CONTENTS

APPENDICES

None

FIGURES

None

16 Summary

16.1 Summary of Preliminary Effects

16.1.1 Based on the preliminary assessment reported in this PEI Report, the scale and location of the project means several different aspects of the environment would potentially be affected. Some of these effects would occur during construction, such as the removal of vegetation and wildlife habitat, and the generation of dust and noise. Other impacts would occur during operation, such as noise from traffic, changes to travel conditions, and development of new habitats from the landscape and ecological mitigation proposals.

16.1.1 The project comprises eight individual schemes. Construction works are expected to commence in 2024, with all schemes targeted for a 2029 completion or sooner depending on traffic management interface challenges. This complexity means that, where relevant, the preliminary assessments have considered identification of effects and proposed mitigation specific to each scheme (including any alternative alignments for those schemes) as well as considering the potential for route wide effects. Where the assessment is completed at only a route wide level this is specified and explained in the relevant chapter. The technical chapters 5 to 15 present the preliminary assessments for the individual Environmental Impact Assessment (EIA) topics. Each assessment provides a preliminary assessment of the likely significant effects on the environment. Table 16-2: Summary of preliminary assessment of likely significant environmental effects - Route wide to Table 16-10: Summary of preliminary assessment of likely significant environmental effects – A1(M) Junction 53 Scotch Corner provide a high-level summary of the potential significant effects identified.

16.1.2 Chapter 2: The Project, provides a description of the project including the alternative alignment routes, sections and junctions that have been assessed as part of this PEI Report. These alternatives are summarised in Table 16-1: Alternative alignments assessed.

Table 16-1: Alternative alignments assessed

Scheme	Alternatives
M6 Junction 40 to Kemplay Bank	Preferred Route with design refinements
Penrith to Temple Sowerby	Preferred Route with design refinements
Temple Sowerby to Appleby	Blue Route (Evolved version of the Preferred Route announced in Spring 2020) Orange (Online alternative) Red (Offline alternative)
Appleby to Brough	Black (Evolved version of the Preferred Route announced in Spring 2020) Blue alternative Section Orange alternative Section Where relevant these alternatives have been considered in the following combinations: • Black-Black-Black • Black-Blue-Black • Black-Black-Orange • Black-Blue-Orange.
Bowes Bypass	Preferred Route with design refinements
Cross Lanes to Rokeby	Black (Evolved version of the Preferred Route announced in Spring 2020)

Scheme	Alternatives
	Cross Lanes – Blue alternative Junction Rokeby – Red alternative Junction Where relevant these alternatives have been considered in the following combinations: • Black-Black • Blue-Black • Black-Red • Blue-Red
Stephen Bank to Carkin Moor	Preferred Route with design refinements
A1(M) Junction 53 Scotch Corner	Added to the project since Preferred Route Announcement

16.1.3 The design of the project and baseline surveys are ongoing. The mitigation identified through the assessment presented in this report is being reviewed and, where possible, incorporated into the on-going design process. The ongoing EIA process will incorporate further survey information (where relevant), and consider the final design to be presented at Development Consent Order (DCO) Submission including all embedded mitigation. The Environmental Statement (ES) will therefore consider these identified potential effects and further assess their significance, taking into account proposed mitigation measures. Should the design of the project (including any alternative alignments) change as a result of statutory consultation feedback, the ES will also identify and assess any new potential effects arising from design changes.

Route wide

Table 16-2: Summary of preliminary assessment of likely significant environmental effects - Route wide

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Air Quality*	• Potential for likely significant effects from construction-related traffic movements (in terms of flows and routes taken) or diverted local traffic, due to a deterioration in air quality for human receptors or as a result of elevated nitrogen deposition at designated ecological receptors. A particular concern would be if construction-related vehicles affected or diverted local traffic within the currently proposed Penrith Castlegate Air Quality Management Area (AQMA) or other locations with sensitive receptors close to these routes approaching the Air Quality Objective (AQO).	• There are 15 designated ecological sites as follows where nutrient nitrogen deposition is anticipated to fall as a consequence of the project. These locations have the potential to experience likely significant effects[1]. ○ North Pennine Moors Special Protection Area (SPA) ○ North Pennine Moors Special Area of Conservation (SAC) ○ Argill Woods and Pasture Site of Special Scientific Interest (SSSI) ○ Augill Valley Pasture SSSI ○ Bowes Moor SSSI ○ Pallet Hill Local Wildlife Site (LWS) ○ Stephen Bank Road Verge LWS ○ Augill Beck Wood Ancient Woodland (AW) ○ Augill Bridge Wood AW ○ Deepdale Wood AW ○ Graham's Gill/Jack-Wood AW ○ Newbiggin Wood AW ○ Oglebird Plantation AW ○ Raughtonguill Wood AW ○ Thorgill Wood AW • Thirty-five veteran and ancient trees have been identified within 200m of the Affected Route Network (ARN). Likely significant effects at these locations cannot be ruled at this stage. This will be reviewed as part of the EIA stage.

[1] Highways England is developing a tool for determining the additional contribution of ammonia (NH_3) emissions from vehicles to deposited nitrogen. It is expected that this method will be available for use at the ES stage and therefore the potential ecological impacts will be updated accordingly.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Biodiversity	• Potential likely significant effects anticipated during construction for the following, subject to further survey and mitigation design: ○ Habitats ○ Bat roosts ○ Bat activity ○ Terrestrial mammals, including Red squirrel ○ Wintering and breeding birds ○ Barn owl ○ Reptiles ○ Amphibians ○ Terrestrial invertebrates ○ Macrophytes	• Potential likely significant effects anticipated during operation for the following, subject to further survey and mitigation design: ○ Habitats ○ Bat roosts ○ Bat activity ○ Terrestrial mammals, including Red squirrel ○ Wintering and breeding birds ○ Barn owl ○ Reptiles ○ Amphibians ○ Terrestrial invertebrates ○ Macrophytes
Climate	• No likely route wide significant effects anticipated.	• No likely route wide significant effects anticipated.
Cultural Heritage	• No likely route wide significant effects anticipated.	• No likely route wide significant effects anticipated.
Geology and Soils	• Likely significant effects due to the potential permanent land take and loss of high and medium value agricultural soil resource (Grade 2, 3a and 3b agricultural land). • Likely significant effects on soils supporting the River Eden SAC, River Eden and Tributaries SSSI.	• No likely route wide significant effects anticipated.
Landscape and Visual Effects	• No likely route wide significant effects anticipated.	• No likely route wide significant effects anticipated.
Material Assets and Waste*	• A likely significant effect is anticipated in relation to the sterilisation of Mineral Safeguarding Sites. • Likely significant effects cannot be ruled out at this stage with regards to aggregates imported to site. The potential for importation of aggregates with low recycled content will be assessed in the ES when information becomes available.	• No likely route wide significant effects anticipated.
Noise and Vibration	• There is potential for significant effects across the project route wide. Effects will be temporary and	• Significant adverse effects are predicted to 979 residential receptors and 37 non-residential receptors.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	localised depending on the specific activity and construction stage subject to further assessment.	Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to 530 residential receptors and 79 non-residential receptors.
Population and Human Health	• Private property and housing – Potential for temporary disruption to access and adverse effects on amenity access. At this stage potential significant effects cannot be ruled out. • Development land and businesses – Potential for significant effects as a result of temporary disruption to access and adverse effects on amenity due to construction activities. • Community land and assets - Potential for significant effects as a result of temporary disruption to access and adverse effects on amenity due to construction activities • Walkers, cyclists and horse riders - Potential for significant effects as a result of temporary disruption to access and adverse effects on amenity due to construction activities Agricultural land holdings – potential for significant effects as a result of loss of agricultural holdings and disruption of access. • There is potential for temporary significant effects due to construction related nuisance and distribution. • There is a potential for positive health effects resulting from jobs created during construction, though at the current stage it is not known how many jobs will be created.	• There is a potential for positive health effects resulting from the economic benefits of reduced severance and shorter commuting times.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Road Drainage and the Water Environment	• No likely route wide significant effects anticipated.	• No likely route wide significant effects anticipated.

