding Ireland. Sites which are close to major centres of population have also been excluded. TRICS outputs are included in **Appendix E**.
- 4.14 The trip rates from TRICS are set out below in Table 4.1 for the morning peak period and 4.2 for the evening. Only the main modes have been included. From the sample of sites selected the trip generation for taxis, PSVs and OGVs were effectively zero.

	07:00 – 08:00		08:00 – 09:00	
	Arrivals	Departures	Arrivals	Departures
Total People	0.11	0.45	0.18	0.75
Pedestrians	0.01	0.03	0.02	0.09
Cyclists	0	0.01	0	0.01
Car/van <b>Occupants</b>	0.01	0.40	0.16	0.63
Public Transport	0	0.01	0	0.02
Car/van Drivers	0.08	0.28	0.13	0.39

#### Table 4.1: Trip Rates per Dwelling Morning Peak Period

### Table 4.2: Trip Rates per Dwelling Evening Peak Period

	16:00 – 17:00		17:00 – 18:00	
	Arrivals	Departures	Arrivals	Departures
Total People	0.53	0.29	0.63	0.30
Pedestrians	0.07	0.03	0.06	0.04
Cyclists	0.01	0.01	0.01	0.01
Car/van <b>Occupants</b>	0.44	0.25	0.55	0.25
Public Transport	0.01	0	0.02	0
Car/van Drivers	0.29	0.17	0.37	0.18

4.15 Tables 4.3 and 4.4 show the trip generation levels as applied to the 539 units on the site. In these Tables the number of car/van passengers identified rather the total vehicle occupants which include the drivers. Note that subtracting the pedestrians, cyclist, passengers and public transport users from the total number of people gives the number of car/van drivers.

#### Table 4.3: Trip Generation Morning Peak Period

	07:00 – 08:00		08:00 – 09:00		
	Arrivals	Departures	Arrivals	Departures	
Total People	59	243	97	404	
Pedestrians	5	16	11	49	
Cyclists	0	5	0	5	
Car/van Passengers	5	216	86	340	
Public Transport	0	5	0	11	
Car/van Drivers	43	151	70	210	

### Table 4.4: Trip Generation Evening Peak Period

	16:00 – 17:00		17:00 – 18:00		
	Arrivals	Departures	Arrivals	Departures	
Total People	286	156	340	162	
Pedestrians	38	16	32	22	
Cyclists	5	5	5	5	
Car/van Passengers	237	135	296	135	
Public Transport	5	0	11	0	
Car/van Drivers	156	92	199	97	

### 4.16 Based on the TRICS data the mode split is as follows:-

- Cyclists between 0 and 3%
- Pedestrians between 7 and 13%
- Public transport between 0 and 3%
- Car / Van Passengers between 17 and 32%
- Car / Van Drivers between 53 and 72% the 72% is inbound in the morning peak which is a statistically a small sample. Excluding these periods the range is 53 to 62%.
- 4.17 The TRICS data reflects journeys for all purposes. The 2011 census journey to work data for this part of Whitehaven (MSOA Copeland 005) shows the following mode splits:-
  - Cyclists -1%
  - Pedestrians 11%
  - Public transport 10%
  - Car / Van Passengers 13%
  - Car / Van Drivers 63%.
- 4.18 While it is not possible to make a direct comparison between the all-purpose journey mode split from TRICS and the journey to work specific mode split from the census data there is some correlation in the data. While it would be expected that the census car/van driver JTW mode split would be higher than the all-purpose TRICS car/van driver mode split, it is not significantly greater which indicates the TRICS data is representative for the site.

### **Trip Generation – Commercial**

4.19 The trip generation for the commercial development has also been based on TRICS using the convenience store and pub restaurant categories on the data base. These trip rates are based on current TRICS searches and have not previously been shared with CCC or HE. TRICS outputs are included in **Appendix E1**.



4.20 The evening peak hour trip rates are an average of the 16:00 - 17:00 and 17:00 to 18:00 to reflect the network peak of 16:30 to 17:30. There is no trip generation from the pub in the morning. On this basis the trip generation from the commercial development is shown in Tables 4.5 and 4.6.

#### Table 4.5: Convenience Store Vehicle Trip Rates and Trip Generation

	Morning Peak Hour		Evening Peak Hou	r
	Inbound	Outbound	Inbound	Outbound
Trip Rate per 100m <sup>2</sup>	7.19	6.82	8.35	7.73
Trip Generation	32	31	38	35

### Table 4.6: Pub Restaurant Vehicle Trip Rates and Trip Generation

	Morning Peak Hour Inbound Outbound		Evening Peak Hour	
			Inbound	Outbound
Trip Rate per 100m <sup>2</sup>	-	-	2.94	1.66
Trip Generation	rip Generation		25	14