*At this stage the air quality assessment and material assets and waste assessment within the PEI Report has been presented at a route wide level only. The ES will present the assessment findings at an individual scheme and route wide level.

M6 Junction 40 to Kemplay Bank

Table 16-3: Summary of preliminary assessment of likely significant environmental effects - M6 Junction 40 to Kemplay Bank

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Air Quality	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).#	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).
Biodiversity	• There is potential for likely significant adverse effects to Skirsgill Wood County Wildlife Site (CWS), Yanwath Wood CWS, Myers Beck (Mardale Road) CWS, Lowther Bridge Site of Invertebrate Significance, due to habitat loss and air quality, subject to further assessment and design. • Effects will be the same as route wide table above on habitats - improved grassland, woodlands, semi-improved neutral grasslands, hedgerows, rivers and streams. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, reptiles, common toad, terrestrial invertebrates and macrophytes, subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts.	• There is potential for likely significant adverse effects to the River Eden SAC and River Eden and Tributaries SSSI, Asby Complex SAC, Crosby Ravensworth Fell SSSI, Skirsgill Wood County Wildlife Site (CWS), Yanwath Wood CWS, Myers Beck (Mardale Road) CWS, Newbiggin Wood Ancient Woodland (AW), Raughtongill Wood AW and Lowther Bridge Site of Invertebrate Significance relating to air quality, subject to further assessment. • Effects will be the same as route wide table above on habitats - improved grassland, woodlands, semi-improved neutral grasslands, hedgerows, rivers and streams. • Effects will be the same as route wide table above on bat roosts and bat activity, wintering birds, breeding birds, barn owls, reptiles, common toad, terrestrial invertebrates and macrophytes, subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts.
Climate	• No likely significant effects anticipated.	• No likely significant effects anticipated.
Cultural Heritage	• No likely significant effects anticipated.	• No likely significant effects anticipated.
Geology and Soils	• Likely significant effects due to the potential permanent land take and loss of high value agricultural soil resource (Grade 3a agricultural land). • Likely significant effects on soils supporting SAC or SSSI.	• No likely significant effects anticipated.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**

Landscape and Visual Effects	• Likely significant, temporary effects:
	  ○ In a localised part of 6: Intermediate Farmland landscape sub-type
	  ○ On residents of Clifton Road
	  ○ On users of Wetheriggs Country Park
	  ○ On users of visitors to Mayburgh Henge
	  ○ On users of PRoW to the south of the scheme
		• Likely significant effects at year 1:
		  ○ In a localised part of 6: Intermediate Farmland landscape sub-type
		  ○ On residents of Clifford Road
		  ○ On users of Wetheriggs Country Park
		• Likely significant effects at year 15:
		  ○ None

Material Assets and Waste	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).
Noise and Vibration	• There is potential for significant effects across the scheme. Effects will be temporary and localized depending on the specific activity and construction stage. • The location and duration of these effects are yet to be determined and are subject to further assessment.	• Significant adverse effects predicted to 117 residential receptors. Subject to on-going mitigation design and further assessment.
Population and Human Health	• Walkers, cyclists and horse riders – likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings - likely significant adverse effects due the loss of or damage to key characteristics, features or elements of the agricultural holding and potential effect of this change on viability. • Skirsgill employment allocation, at land adjacent to Skirsgill Depot – potential likely significant effects due to permanent loss of allocated land. • Kingdom Hall of Jehovah's Witnesses – potential likely significant effects due to permanent land take. • Wetheriggs Country Park – potential likely significant effects due to land take required for construction of the scheme, including the woodland edge of the park to be felled.	• Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Local residents, users of local footpaths, Wetheriggs Country Park and Pategill Open Space - potentially negative health effect due to increased traffic noise. • Local residents and users of Wetheriggs Country Park - potentially negative health effect due to the visual impact of vegetation clearance and new road infrastructure. • Residents to the south of Penrith - potentially positive health effect due to improved access to community facilities due to improved traffic flows around Kemplay Bank Roundabout.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• Skirsgill Park – potential likely significant effects due land take. This potentially could affect access to this section of the park. • Happy Hooves Riding Centre – potential likely significant effects due to permanent land take required. Construction nuisance and disruption could impact the Centre's ability to function due to potential effects upon the animals. • Study area population (including vulnerable groups) – potentially negative health effect due to increased HGV movements on the local road network. • Local residents and users of local footpaths, Wetheriggs Country Park, Carleton Heights, Wetheriggs and Pategill Open Spaces - potentially negative health effect due to construction noise. • Local residents and users of local footpaths and Wetheriggs Country Park - potentially negative health effect due to the visual impact of vegetation clearance and construction activities. • Local residents - potentially negative health effect due to night-time construction lighting and noise. • Residents to the south of Penrith - potentially negative health effect due to temporary traffic delays at Kemplay Bank Roundabout affecting journeys to Penrith Hospital, and emergency vehicles exiting the Community Fire and Ambulance Station. • Residents to the south of Penrith - potentially negative health effect due to temporary traffic delays at Kemplay Bank Roundabout reducing access by car/bus to community facilities in Penrith. • Residents to the north of Carleton Avenue - potentially negative health effect due to temporary disruption of pedestrian access to Carleton Hall Park via the Carleton Avenue underpass.	