### Trip Distribution and Assignment - Residential

- 4.21 Given the location of the site there is a relatively straight forward pattern of movements which can be broadly defined as:-
  - Whitehaven (west of A595) residential and employment areas surrounding the town centre and the town centre itself.
  - Whitehaven (east of A595) West Cumberland Hospital and the town's two high schools
  - A595 South Sellafield, West Lakes Science Park (and little else).
  - A595 North Workington and routes to the strategic network via the A66.
- 4.22 The distribution to these four broad locations of the census JTW from MSOA Copeland 005 is shown in the table in **Appendix F** and can be summarised as:-
  - Whitehaven (west of A595) 24% this is made up of 18% to the town centre and 6% within MSOA 005.
  - Whitehaven (east of A595) 14% most of this (11%) is to MSOA Copeland 003 which is where the hospital is.
  - A595 South 41% 32% to MSOA Copeland 007 which is where Sellafield is, and 7% to MSOA Copeland 006 which is where West Lakes Science Park is located.
  - A595 North 21% 15% of this is in Workington.
- 4.23 On this basis 41% of the JTW are made to the A595 south.
- 4.24 It is common practise to use the JTW as the basis for the distribution of all trip purposes accepting they are reasonably representative and provide a robust approach. However in this case there simply is nothing else located to the south of Whitehaven which would attract anything other than negligible levels of trips for any other purpose.
- 4.25 Whitehaven is relatively self-contained in terms of retail / services and any leakage would be to the north. The town has a full compliment of primary and secondary schools and the higher education college is in Workington (The Lakes College). The majority of trips to areas further afield would be made to the north via the A66 and to Carlisle.
- 4.26 On this basis we consider the application of the JTW distribution to all trip types in this instance would be inappropriate.

<u>Trip Purpose</u>

4.27 Table NTS0502 of the National Travel Survey 2017 provides information on trip purpose by start time. The information is summarised below for the four key hours. This is national data but there is no reason why it would not, broadly speaking, apply to Whitehaven. As referenced at the start of this section the more



recent NTS data is very similar to the 2017 figures and would not make any material change to the calculated trip distributions.

		Journey Purpose								
Start Time	Commuting	Business	Education	Education Escort	Shopping	Other work, Other Escort and personal business	Visiting Friends, entertainmen t and sport	Holiday Day Trips and Other		
07:00	50%	6%	14%	5%	3%	14%	2%	5%		
08:00	21%	3%	29%	22%	4%	14%	3%	3%		
16:00	22%	4%	7%	4%	15%	21%	18%	9%		
17:00	33%	4%	3%	2%	12%	20%	19%	10%		

- 4.28 Table 4.7 shows that commuting trips only make up a proportion of the journeys made in the peak periods. This indicates that the application of the JTW distribution to all peak period trips would result in a skewed assessment of the impact of the development traffic.
- 4.29 For the peak directions (Inbound in the morning and outbound in the evening) we have split the total number of people trips (Tables 4.3 and 4.4) by the percentages shown in Table 4.7 to give the total number of trips by journey purpose.
- 4.30 We have then split the commuter trips by the journey to work mode split from the census data which means that 63% of the total work trip were made by car.
- 4.31 We have assumed that all the business and holiday / day trips were made by car. This gives a number of car trip made for commuting, business and holiday / day trips which was subtracted from the total TRICS based car/van driver trip generation to give the number of car trips made for the other journey purposes (education, education escort, shopping, other work etc and visiting friends etc.)
- 4.32 This residual number of car trips was split proportionally by the different journey purposes to give the total number of car trips by journey purpose shown in Table 4.8. Note that for 07:00 and 08:00 the figures in Table 5.2 relate to outbound trips and for 16:00 to 17:00 they relate to inbound. The sum of the rows is equal to the total number of car / van trips in the peak directions shown at the bottom of Tables 4.3 and 4.4.

		Journey Purpose								
Start Time	Commuting	Business	Education	Education Escort	Shopping	Other work, Other Escort and personal	Visiting Friends, entertainme	Holiday Day Trips and Other		
07:00	151	77	15	3	10	6	26	8		
08:00	210	53	12	12	65	12	42	9		
16:00	156	39	12	2	7	23	32	28		
17:00	199	70	14	1	5	23	38	37		

### Table 4.8: Start time by Total Number of Car / Van Trips

#### Trip Distribution by Journey Purpose

- 4.33 The commuting trips have been split by the census JTW distribution (para 5.3). This assigns a lot of traffic to and from the south reflecting the location of Sellafield and to a lesser extent West Lakes Science Park.
- 4.34 We have made the assumption that all other longer distance trips (ie those made on the A595 to the north and south) would be split 90% to the north and 10% to the south. This reflects the fact that trips for



other purposes not retained in Whitehaven would be predominately focused on Workington or use the strategic road links to the north of Whitehaven. There is very little reason to travel south other than to work at Sellafield or West Lakes Science Park.

- 4.35 In this context we have assumed the following :-
  - all business and holiday / day trip journeys would be longer distance;
  - 50% of other work etc and visiting friends etc would be longer distance;
  - none of the education or shopping trips would be longer distance.
- 4.36 Of the local trips we have assumed that 75% would be to west of A595 and 25% to east of A595. This reflects the fact that many of these trips would be focused on uses in and around the town centre and to local primary schools which are on the westside of the town but acknowledging that the hospital and high schools on the east side of the A595 would attract some of the trips.
- 4.37 For the retail trips we have assumed these would all be to the west of the A595 as all Whitehaven's supermarkets and retail parks as well as the town centre are on the west side of the trunk road.
- 4.38 On this basis the trip distribution by journey purpose is summarised in Table 4.9.