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Road Drainage and the Water Environment	• No likely significant effects anticipated.	• No likely significant effects anticipated.

Penrith to Temple Sowerby

Table 16-4: Summary of preliminary assessment of likely significant environmental effects - Penrith to Temple Sowerby

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Air Quality	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).
Biodiversity	• There is potential for significant adverse effects on River Eden SAC and River Eden and Tributaries SSSI relating to habitat loss, subject to further design and assessment. • There is potential for adverse effects at Whinfell Forest CWS relating to Red squirrel. • Effects will be the same as route wide table above on habitats (due to loss of Priority Habitats). • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, amphibians (common toad and Great Crested Newts), reptiles, terrestrial invertebrates and macrophytes, subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts.	• There is potential for significant adverse effects on River Eden SAC and River Eden and Tributaries SSSI relating to air quality, subject to further assessment. • Potential significant beneficial effects on Whinfell Forest CWS subject to ecology mitigation design and agreement. • Effects will be the same as route wide table above on habitats. • Effects will be the same as route wide table above on bat roosts and bat activity, breeding birds and wintering birds, barn owls, amphibians (common toad and Great Crested Newts), reptiles, terrestrial invertebrates and macrophytes, subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts.
Climate	• No likely significant effects anticipated.	• No likely significant effects anticipated.
Cultural Heritage	• Permanent significant adverse effects are anticipated at the scheduled monuments of the Ring ditches at Brougham. • Permanent significant adverse effects are anticipated to affect the Site of the Hartshorn Tree and associated cropmarks.	• No likely significant effects anticipated.
Geology and Soils	• Likely significant effects due to the potential permanent land take and loss of high value agricultural soil resource (Grade 2 and 3a agricultural land).	• No likely significant effects anticipated.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**

Landscape and Visual Effects	• Likely significant, temporary effects:
	  ○ In a localised part of 6: Intermediate Farmland landscape sub-type
	  ○ In a localised part of 8b: Broad Valleys landscape sub-type
	  ○ In a localised part of 10: Sandstone Ridge landscape sub-type
	  ○ On residents of Brovacum, Dinglefield, Foxgloves and Lightwater Cottages, Whinfell Park, Lane End, Woodside and Whinfell House
	  ○ On users of PRoW
	  ○ On visitors to Center Parcs Holiday Village
		• Likely significant effects at year 1:
		  ○ In a localised part of 6: Intermediate Farmland landscape sub-type
		  ○ In a localised part of 8b: Broad Valleys landscape sub-type
		  ○ In a localised part of 10: Sandstone Ridge landscape sub-type
		  ○ On residents of Brovacum, Foxgloves and Lightwater Cottages, three cottages at Whinfell Park and Lane End
		  ○ On users of PRoW 311004
		  ○ On visitors to Center Parcs Holiday Village
		• Likely significant effects at year 15:
		  ○ In a localised part of 8b: Broad Valleys landscape sub-type
		  ○ In a localised part of 10: Sandstone Ridge landscape sub-type
		  ○ On residents of Lightwater Cottages, Whinfell Park and Lane End
		  ○ On users of PRoW 311004
		  ○ On visitors to Center Parcs Holiday Village

Material Assets and Waste	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).
Noise and Vibration	• There is potential for significant effects across the scheme. Effects will be temporary and localized depending on the specific activity and construction stage. • The location and duration of these effects are yet to be determined and are subject to further assessment.	• Significant adverse effects are predicted to 12 residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to four residential receptor and one non-residential receptors.
Population and Human Health	• Walkers, cyclists and horse riders – potential for likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project.	• Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• Agricultural land holdings – potential for likely significant adverse effects due to the loss of or damage to key characteristics, features or elements of the agricultural holding and potential effect of this change on viability. • Property would require acquisition and demolition as part of the scheme. At this stage potential significant effects cannot be ruled out • Center Parcs Whinfell Forest - potential for likely significant effects due to disruption to the local road network which may impact visitors accessing the facility. • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise and visual effects. • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities.	WCH journey times in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Center Parcs Whinfell Forest - potential for likely significant effects due improved access due to the provision of a new junction. • Residents of rural properties, potentially negative health effects due to impacts on quality of life from noise effects • Rural communities - potentially positive health effect due to improved access to community facilities resulting from improved traffic flows on the A66.
Road Drainage and the Water Environment	• No likely significant effects anticipated.	• No likely significant effects anticipated.

Temple Sowerby to Appleby

Table 16-5: Summary of preliminary assessment of likely significant environmental effects - Temple Sowerby to Appleby