	A595 North	A595 South	Local West	Local East
Commuting	21%	41%	24%	14%
Business	68%	19%	19%	6%
Education	50%	-	-	50%
Education Escort	-	-	75%	25%
Retail	-	-	100%	-
Other Work etc	36%	4%	45%	15%
Visiting Friends etc	25%	10%	45%	20%
Holiday / Day Trip etc	90%	10%	-	-

### Table 4.9: Car / Van Trip Distribution by Journey Purpose

4.39 Applying these distributions to the car / van trips shown in Table 4.8 gives the number of car / van trips to and from each area shown in Table 4.10. The non-peak trips (inbound in the morning and out in the evening) have been split by the same proportion as the peak direction.

	A595 North		A595 South		Local West		Local East	
•	In	Out	In	Out	In	Out	In	Out
07:00	13	45	10	35	14	50	6	21
08:00	16	48	8	26	33	98	12	38
16:00	47	28	22	13	67	39	19	12
17:00	58	28	36	18	79	38	25	12

#### Table 4.10 Trip Distribution / Assignment



4.40 In percentage terms the number of trips distributed to each area by time period is shown in Table 4.11.

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	A595 North	A595 South	Local West	Local East		
07:00	30%	23%	33%	14%		
08:00	23%	12%	47%	18%		
16:00	30%	14%	43%	12%		
17:00	29%	18%	40%	13%		
Average	36%	17%	36%	11%		

Table 4.11: Percentage of Trips by Time Period

- 4.41 Combining the traffic generation and distribution information gives the residential traffic flow shown in **Figures 4.1 and 4.2**. For the evening peak these are the average of the 16:00 17:00 and 17:00 to 18:00 figures to reflect the network peak of 16:30 to 17:30. For ease of presentation the Phase 2 residential and ancillary commercial development is shown using one access point. The key assignment assumptions are as follows:-
  - All traffic to A595 south uses the Mirehouse Road junction some traffic is routed via Woodhouse Road and some via Wilson Pit Road.
  - Traffic to Whitehaven East is split between the Mirehouse Road and Meadow Road junctions to get the B5295 Egremont Road roundabout on the A595. Again, some traffic is routed via Woodhouse Road and some via Wilson Pit Road.
  - Traffic to/from the A595 north is routed through the town centre via High Road, Ginns to Kells Road and Preston Road to get to the A5094 New Road junction with the A595.
  - Traffic to/from Whitehaven West is routed via High Road and Ginns to Kells Road to the B5345 corridor. Some of this traffic is assigned to Coach Road with the majority to Preston Road.

### Trip Distribution and Assignment Commercial Development

- 4.42 **Figures 4.3, 4.4 and 4.5** show the traffic flows associated with the convenience store and pub restaurant respectively. For both these uses we have assumed 20% of the trips would be internal to the site so are not shown on the traffic flow diagrams.
- 4.43 For the convenience store we have assumed that 20% would be pass by trips on High Road and that the remainder would be generated locally to the site and all to the west of the A595. On this basis there are only traffic flow diagrams for the local roads for this proposed use (**Figures 4.3 and 4.4**).
- 4.44 For the pub restaurant we have assumed all trip would be generated in Whitehaven but a small proportion would be from Whitehaven East and would therefore need to cross the A595. For this proposed use there would be no morning peak hour traffic so there are just flow diagrams for the evening peak hour on the local and A595 networks (**Figures 4.5a and 4.5b**).

### With Development Traffic Flows

- 4.45 Combining the base traffic flows outlined in Section 3 with the proposed development traffic flows gives the with development traffic flows as follows:-
  - Figures 4.6 and 4.7 show the development traffic flows added to the base flows which just include the committed and other proposed development to give the no background growth with development flows. As per our reasoning in Section 3 we considered these the most likely representation of future year traffic flows.
  - Figures 4.8 and 4.9 show the development traffic flows added to the base flows which include TEMPRO growth rates to 2023. As set out in Section 3 we would consider these are a worst case



estimate of future year traffic flows and if they were ever to materialise it would be in a time frame well beyond 2023.

- Figures 4.10 and 4.11 show the development traffic flows added to the base flows which include TEMPRO growth rates to 2033. Again, as set out in Section 3 we would consider these are unrealistic estimates of future year traffic flows which in all likelihood would not or could not materialise.
- 4.46 These with development flows have been used to assess the impact of the development on the key junctions in the study area. This work is set out in the next section of this report.



## 5 Junction Operation and Traffic Impact

### Overview

- 5.1 This section of the TA provides information on junction operation and the traffic impact of the full development incorporating the 539 residential units and ancillary commercial development. The assumption is that all access points would be in place along High Road.
- 5.2 The junctions on the local roads are considered first followed by those on the A595 trunk road.

### Site Access and Local Junctions on High Road and St Bees Road

- 5.3 High Road, Wilson Pit Road, St Bees, Woodhouse Road and Mirehouse Road are currently lightly trafficked and junctions operate well within capacity.
- 5.4 Despite there being considerable increases in traffic associated with the committed Story Homes development, the proposed WCML and the development proposed on the Marchon site these junctions continue to operate within capacity with the development in place. The proposed site accesses on High Road also operate well within capacity.
- 5.5 An experienced Transport Planner will be able to draw this conclusion from an inspection of the traffic flows, however a series of junction models have been built using the Junctions 9 PICADY module to confirm this. These junction models can be provided if necessary and show that even with the unrealistic 2033 with development traffic flows these junctions operate well within capacity. PICADY is the industry standard software tool for assessing priority junctions.

### Mirehouse Road Railway Bridge

- 5.6 The Mirehouse Road railway bridge is a single lane wide. The eastbound flow has priority over the westbound and there is about 35m between the give way line on the east side of bridge.
- 5.7 The Marchon site development would result in an increase in the two-way flow across the bridge of 58 vehicles in the morning peak hour and 68 in the evening. These are not particularly significant increases at about 1 additional vehicle a minute.
- 5.8 The 2033 with development flows show in the morning peak there would be 391 eastbound vehicles and 284 westbound. In the evening the eastbound flow is 405 and westbound in 327 vehicles. In both peaks the priority eastbound flow is higher than the westbound.
- 5.9 The free flow capacity in one direction over the bridge will be about 1,600 vehicles per hour so the two way flow over the bridge is considerably less than this, in the evening peak hour when the flow is highest the two-way flow represents 46% of the free flow capacity. There will however be considerable amounts of lost time associated with the travel time across the bridge and the time associated with westbound traffic waiting for a vehicle they can see approaching on the other side of the bridge, although from experience of similar arrangements the non priority flow often proceeds in quite short gaps in the priority flow accepting that opposing vehicles will slow or stop.
- 5.10 It is not possible to undertake a precise calculation to demonstrate that the bridge would operate within capacity but for it not to there would need to be over 50% of the time when a vehicle was not crossing the bridge in either direction which is highly unlikely to be the case.
- 5.11 On this basis not only is the development flows relatively low across the bridge at about 1 additional vehicle per minute, the bridge would have capacity to accommodate the unrealistic 2033 with development flows.

### B5345 Preston Street / Irish Street / Swingpump Lane Junction (Appendix G)

- 5.12 This is a signal controlled junction on the southern side of the town centre. A LINSIG model of the junction has been built using layout and signal timing information provided by CCC. LINSIG is the industry standard software for assessing traffic signal junctions.
- 5.13 The LINSIG model shows the junction would be operating well within capacity even with the unrealistic 2033 with development flows. The practical reserve capacity (PRC) of the junction in the morning peak hour is 46% and in the evening peak it is 23%.



### B5345 Preston Road / Coach Road (Appendix H)

- 5.14 This is a priority junction located to the north of the Ginns to Kells Road junction on the B5345 corridor. A Junctions 9 PICADY model has been built of the junction which shows that the junction can accommodate the with development flows under all three growth scenarios.
- 5.15 In the most likely no growth with development scenario the maximum ratio flow to capacity (RFC) is 0.65 with a queue of 3 vehicles on the B5345 Preston Road right turn. In the evening peak the maximum RFC of 0.54 is on Coach Road with a queue of 2 vehicles.
- 5.16 There are small increases in these values under the worst case 2023 scenario and under the unrealistic 2033 flows the maximum RFC on Preston Road in the morning peak rises to 0.75 with a queue of 5. In the evening the maximum RFC on Coach Road is 0.65 with a queue of 2.

### B5345 Meadow View / Ginns to Kells Road Junction (Appendix I)

- 5.17 This is a priority junction on the B5345 corridor which most of the traffic from the WCML, Story Homes and the Marchon sites uses to access the corridor, although as summarised in section 3 the modelling of the Story Homes development assigned some traffic to Albion Road and Harbour view which meant it avoided this junction. It is therefore a key node in the local network in the context of the regeneration of this part of Whitehaven and delivering CBC Local Plan preferred housing sites.
- 5.18 The traffic on Ginns to Kells Road is almost exclusively north / south heading to and from the town centre. There is hardly any traffic using Ginns to Kells Road to get to and from the B5345 Meadow View south. The layout of the junction is unusual in that Ginns to Kells Road is effectively running parallel to Meadow View on the approach to the junction. The layout is further complicated by Monkwray Brow which connects into Ginns to Kells Road very close to the give way line with Meadow View. Traffic management means that the flow using Monkwray Brow to access the B5345 corridor is minimal but there is a notable flow of traffic turning into Monkwray Brow from the B5345, most of it from the north.
- 5.19 Under the existing traffic flows the through movements on the B5345 are of a similar magnitude to the minor Ginns to Kells Road / B5345 town centre movements but with the committed and proposed development in place the traffic flows on the minor movement are notably higher than the through movement so the existing priority is in effect the wrong way round.
- 5.20 A Junctions 9 PICADY model of the existing junction has been built. This shows that under the no growth base flows the junction is operating at capacity. The capacity issue is on the right turn into Ginns to Kells (and Monkwray Brow) from the B5345 north in the evening peak hour, with a ratio of flow to capacity of 0.96 and a queue of 15. Adding proposed traffic from the Marchon site means the RFC increases to 1.2 with a queue of 83. The modelling is showing that with the major traffic movement using the minor route through the junction capacity is exceeded.
- 5.21 The capacity issue at the junction is however primarily an evening peak hour issue. In the morning peak hour the maximum RFC is on Ginns to Kells Road. Under the no growth base flows this approach is operating well within capacity (RFC 0.60 and queue of 2) and the addition of the proposed development on the Marchon site increases this to and RFC of 0.81 and a queue of 4 vehicles.
- 5.22 There is the potential for some Marchon site traffic to use Albion Road / Harbour View route to get from the town centre to High Road as the modelling undertaken for the Story Homes site showed. Parts of this route are narrow but undoubtedly some traffic would use this route if there was significant queuing at the Ginns to Kells Road junction.
- 5.23 One of the reasons Ginns to Kells Road is so heavily used by traffic accessing the Kells and High Road area is the extensive on street parking that occurs on the B5345 Meadow View to the south of the junction. As explained in Section 2 there is a considerable length of on street parking which can cause delay once traffic in one direction establishes a priority. Removing this on street parking or creating gaps in it to make it easier for vehicles to pass would mean more traffic would use this route and get to High Road via Woodhouse Road or Wilson Pit Road.
- 5.24 To address the capacity issue at the B5345 Meadow View / Ginns to Kells Road junction requires the priority at the junction to be switched so Ginns to Kells Road to and from the B5345 north has priority over the B5345 Meadow View south movement.
- 5.25 It is not possible to switch the priority under a give way arrangement because of the angles of the roads. However, the angle of the roads provides the potential for traffic signals to be introduced which could run the Ginns to Kells to B5345 northbound and B5345 to Ginns to Kells southbound in the same