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Air Quality	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above). Assessment at ES stage will be undertaken at a local geographic level.	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above). Assessment at ES stage will be undertaken at a local geographic level.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Biodiversity	Blue alternative • There is potential for significant adverse effects on River Eden SAC and River Eden and Tributaries SSSI, Chapel Wood CWS, Ross Wood CWS, Dowpits Wood CWS, Temple Sowerby Shingle Banks, Oglebird Scar, Acorn Bank and Bolton Shingle Bank Sites of Invertebrate Significance, relating to habitat loss. Subject to further design and mitigation. • There may also be significant effects on habitats (Oglebird Plantation AW, Chapel Wood AW, Ross Wood AW, Dowpits Wood AW, Veteran trees, Woodland, Hedgerow, Ponds, Open Mosaic habitat) due to loss of habitat or fragmentation. • Effects will be the same as River Eden SAC for rivers and streams. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, amphibians, reptiles, terrestrial invertebrates and macrophytes, subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts. Orange alternative • The effects of the Orange alternative are expected to be similar to those described for the Blue alternative, with the following differences: ○ Greater construction risks to the River Eden SAC/SSSI due to the closer proximity to the main river.	Blue alternative • There is potential for significant adverse effects on River Eden SAC and River Eden and Tributaries SSSI, Chapel Wood CWS, Ross Wood CWS, Dowpits Wood CWS, Temple Sowerby Shingle Banks, Oglebird Scar, Acorn Bank and Bolton Shingle Bank Sites of Invertebrate Significance relating to air quality. Subject to further assessment • There may also be significant effects on habitats (Oglebird Plantation AW, Chapel Wood AW, Ross Wood AW, Dowpits Wood AW, Veteran trees, Woodland, Hedgerow, Ponds, Open Mosaic habitat) due to degradation of ancient woodland. • Effects will be the same as route wide table above for rivers and streams. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, wintering birds and breeding birds, amphibians, reptiles, terrestrial invertebrates and macrophytes, subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts. Orange alternative • The effects of the Orange alternative are expected to be similar to those described for the Blue alternative, with the following differences: ○ Localised impacts to Temple Sowerby SSSI with the potential to support great crested newts. Red alternative • The effects of the Red alternative are expected to be similar to those described for the Blue alternative, with the following differences: ○ Additional shading of Keld Sike, which is not within the River Eden SAC/SSSI but is functionally linked.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	○ Greater potential for losses to scattered semi-mature and mature trees (some of which may be veteran trees). ○ Localised impacts to Temple Sowerby SSSI with the potential to support great crested newts. Red alternative • The effects of the Red alternative are expected to be similar to those described for the Blue alternative, with the following differences: ○ Additional shading of Keld Sike, which is not within the River Eden SAC/SSSI but is functionally linked. ○ Greater loss and severance impacts to Chapel Wood CWS. ○ Greater loss of semi-mature to mature trees.	
Climate	• No likely significant effects anticipated from all alternatives.	• No likely significant effects anticipated from all alternatives.
Cultural Heritage	Blue alternative • Permanent significant adverse effects are anticipated at the Roman Camp, 350m east of Redlands Bank. Orange alternative • Permanent significant adverse effects are anticipated at the Kirkby Thore Roman fort and associated Vicus, and the Roman Camp east of Redlands Bank. Red alternative • No likely significant effects anticipated.	• No likely significant effects anticipated from all alternatives.
Geology and Soils	Blue alternative • Likely significant effects due to the potential permanent land take and loss of high value	• No likely significant effects anticipated from all alternatives.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	agricultural soil resource (Grade 2 and 3a agricultural land). • Likely significant effects on soils supporting SAC or SSSI. Orange alternative • Likely significant effects due to the potential permanent land take and loss of high value agricultural soil resource (Grade 2 and 3a agricultural land). • Likely significant effects on soils supporting SAC or SSSI. Red alternative • Likely significant effects due to the potential permanent land take and loss of high value agricultural soil resource (Grade 2 and 3a agricultural land). • Likely significant effects on soils supporting SAC or SSSI.	
Landscape and Visual Effects	Blue alternative • Likely significant effects on 8b Broad Valleys Landscape sub-type • Likely significant effects on 6 Intermediate Farmland Landscape sub-type • Likely significant effects on North Pennines AONB • Likely significant effects on the residents of Kirkby Thore, Spitals Farm, Priest Lane, Low Moor, between Low Moor and Kirkby Thore, between Sleastonhow Farm and Appleby • Likely significant effects on PRoW at Temple Sowerby, Prow at Kirkby Thore, PRoW 341017, PRoW 317008, PRoW 317009, PRoW between Powis House and Appleby Orange alternative	Blue alternative • Likely significant effects in year 1 on: ○ 8b Broad Valleys Landscape sub-type ○ 6 Intermediate Farmland Landscape sub-type ○ North Pennines AONB ○ Residents of Kirkby Thore, Spitals Farm, Priest Lane, Low Moor, between Sleastonhow Farm and Appleby ○ PRoW at Temple Sowerby, PRoW at Kirkby Thore, PRoW 341017, PRoW 317008, PRoW 317009, PRoW between Powis House and Appleby • Likely significant effects in year 15 on: ○ 8b Broad Valleys Landscape sub-type ○ 6 Intermediate Farmland Landscape sub-type ○ Residents of Kirkby Thore, Spitals Farm, Priest Lane, Low Moor, between Sleastonhow Farm and Appleby

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• Likely significant effects on 8b Broad Valleys Landscape sub-type • Likely significant effects on 6 Intermediate Farmland Landscape sub-type • Likely significant effects on North Pennines AONB • Likely significant effects on the residents of Kirkby Thore, Spitals Farm, Priest Lane, Low Moor, between Low Moor and Kirkby Thore, between Bridge End Farm and Powis House, between Sleastonhow Farm and Appleby • Likely significant effects on PRoW at Kirkby Thore, PRoW 341017, PRoW 317008, PRoW 317009, PRoW between Powis House and Appleby Red alternative • Likely significant effects on 8b Broad Valleys Landscape sub-type • Likely significant effects on 6 Intermediate Farmland Landscape sub-type • Likely significant effects on North Pennines AONB • Likely significant effects on the residents of Kirkby Thore, Spitals Farm, Priest Lane, Low Moor, between Low Moor and Kirkby Thore, between Sleastonhow Farm and Appleby • Likely significant effects on PRoW at Temple Sowerby, PRoW at Kirkby Thore, PRoW 341017, PRoW 317008, PRoW 317009, PRoW between Powis House and Appleby	○ PRoW at Kirkby Thore, PRoW 341017, PRoW 317008, PRoW 317009, PRoW between Powis House and Appleby Orange alternative • Likely significant effects in year 1 on: ○ 8b Broad Valleys Landscape sub-type ○ 6 Intermediate Farmland Landscape sub-type ○ North Pennines AONB ○ Residents of Kirkby Thore, Spitals Farm, Low Moor, between Low Moor and Kirkby Thore, between Bridge End Farm and Powis House, between Sleastonhow Farm and Appleby ○ PRoW at Kirkby Thore, PRoW 341017, PRoW 317008, PRoW 317009, PRoW between Powis House and Appleby • Likely significant effects in year 15 on: ○ 8b Broad Valleys Landscape sub-type ○ Residents of Kirkby Thore, Spitals Farm, Low Moor, between Low Moor and Kirkby Thore, between Bridge End Farm and Powis House, between Sleastonhow Farm and Appleby ○ PRoW at Kirkby Thore, PRoW 341017, PRoW 317008, PRoW 317009, PRoW between Powis House and Appleby Red alternative • Likely significant effects in year 1 on: ○ 8b Broad Valleys Landscape sub-type ○ 6 Intermediate Farmland Landscape sub-type ○ North Pennines AONB ○ Residents of Kirkby Thore, Spitals Farm, Priest Lane, Low Moor, between Sleastonhow Farm and Appleby ○ PRoW at Temple Sowerby, PRoW at Kirkby Thore, PRoW 341017, PRoW 317008, PRoW 317009, PRoW between Powis House and Appleby

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**

		• Likely significant effects in year 15 on:
		  ○ 8b Broad Valleys Landscape sub-type
		  ○ 6 Intermediate Farmland Landscape sub-type
		  ○ Residents of Kirkby Thore, Spitals Farm, Priest Lane, Low Moor, between Sleastonhow Farm and Appleby
		  ○ PRoW at Kirkby Thore, PRoW 341017, PRoW 317008, PRoW 317009, PRoW between Powis House and Appleby

Material Assets and Waste	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).
Noise and Vibration	• There is potential for significant effects across the scheme. Effects will be temporary and localized depending on the specific activity and construction stage. • The location and duration of these effects are yet to be determined and are subject to further assessment.	Blue alternative • Significant adverse effects are predicted to 256 residential receptors and four non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to 124 residential receptor and eight non-residential receptors. Orange alternative • Significant adverse effects are predicted to 20 residential receptors and three non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to 61 residential receptors and four non-residential receptors. Red alternative • Significant adverse effects are predicted to 260 residential receptors and nine non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to 120 residential receptors and three non-residential receptors.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Population and Human Health	Blue alternative • Walkers, cyclists and horse riders – potential for likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings – potential for likely significant effects as a result of the loss of or damage to key characteristics, features or elements of the agricultural holdings and potential effect of this change on viability. • Common Moss – potential for likely significant effects due to land take. • Property would require acquisition and demolition as part of the scheme. At this stage potential significant effects cannot be ruled out • Local residents – potentially negative effect on wellbeing due to a perceived reduction in the quality of the living environment and concerns about air quality and road safety due to increased HGV movements. • Local residents – potentially negative effects on wellbeing, including increased annoyance and reduced enjoyment of outside space due to construction noise. • Local residents - Potentially negative effects on wellbeing and quality of life due to noise and visual effects. • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities Orange alternative • Walkers, cyclists and horse riders – potential for likely significant effects due to the severance of	Blue alternative • Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Local residents - potentially positive and negative health effects due to impacts on quality of life from noise and visual effects • Rural communities - potentially positive health effect due to improved access to community facilities resulting from improved traffic flows on the A66. Orange alternative • Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Local residents - potentially positive and negative health effects due to impacts on quality of life from noise and visual effects • Rural communities - potentially positive health effect due to improved access to community facilities resulting from improved traffic flows on the A66. Red alternative • Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	PRoW and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings – potential for likely significant effects due to the loss of or damage to key characteristics, features or elements of the agricultural holdings and potential effect of this change on viability. • Land adjacent to primary school allocation – potential for likely significant effects due to temporary land take as approximately 30% of this allocation lies within the draft DCO boundary,. • Acorn Bank (National Trust) - potential for likely significant effects as there is potential for a portion of land to be required for this scheme during construction. • Common Moss - potential for likely significant effects as there is potential for a portion of land to be required for this scheme during construction. • Piper Lane Recreational ground - potential for likely significant effects as there is potential for a portion of land to be required for this scheme during construction. • Property would require acquisition and demolition as part of the scheme. At this stage potential significant effects cannot be ruled out • Local residents – potentially negative effect on wellbeing due to a perceived reduction in the quality of the living environment and concerns about air quality and road safety due to increased HGV movements. • Local residents – potentially negative effects on wellbeing, including increased annoyance and reduced enjoyment of outside space due to construction noise.	WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Local residents - potentially positive and negative health effects due to impacts on quality of life from noise and visual effects • Rural communities - potentially positive health effect due to improved access to community facilities resulting from improved traffic flows on the A66.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• Local residents - Potentially negative effects on wellbeing and quality of life due to noise and visual effects. • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities Red alternative • Walkers, cyclists and horse riders – potential for likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings – potential for likely significant effects due to the loss of or damage to key characteristics, features or elements of the agricultural holding and potential effect of this change on viability. • Townhead housing allocation – potential for likely significant effects as the allocation lies within the draft DCO boundary and will be required for the construction of the scheme. • Common Moss - potential for likely significant effects as there is potential for a portion of land to be required for this scheme during construction. • Property would require acquisition and demolition as part of the scheme. At this stage potential significant effects cannot be ruled out • Local residents – potentially negative effect on wellbeing due to a perceived reduction in the quality of the living environment and concerns about air quality and road safety due to increased HGV movements. • Local residents – potentially negative effects on wellbeing, including increased annoyance and	

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	reduced enjoyment of outside space due to construction noise. • Local residents - Potentially negative effects on wellbeing and quality of life due to noise and visual effects. • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities.	
Road Drainage and the Water Environment	• No likely significant effects anticipated from all alternatives.	• No likely significant effects anticipated from all alternatives.

Appleby to Brough

Table 16-6: Summary of preliminary assessment of likely significant environmental effects – Appleby to Brough

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Air Quality	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).
Biodiversity	Black-Black-Black alternative • There is potential for significant adverse effects on River Eden SAC and River Eden and Tributaries SSSI relating to habitat loss and potential for pollution of watercourses functionally linked to the site, and on Sandford Mire CWS relating to hydrology. Subject to further design and mitigation. • There is the potential for North Pennine Moors SAC and SPA, Argill Woods and Pastures SSSI and Augll Valley Pasture SSSI relating to air quality. Subject to further assessment. • There is potential for significant adverse effects due to loss of Priority Habitats. Subject to further design and mitigation. • Effects will be the same as River Eden SAC for rivers and streams. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, amphibians, reptiles, terrestrial invertebrates and macrophytes, subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts. Blue Alternative (central section)	Black-Black-Black alternative • There is potential for significant adverse effects on River Eden SAC and River Eden and Tributaries SSSI, due to habitat loss of watercourses functionally linked to the site. • There is the potential for North Pennine Moors SAC and SPA, Argill Woods and Pastures SSSI and Augll Valley Pasture SSSI relating to air quality. Subject to further assessment. • Potential significant adverse effects on Sandford Mire CWS relating to hydrology. • Effects will be the same as route wide table above for rivers and streams. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, amphibians, reptiles, terrestrial invertebrates and macrophytes, subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts. Blue Alternative (central section) • The effects for the Blue alternative are expected to be similar to the Black alternative within the central section of this scheme. Orange Alternative (eastern section) • The effects for the Orange alternative are expected to be similar to the Black alternative within the eastern section of

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• The effects for the Blue alternative are expected to be similar to the Black alternative within the central section of this scheme. Orange Alternative (eastern section) • The effects for the Orange alternative are expected to be similar to the Black alternative within the eastern section of this scheme, though the overall loss of habitats (and associated impacts on protected species) is expected to be greater. • There is potential for greater shading and habitat loss effects are anticipated through the additional crossing of Lowgill Beck.	this scheme, though fragmentation of habitats will be greater due to the offline nature of the alternative. Shading and habitat impacts expected to be greater for Lowgill Beck than the Black alternative for this section.
Climate	• No likely significant effects anticipated from all alternatives.	• No likely significant effects anticipated from all alternatives.
Cultural Heritage	Black-Black-Black alternative • Permanent significant adverse effects are anticipated at the Warcop Roman Camp and Length Of Roman Road, 285m South West Of Moor House. Blue alternative (central section) • No different likely significant effects anticipated as a result of the blue alternative for the central section. Orange alternative (eastern section) • No different likely significant effects anticipated as a result of the orange alternative for the eastern section.	• No likely significant effects anticipated from all alternatives.
Geology and Soils	Black-Black-Black alternative • Likely significant effects due to the potential permanent land take and loss of high and medium value agricultural soil resource (Grade 3a and 3b agricultural land). Blue alternative (central section)	Black-Black-Black alternative • Potential beneficial significant effects on the UNESCO Global Geopark due to the potential for enhancement if cuttings or earthworks offer an opportunity to permanently expose geology of scientific interest. Blue alternative (central section)