stage of the signals. The B5345 Meadow View northbound traffic would have a separate stage and would in effect be the minor arm of the junction. Monkwray Brow could operate on a vehicle actuated basis – the traffic flows are so light (5 vehicles in the morning and 4 in the evening) this phase of the junction would be rarely called.

- 5.26 A drawing of a potential junction layout in included in Figure 11 in **Appendix I**. The layout would require the movements between Ginns to Kells Road and the B5345 Meadow View south to be banned but these are very lightly trafficked less than 10 on both movements in both peak hours and there are alternative routes which could accommodate them.
- 5.27 The layout is unusual this is an inevitability given the alignment of the roads and the fact Monkswray Brow also connects into the junction, but we would consider it provides the basis for a solution to capacity issues at this key node.
- 5.28 We have built a LINSIG model of the traffic signal arrangement which shows that it would have capacity to accommodate the unrealistic 2033 with development traffic flows. It is possible to run the traffic signals on a short cycle time to keep queue lengths short. In the morning peak hour the PRC would be 69% and in the evening 13% with a cycle time of 60 seconds. The maximum queue on the B5345 Meadow View south arm is 7 pcus which could be accommodated in the length between the between the stop line and start of the on street parking.
- 5.29 To the north the queue would extend across the Coach Road junction so there would be a requirement for some keep clear markings on the right turn into Coach Road. With the existing priority arrangement, under just base flows the predicted queue would extend to Coach Road so this is an issue that is likely to need to be addressed in any event. The northerly queue would be longest in the evening peak at 13 pcus, it would be about half this length in the morning peak hour.
- 5.30 With a junction improvement of this nature or through modifying the on street parking to the south of the junction it is considered the impacts of the development traffic can be mitigated at the Ginns to Kells Road / B5345 Meadow View junction.

### Junctions on the A595

- 5.31 This section of the report considers the impact of the development on the A595 trunk road. There are four junctions on the truck road which would be used by development traffic.
  - To the south of the town the Mirehouse Road traffic signals which would be used by traffic heading to and from the A595 south and some traffic crossing the A595 to get to and from Whitehaven east.
  - The Meadow Road priority junction which would be used by traffic crossing the A595 to get to and from Whitehaven East.
  - The B5295 Egremont Road roundabout which would be used by traffic crossing the A595 to get to and from Whitehaven East.
  - The A5094 New Road which would be used by traffic heading to and from the A595 north.
- 5.32 The impact of the development traffic on these junctions is less than on the local roads partly because it is further from the development site but also proportionally the impact is lower because the traffic flows on the truck road are much higher. It is also the case that theoretical traffic growth has a much greater impact on traffic flow levels on the A595 as the application of a percentage growth factor to higher traffic flows results in a much larger absolute increase. This is demonstrated in Tables 5.1 and 5.2.

Table 5.1. Italiic flows at the solicitoris of the A575 – Monning Feak floor						
	2018 Flow	Committed/Other	2023 Growth	2033 Growth	Proposed	
		Proposed	Factor	Factor	Development	
Mirehouse Road	1,944	242	117	233	59	
Meadow Road	2,103	158	126	252	50	
B5295 E'mont Rd	2,323	161	139	179	50	
A5094 New Road	2,196	103	117	264	64	

### Table 5.1: Traffic Flows at the Junctions on the A595 – Morning Peak Hour



	2018 Flow	Committed/Other Proposed	2023 Growth Factor	2033 Growth Factor	Proposed Development
Mirehouse Road	2,018	145	121	242	60
Meadow Road	2,130	153	128	256	44
B5295 E'mont Rd	2,345	149	141	281	44
A5094 New Road	2363	45	142	284	81

#### Table 5.2: Traffic Flows at the Junctions on the A595 – Evening Peak Hour

- 5.33 The figures in Table 5.1 show that in the morning peak hour the proposed development traffic is relatively low at about one additional vehicle a minute at each of the junctions. The increase from the proposed development is less than half of that associated with the committed and other proposed developments at the three junctions to the south of the town and much lower than the increases associated with the theoretical growth factors at all four junctions.
- 5.34 The evening peak hour figures in Table 5.2 show a similar picture although the development traffic is slightly more than one a minute at the New Road junction and slightly less at the B5295 Egremont Road and Meadow Road junctions.
- 5.35 In this context the impact of the proposed development traffic on these four junctions is considered below.