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• No different likely significant effects anticipated as a result of the blue alternative for the central section. Orange alternative (eastern section) • No different likely significant effects anticipated as a result of the orange alternative for the eastern section.	• No different likely significant effects anticipated as a result of the blue alternative for the central section. Orange alternative (eastern section) • No different likely significant effects anticipated as a result of the orange alternative for the eastern section.
Landscape and Visual Effects	Black-black-black • Likely significant effects on 8b Broad Valleys Landscape sub-type • Likely significant effects on 11a Foothills Landscape sub-type • Likely significant effects on North Pennines AONB • Likely significant effects on residents at the east of Coupland, Sandford, the Warcop area, the Flitholme area, and west of Brough • Likely significant effects on PRoW between Coupland and Sandford, PRoW at Warcop and Flitholme, PRoW to the west of Brough, and PRoW in the North Pennines AONB • Likely significant effects on visitors to Eden Valley Railway and Brough Castle Black-blue-black • Likely significant effects on 8b Broad Valleys Landscape sub-type • Likely significant effects on 11a Foothills Landscape sub-type • Likely significant effects on North Pennines AONB • Likely significant effects on residents at the east of Coupland, Sandford, the Warcop area, the Flitholme area, and west of Brough • Likely significant effects on PRoW between Coupland and Sandford, PRoW at Warcop and Flitholme, PRoW to the west of Brough, and PRoW in the North Pennines AONB	Black-black-black • Likely significant effects in year 1 on: ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, PRoW in the North Pennines AONB • Likely significant effects in year 15 on: ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough PRoW in the North Pennines AONB Black-blue-black • Likely significant effects in year 1 on: ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• Likely significant effects on visitors to Eden Valley Railway and Brough Castle Black-black-orange • Likely significant effects on 8b Broad Valleys Landscape sub-type • Likely significant effects on 11a Foothills Landscape sub-type • Likely significant effects on North Pennines AONB • Likely significant effects on residents at the east of Coupland, Sandford, the Warcop area, the Flitholme area, and west of Brough • Likely significant effects on PRoW between Coupland and Sandford, PRoW at Warcop and Flitholme, PRoW to the west of Brough, and PRoW in the North Pennines AONB • Likely significant effects on visitors to Eden Valley Railway and Brough Castle Black-blue-orange • Likely significant effects on 8b Broad Valleys Landscape sub-type • Likely significant effects on 11a Foothills Landscape sub-type • Likely significant effects on North Pennines AONB • Likely significant effects on residents at the east of Coupland, Sanford, the Warcop area, the Flitholme area, and west of Brough • Likely significant effects on PRoW between Coupland and Sandford, PRoW at Warcop and Flitholme, PRoW to the west of Brough, and PRoW in the North Pennines AONB • Likely significant effects on visitors to Eden Valley Railway and Brough Castle	○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW in the North Pennines AONB ○ Visitors to Eden Valley Railway • Likely significant effects in year 15 on: ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW in the North Pennines AONB ○ Visitors to Eden Valley Railway Black-black-orange • Likely significant effects in year 1 on: ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW 329001 in the North Pennines AONB ○ Visitors to Eden Valley Railway and Brough Castle • Likely significant effects in year 15 on: ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW 329001 in the North Pennines AONB

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
		○ Visitors to Eden Valley Railway and Brough Castle Black-blue-orange • Likely significant effects in year 1 on: ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW 329001 in the North Pennines AONB ○ Visitors to Eden Valley Railway and Brough Castle • Likely significant effects in year 15 on: ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW 329001 in the North Pennines AONB ○ Visitors to Eden Valley Railway and Brough Castle
Material Assets and Waste	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).
Noise and Vibration	• There is potential for significant effects across the scheme. Effects will be temporary and localized depending on the specific activity and construction stage. • The location and duration of these effects are yet to be determined and are subject to further assessment.	Black-Black-Black alternative (PRA) • Significant adverse effects are predicted to 58 residential receptors and five non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to five residential receptors. Black-Blue-Black alternative

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
		• Significant adverse effects are predicted to 42 residential receptors and two non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to five residential receptors. Black-Black-Orange alternative • Significant adverse effects are predicted to 75 residential receptors and five non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to nine residential receptors and one non-residential receptor. Black-Blue-Orange alternative • Significant adverse effects are predicted to 42 residential receptors and two non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to nine residential receptors and one non-residential receptor.
Population and Human Health	Black-Black-Black alternative • Walkers, cyclists and horse riders – potential likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings – potential likely significant effects due to the loss of or damage to key characteristics, features or elements of the agricultural holdings and potential effect of this change on viability. • Ministry of Defence - potential likely significant effects as a result of potential loss of use/access of land during construction. • BW 350/021 - potential likely significant effects as the Bridleway will be severed by the draft DCO boundary.	Black-Black-Black alternative • Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities Black-Blue-Black alternative • Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities Black-Blue-Black alternative • Walkers, cyclists and horse riders – potential likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings – potential likely significant effects due to the loss of or damage to key characteristics, features or elements of the agricultural holding and potential effect of this change on viability. • Ministry of Defence - potential likely significant effects as there is potential for loss of use/access of land during construction. • BW 350/021 - potential likely significant effects as the Bridleway will be severed by the draft DCO boundary. • Potential for permanent land take from properties. At this stage potential significant effects cannot be ruled out • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities	introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities Black-Black-Orange alternative • Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities Black-Blue-Orange alternative • Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	Black-Black-Orange alternative • Walkers, cyclists and horse riders – potential likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings – potential likely significant effects due to the loss of or damage to key characteristics, features or elements of the agricultural holding and potential effect of this change on viability. • Rowan House housing allocation - potential likely significant effects as the majority of the allocation (96%) lies within the draft DCO boundary and there is potential for construction activities to take place directly within this land. • Ministry of Defence - potential likely significant effects as there is potential loss of use/access of land during construction. • Property would require acquisition and demolition as part of the scheme. At this stage potential significant effects cannot be ruled out • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities Black-Blue-Orange alternative • Walkers, cyclists and horse riders – potential likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project.	• Residents of rural properties - potentially positive and negative health effects due to impacts on quality of life from noise effects. • Rural communities - potentially positive health effect due to improved access to community facilities resulting from improved traffic flows on the A66.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• Agricultural land holdings – potential likely significant effects due to the loss of or damage to key characteristics, features or elements of the agricultural holding and potential effect of this change on viability. • Rowan House housing allocation - potential likely significant effects as the majority of the allocation (96%) lies within the draft DCO boundary and there is potential for construction activities to take place directly within this land. • Ministry of Defence - potential likely significant effects as there is potential loss of use/access of land during construction. • Property would require acquisition and demolition as part of the scheme. At this stage potential significant effects cannot be ruled out. • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities	
Road Drainage and the Water Environment	• No likely significant effects anticipated from all alternatives.	• No likely significant effects anticipated from all alternatives.

Bowes Bypass

Table 16-7: Summary of preliminary assessment of likely significant environmental effects – Bowes Bypass

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Air Quality	Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).
Biodiversity	• There is the potential for likely significant effects on North Pennine Moors SAC and SPA and Bowes Moor SSSI relating to air quality. Subject to further assessment. • There is potential for likely significant effects due to loss of Priority Habitats. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, amphibians (including great crested newt), reptiles and terrestrial invertebrates subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts.	• There is potential for likely significant effects on North Pennine Moors SAC and SPA, Bowes Moor SSSI and Deepdale Wood AW as a result of air quality impacts. Subject to further assessment. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, wintering birds, breeding birds, amphibians (including great crested newt), reptiles and terrestrial invertebrates subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts. •
Climate	• No likely significant effects anticipated.	• No likely significant effects anticipated.
Cultural Heritage	• No likely significant effects anticipated.	• No likely significant effects anticipated.
Geology and Soils	• Likely significant effects due to the potential permanent land take and loss of medium value agricultural soil resource (Grade 3b agricultural land).	• Potential beneficial significant effects on the UNESCO Global Geopark due to the potential for enhancement if cuttings or earthworks offer an opportunity to permanently expose geology of scientific interest.
Landscape and Visual Effects	• Likely significant, temporary effects on: ○ Dales Fringe Area of High Landscape Value ○ a localised part of Bowes broad character area ○ a localised part of Cotherstone Moor broad character area ○ a localised part of Lower Greta broad character area	• Likely significant effects at year 1 on: ○ Dales Fringe Area of High Landscape Value ○ A localised part of Bowes broad character area ○ Stone Bridge Farm ○ Users of PRoW 6 around Bowes ○ Users of PRoW 7 and 22 in the North Pennines AONB • Likely significant effects at year 15 on:

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	○ residents of Bowes: North end of Kilmond View, West End Bungalow, Ivy Hall Cottage and Ivy Hall Farm ○ residents to the south of Bowes and the A66 ○ residents along Clint Lane ○ Stone Bridge Farm ○ users of PRoW 6 and 9 around Bowes ○ users of PRoW 3, 7 and 22 in the North Pennines AONB ○ a short section of the Pennine Way National Trail	○ Dales Fringe Area of High Landscape Value ○ A localised part of Bowes broad character area
Material Assets and Waste	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).
Noise and Vibration	• There is potential for significant effects across the scheme. Effects will be temporary and localized depending on the specific activity and construction stage. • The location and duration of these effects are yet to be determined and are subject to further assessment.	• Significant adverse effects are predicted to nine residential receptors and one non-residential receptor. Subject to on-going mitigation design and further assessment.
Population and Human Health	• Walkers, cyclists and horse riders – likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings – the loss of or damage to key characteristics, features or elements of the agricultural holding and potential effect of this change on viability. • Bowes Moor (two areas) – potential loss of use/access of land during construction. • Allotment/Community growing Space - Potential loss of use/access of land during construction.	• Walkers, cyclists and horse riders – Potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Rural communities - potentially positive health effect due to improved access to community facilities resulting from improved traffic flows on the A66.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• Property would require acquisition and demolition as part of the scheme. At this stage potential significant effects cannot be ruled out • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to visual effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities • Users of allotments/community growing space located off the Pennine Way – reduced access to green space and outdoor leisure activities due to direct impact on this resource	
Road Drainage and the Water Environment	• No likely significant effects anticipated.	• No likely significant effects anticipated.

.

Cross Lanes to Rokeby

Table 16-8: Summary of preliminary assessment of likely significant environmental effects – Cross Lanes to Rokeby

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Air Quality	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).	Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).
Biodiversity	Black Cross Lanes – Black Rokeby (PRA) • There is the potential for likely significant effects on Thorsgill Wood LWS and Rokeby Park and Mortham Wood LWS relating to air quality. Subject to further assessment. • There is the potential for likely significant effects due to the loss of Priority Habitats, and possibly AW, and air quality. Potential loss of up to five mature sycamore trees. Subject to further design and mitigation. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, amphibians, reptiles and terrestrial invertebrates subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts. Blue (Cross Lanes) alternative junction • The effects are as per Black-Black route, though for this junction option there is more loss and severance of habitats at the western end of the scheme, particularly affecting deciduous woodland, hedgerows and semi-improved grassland. Red (Rokeby) alternative junction	Black Cross Lanes – Black Rokeby (PRA) • There is the potential for likely significant effects on Thorsgill Wood LWS and Rokeby Park and Mortham Wood LWS and Waterfall Wood AW relating to air quality. Subject to further assessment. • There is the potential for likely significant effects on Priority Habitats, and possibly AW, due to air quality. Subject to further assessment. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, wintering birds, breeding birds, amphibians, reptiles and terrestrial invertebrates subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts. Blue (Cross Lanes) alternative junction • The effects are as per Black-Black route. Red (Rokeby) alternative junction • The effects are as per Black-Black route.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• The effects are as per the Black-Black route, though for this option there is additional severance to ancient woodland at Church Wood, loss and severance to Jones Wood AW and additional loss of Priority Habitats but reduced loss of the mature sycamore trees.	
Climate	• No likely significant effects anticipated from all alternatives.	• No likely significant effects anticipated from all alternatives.
Cultural Heritage	Black Cross Lanes – Black Rokeby (PRA) • No likely significant effects anticipated from all alternatives. Blue (Cross Lanes) alternative junction • Permanent significant adverse effects are anticipated to affect the Ring Ditch, 120m north-east of Poundergill. Red (Rokeby) alternative junction • Permanent significant adverse effect is anticipated to affect the Grade II* Registered Park and Garden at Rokeby Park.	• No likely significant effects anticipated from all alternatives.
Geology and Soils	• Likely significant effects due to the potential permanent land take and loss of high value agricultural soil resource (Grade 3a agricultural land) for all alternatives.	• No likely significant effects anticipated from all alternatives.
Landscape and Visual Effects	Black Cross Lanes – Black Rokeby (PRA) • Likely significant effects on Barningham, Brignall and Rokeby Broad Character Area • Likely significant effects on residents at the west of Tutta Beck Farm, east of Tutta Beck Farm • Likely significant effects on PRoW 5 and 8 west of Cross Lanes, PRoW 4, 5, 9 and 10 to the north of the A66, PRoW 3 and 6 to the south of the A66 • Likely significant effects on visitors to the Church of St. Mary and Cross Lanes Organic Farm	Black Cross Lanes – Black Rokeby (PRA) • Likely significant effects at year 1 on: ○ Barningham, Brignall and Rokeby Broad Character Area ○ Residents at the west of Tutta Beck Farm, School House, and The Rectory ○ PRoW 5 and 8 west of Cross Lanes, PRoW 4, 5, 9 and 10 to the north of the A66, PRoW 3 and 6 to the south of the A66 ○ Visitors to the Church of St. Mary and Cross Lanes Organic Farm