### A595 / Mirehouse Road Traffic Signals (Appendix J)

- 5.36 A LINSIG model for this junction was provided by AECOM through their work on the WCML site. We understand the model either originated from Highways England or they have reviewed it as part of their consideration of the WCML planning application.
- 5.37 The LINSIG model shows that the junction could accommodate the with development flows. Under the most realistic no growth with development scenario the PRC in morning peak hour would be 34% and in the evening peak hour 16%.
- 5.38 Even with the unrealistic flows in the 2033 with development scenario the junction would operate within capacity with a PRC in morning peak hour of 21% and in the evening peak hour 5%.

### A595 / Meadow Road Junction (Appendix K)

- 5.39 This is a priority controlled junction located to the south of the B5295 Egremont Road roundabout and together with the roundabout is used for the cross A595 movements between Whitehaven west and east.
- 5.40 Meadow Road is almost exclusively used for west / north movements, in morning peak hour the observed flow on the left turn from Meadow View to A595 north is 257 vehicles while the right turn is only 3. 179 vehicles turn right into Meadow Road from the north but only 17 turn left from the south. The corresponding figures in evening peak are 220/3 and 217/23.
- 5.41 A Junctions 9 PICADY model has been built of the junction. This shows that the junction could accommodate the with development flows. Under the most realistic no growth with development scenario the maximum RFC in the morning peak hour is 0.49 on the left turn from Meadow Road. In the evening the maximum RFC is on the right turn into Meadow Road at 0.51.
- 5.42 Even with the unrealistic flows in the 2033 with development scenario the junction would operate within capacity with corresponding maximum RFCs of 0.57 in morning peak hour and 0.59 in the evening peak hour.
- 5.43 The junction works like this because the minor movements only give way to one major traffic stream. The fact the junction is used for these movements rather than the Mirehouse traffic signals gives an indication that they are comparatively delay free. The traffic signals are clearly being used for the west / south movements.



### A595 / B5295 Egremont Road Roundabout (Appendix L)

- 5.44 A Junctions 9 ARCADY model has been built of this junction. Junction 9 ARCADY is the industry standard software for assessing roundabouts. The model reflects the lane markings at the roundabout which reduce the entry widths on all arms to a single lane.
- 5.45 The modelling shows that the A595 northbound approach to the junction is a capacity constraint. Under existing flows the RFC in the morning peak hour is 0.85 and in the evening 0.91 so this approach to the junction is operating close to capacity under existing traffic flows. The other arms of the junction operate well within capacity.
- 5.46 Adding the committed and other proposed traffic means the RFC on the northbound approach increases the RFC to 0.90 in the morning peak hour and 0.98 in the evening peak hour with queues of 9 and 25 respectively.
- 5.47 The increase in traffic flow on this approach associated with the proposed development is 38 vehicles in the morning and 15 in the evening. These are clearly very low levels of traffic and this is reflected in small changes to the RFC and queue lengths when they are added into the model. In the morning peak the RFC increases to 0.94 with a queue of 12 and in the evening peak 1.00 with a queue of 32.
- 5.48 The addition of theoretical (and we would consider unrealistic and unachievable on the A595 due to network constraints to the south of Whitehaven) traffic growth, increases the predicted RFC values and queues on this arm but the difference between values under the base flows and with development flows remains small. Even with the traffic growth the other arms of the junction continue to operate within capacity.
- 5.49 It is clear therefore that the impact of the proposed development at this junction is not significant.

### A595 / A5024 New Road Junction (Appendix M)

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- 5.50 This is the junction at the north end of Whitehaven used by most traffic generated in the town which is going to / coming from the north. In this context the peak direction of flow on New Road is southbound in the morning and northbound in the evening indicating that more people are working in the town than work in locations to the north.
- 5.51 In this context the peak direction of flow of development traffic is in the non-peak direction, as the junction accommodates more development traffic leaving in the morning (northbound) and arriving in the evening (southbound).
- 5.52 As described in Section 3 the movements at the junction are spread out over a relatively wide area and the individual parts of the junction operate relatively independently of each other. The movements the development impacts on are the northbound flow from New Road which merges into the northbound flow on the A595 and the southbound right turn from the A595 to New Road which gives way to the northbound flow on the A595. On this basis the key traffic flows are set out in Tables 5.3 and 5.4.

Table 5.5. Italiic nows at the A575 / A5024 New Road Junction – Monthing Feak Hou						
	New Road Northbound Merge Flow	Northbound Through Flow on A595	Southbound Righ New Road			
Development Flow	48	0	16			
No Growth Base Flow	321	739	500			

781

824

### Table 5.3: Traffic Flows at the A595 / A5024 New Road Junction – Morning Peak Hour

528

557

t Turn to

2023 Base Flow

2033 Base Flow



	New Road Northbound Merge Flow	Northbound Through Flow on A595	Southbound Right Turn to New Road
Development Flow	28	0	53
No Growth Base Flow	576	630	411
2023 Base Flow	594	661	432
2033 Base Flow	627	698	456

#### Table 5.4: Traffic Flows at the A595 / A5024 New Road Junction – Evening Peak Hour

#### Northbound Merge

- 5.53 In terms of the northbound merge, the taper merge arrangement is unusual on a road of this type as is the fact that the merge is into a single traffic lane. The capacity of merges at grade separated junctions is usually assessed against Figure 3.12a in CD122 of Design Manual for Roads and Bridges (DMRB) and this probably provides the best basis against which to consider the northbound merge at the New Road junction.
- 5.54 Figure 3.12a is not set up to a assess a merge into a single lane but individual lanes on the diagram can be used to get an understanding of taper merge capacity.
- 5.55 On this basis in the morning peak hour with the northbound flow of about 800vph (which is half the 1,600vph capacity of the lane) a taper merge capacity would be about 650vph. The northbound with development merge flow in the morning peak hour is only just over 400vph which indicates that the taper merge layout has capacity to accommodate the development traffic.
- 5.56 In the evening peak hour the northbound through flow is less which means the merge capacity is slightly higher. In the evening peak the with development merge flow only just exceeds 650 vehicles even with the unrealistic 2033 flows and therefore Figure 3.12a indicates the taper merge has capacity to accommodate the development traffic in the evening peak hour as well.
- 5.57 The northbound through flow on the A595 will be slower than a typical flow used in Figure 3.12a but a slower speed would allow traffic to merge more easily. There will be times when there is a temporary constraint north of the junction (typically associate with a vehicle waiting to turn right into an access or side road) which could cause traffic to slow right down on the A595. Under these flow conditions drivers on the A595 would leave gaps for merging vehicles so the side road traffic would be able to continue to enter the A595 flow until normal traffic conditions resumed. Across the whole hour Figure 3.12a indicates the taper merge has capacity to accommodate the development traffic.

#### Southbound Right Turn

- 5.58 The arrangement at the southbound right turn into New Road is a more conventional priority junction type arrangement. There is a very long right turn lane of about 150m at the end of which there is an extended length of give way markings (which is not a standard priority junction road marking) indicating the length over which traffic can turn into New Road. The road markings have probably been used in this way to increase the capacity of the turn relative to a standard priority junction.
- 5.59 A Junctions 9 PICADY model of the right turn has be built. The model shows that during the morning peak hour, when the right turn flows is highest, the right turn is approaching capacity under the existing flows and is at capacity under the no growth base flows (RFC of 0.97 and queue of 16). The development traffic using the right turn in the morning peak hour is 16 vehicles so the impact is minimal. This is reflected in the Junctions 9 with development model results which show the RFC increasing to 1.00 and queue to 23.
- 5.60 The addition of theoretical traffic growth would increase the predicted RFC values and queues on this arm but the difference between values under the base flows and with development flows would remain small.
- 5.61 In the evening peak when the right turn and opposing northbound through flow are lower the junction operates within capacity under the existing flows. It continues to operate within capacity with the development flows. Under the no growth with development flows the RFC is 0.85 with a queue of 5. Adding theoretical levels of traffic growth means that the RFC exceeds 0.85 but the remains below 1.00 under the 2033 with development flows the RFC is 0.95.

- 5.62 On this basis and given that the layout on the ground will probably have a capacity greater than a standard right turn priority arrangement we would consider the southbound right turn at the New Road junction can accommodate the development traffic in the evening peak hour.
- 5.63 In summary therefore at the A595 New Road junction the northbound merge can accommodate the development traffic in both peaks. At the southbound right turn the impact of the development traffic is not material in the morning peak while development traffic can be accommodated in the evening peak.

### **Construction Impacts**

- 5.64 The development would be built out over a number of years and during that period there would a level of traffic generated by the construction process. This would be made up of light vehicles associated with construction workers and larger vehicles associated with the construction process.
- 5.65 Residential development tends to generate relatively limited number of vehicles albeit over a relatively protracted period. The assessments of the proposed development presented in the TA and in this Chapter is based on the completion of the full development. During the construction of the scheme there would be a mix of traffic generated by the completed part of the full development and the traffic generated by the construction period.
- 5.66 In this context the impact of traffic generated during the majority of the construction phase will be notably less than impact of the full development.
- 5.67 Given the relatively limited numbers of vehicles generated during the construction of residential development the construction traffic is unlikely to have a material impact.
- 5.68 The phasing of the site will determine the access points which would be used by construction traffic. A construction management plan would be prepared for each phase which would consider the specific issues associate with construction vehicle access.



## 6 Conclusions and Recommendations

### Conclusions

- 6.1 The former Marchon Site on High Road is in an accessible location suitable for residential development. This is reflected in the fact that the majority of the site is a proposed allocation for residential development in CBC's Preferred Options Draft Local Plan.
- 6.2 The planning application seeks full planning permission for 3 access points onto High Road and 139 homes in a Phase 1 residential development. The application seeks outline planning approval for up to 400 homes and ancillary commercial development on the Phase 2 residential development.
- 6.3 Two of the access points are existing accesses to the site. The northern existing access would be modified to provide a wider footway and would serve the Phase 1 development of 139 units. The use of this access to serve the Phase 1 development has been agreed with CCC.
- 6.4 The southerly of the two existing access would be used to serve the ancillary commercial development and be one of two accesses serving the Phase 2 residential development. Again, the reuse of this access has been agreed with CCC.
- 6.5 The second Phase 2 access would be a new access located to the south.
- 6.6 Traffic flows in the area immediately surrounding the site are relatively low. Flows are busier on the B5345 corridor running south from the town centre particularly in the evening peak hour. Traffic flows on the A595 trunk road are higher again and there are periods during the day when traffic on the A595 is relatively slow running.
- 6.7 There is no evidence of any particular highway safety issue in the local area other than at the junction of the B5345 St Bees Road and Mirehouse Lane where there is a cluster of accidents. This is not a junction where development traffic would be particularly significant.
- 6.8 There is a large residential development being built out on High Road by Story Homes. WCML are also proposing a coal mine on High Road to the north of the proposed residential development. These developments will increase traffic flows in the local area.
- 6.9 The proposed development will further increase traffic flows on the local roads in the vicinity of the site. The analysis of traffic flows shows that the B5345 Meadow View / Ginns to Kells Road junction is a key node in the local network and therefore key to the delivery of housing on High Road and elsewhere in South Whitehaven. With the developments in place the main movement at the junction switches from the existing B5345 north / B5345 south to B5345 north / Ginns to Kells Road.
- 6.10 Capacity analysis on the local roads shows the development can be accommodated at the following junctions:-
  - Site accesses on High Road,
  - Junctions at either end of Woodhouse Road,
  - B5345 St Bees Road junctions with Mirehouse Lane and Wilson Pit Road,
  - B5345 Preston Road / Coach Road and
  - B5345 Preston Road / Irish Street / Swingpump Lane.
- 6.11 The development traffic can also be accommodated at the single lane railway bridge on Mirehouse Lane.
- 6.12 The change in traffic patterns at the B5345 Meadow View / Ginns to Kells Road junction cannot be accommodated under the existing junction layout. The priority at the junction needs to be switched so Ginns to Kells Road to and from the B5345 north has priority over the B5345 Meadow View south movement.
- 6.13 It is not possible to switch the priority under a give way arrangement because of the angles of the roads. However, the angle of the roads provides the potential for traffic signals to be introduced which could run the Ginns to Kells Road to B5345 northbound and B5345 to Ginns to Kells Road southbound in the same stage of the signals. The B5345 Meadow View northbound traffic would have a separate



stage and would in effect be the minor arm of the junction. Monkwray Brow could operate on a vehicle actuated basis – the traffic flows are so light this phase of the junction would be rarely called.

- 6.14 A drawing of a potential junction layout has been prepared. The layout would require the movements between Ginns to Kells Road and the B5345 Meadow View south to be banned but these are very lightly trafficked and there are alternative routes which could accommodate them.
- 6.15 The layout is unusual this is an inevitability given the alignment of the roads and the fact Monkswray Brow also connects into the junction, but we would consider it provides the basis for a solution to capacity issues at this key node for housing delivery in south Whitehaven.
- 6.16 A traffic signal junction would have capacity to accommodate the unrealistic 2033 with development traffic flows using a low cycle time to keep queue lengths short. Queues on the B5345 Meadow View south arm could be accommodated in the length between the between the stop line and start of the on street parking.
- 6.17 To the north the queue would extend across the Coach Road junction so there would be a requirement for some keep clear markings on the right turn into Coach Road. Managing queues between these junctions will be an issue with just the Story Homes and WCML developments so is something which will need to be addressed by CCC in any event.
- 6.18 Modifying the existing on street parking to the south of the B5345 Meadow View / Ginns to Kells Road junction would also assist traffic flows in the area could be used as an alternative form of mitigation to the traffic signals.
- 6.19 The impact of the development traffic on the A595 trunk road is less than on the local roads partly because it is further from the development site but also proportionally the impact is lower because the traffic flows on the truck road are much higher. It is also the case that theoretical traffic growth has a much greater impact on traffic flow levels on the A595 as the application of a percentage growth factor to higher traffic flows results in a much larger absolute increase.
- 6.20 Notwithstanding this the development traffic can be accommodated at the A595 junctions with Mirehouse Lane and Meadow Road under the unrealistic 2033 with development traffic flows.
- 6.21 The impact of the proposed development at the B5295 Egremont Road is not significant. The A595 northbound approach to this junction is a capacity constraint in both peak hours but the changes in the operation of this arm of the roundabout with the development traffic are not material.
- 6.22 At the A595 New Road junction the northbound merge can accommodate the development traffic in both peaks. At the southbound right turn the impact of the development traffic is not material in the morning peak while development traffic can be accommodated in the evening peak.

### Recommendations

6.23 In light of the above it is the recommendation of CBO Transport that subject to a scheme to address traffic flow changes at the B5345 Meadow View / Ginns to Kells Road junction there are no traffic or transportation grounds on which to refuse the planning application for the proposed residential development.