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	Blue (Cross Lanes) alternative junction • Likely significant effects on Boldron and Lartington Broad Character Area • Likely significant effects on residents at the west of Tutta Beck Farm, east of Tutta Beck Farm • Likely significant effects on PRoW 14, 1, 5, 7, 8, and 19 west of Cross Lanes • Likely significant effects on visitors to the Cross Lanes Organic Farm Red (Rokeby) alternative junction • Likely significant effects on Barningham, Brignall and Rokeby Broad Character Area • Likely significant effects on residents at the east of Tutta Beck Farm • Likely significant effects on PRoW 13 to the north of the A66, PRoW 3 and 6 to the south of the A66 • Likely significant effects on visitors to Rokeby Park RPG	• Likely significant effects at year 15: ○ Barningham, Brignall and Rokeby Broad Character Area ○ Residents at Pounder Gill, Smithy Cottage, Ivy Cottage, The Cottage and Birk House ○ PRoW 5 and 8 west of Cross Lanes, PRoW 4, 5, 9 and 10 to the north of the A66, PRoW 3 and 6 to the south of the A66 ○ Visitors to the Church of St. Mary and Cross Lanes Organic Farm Blue (Cross Lanes) alternative junction • Likely significant effects at year 1 on: ○ Boldron and Lartington Broad Character Area ○ Residents at the west of Tutta Beck Farm, School House, and The Rectory ○ PRoW 14, 19, 1, 5, 7 and 8 west of Cross Lanes ○ Visitors to Cross Lanes Organic Farm • Likely significant effects at year 15: ○ Boldron and Lartington Broad Character Area ○ Residents at Pounder Gill, Dent House Farm, Smithy Cottage, Ivy Cottage, The Cottage and Birk House ○ PRoW 1, 5, 7 and 8 west of Cross Lanes Red (Rokeby) alternative junction • Likely significant effects at year 1 on: ○ Barningham, Brignall and Rokeby Broad Character Area ○ Residents at the School House, The Rectory, Tack Room Cottage, The Grove, and Ewebank ○ PRoW 13 to the north of the A66, PRoW 3 and 6 to the south of the A66 ○ Visitors to Rokeby Park RPG • Likely significant effects at year 15:

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
		○ Barningham, Brignall and Rokeby Broad Character Area ○ Residents at the School House, The Rectory, Tack Room Cottage, The Grove, and Ewebank ○ PRoW 13 to the north of the A66, PRoW 3 and 6 to the south of the A66
Material Assets and Waste	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).
Noise and Vibration	• There is potential for significant effects across the scheme. Effects will be temporary and localized depending on the specific activity and construction stage. • The location and duration of these effects are yet to be determined and are subject to further assessment.	Black Cross Lanes – Black Rokeby (PRA) • Significant adverse effects are predicted to 225 residential receptors and 12 non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to 216 residential receptors and 64 non-residential receptors. Black Cross Lanes – Red Rokeby • Significant adverse effects are predicted to 14 residential receptors and one non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to 39 residential receptor and four non-residential receptors. Blue Cross Lanes – Black Rokeby • Significant adverse effects are predicted to 195 residential receptors and eight non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to 219 residential receptors and 65 non-residential receptors. Blue Cross Lanes – Red Rokeby • Significant adverse effects are predicted to 16 residential receptors and one non-residential receptor.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
		Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to 32 residential receptors and four non-residential receptors.
Population and Human Health	The following effects apply to all alternatives: • Walkers, cyclists and horse riders – potential likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings – potential likely significant effects due to the loss of or damage to key characteristics, features or elements of the agricultural holding and potential effect of this change on viability. • Cross Lanes Organic Farm Shop - potential likely significant effects due to a potential permanent loss of land – direct acquisition of land for the scheme. • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise and visual effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities	The following effects apply to all alternatives • Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Residents of rural properties, potentially negative health effects due to impacts on quality of life from noise and visual effects. • Rural communities - potentially positive health effect due to improved access to community facilities resulting from improved traffic flows on the A66.
Road Drainage and the Water Environment	• No likely significant effects anticipated from all alternatives.	• No likely significant effects anticipated from all alternatives.

Stephen Bank to Carkin Moor

Table 16-9: Summary of preliminary assessment of likely significant environmental effects – Stephen Bank to Carkin Moor

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Air Quality	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).
Biodiversity	• There is the potential for likely significant effects due to loss of Priority Habitats. Subject to further design and mitigation. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, amphibians (including great crested newt), reptiles and terrestrial invertebrates subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts.	• There is the potential for likely significant effects due to loss of Priority Habitats. Subject to further design and mitigation. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, wintering birds, breeding birds, amphibians (including great crested newt), reptiles and terrestrial invertebrates subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts.
Climate	• No likely significant effects anticipated.	• No likely significant effects anticipated.
Cultural Heritage	• Permanent significant adverse effects are anticipated at the Roman Fort and Prehistoric enclosed settlement 400m west of Carkin. Subject to on-going mitigation design and further assessment. • Permanent significant adverse effects are anticipated to affect the Roman vicus at Carkin Moor Fort.	• No likely significant effects anticipated.
Geology and Soils	• Likely significant effects due to the potential permanent land take and loss of high and medium value agricultural soil resource (Grade 3a and 3b agricultural land).	• No likely significant effects anticipated.
Landscape and Visual Effects	• Likely significant effects on a localised part of Moors Fringe landscape character type • Likely significant effects on residents of West Layton along West Lane, Browson Bank, Dunsa Bank, the	• Likely significant effects at year 1 on: ○ A localised part of Moors Fringe landscape character type ○ Residents at Browson Bank, Dunsa Bank and Monks Rest Farm

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	Fox Grove Area, Monks Rest Farm and near Carkin Moor Farm • Likely significant effects on users of PRoW west of West Layton, PRoW east of West Layton, PRoW south of the A66 • Likely significant effects on visitors to Mainsgill Farm Shop and Fox Hall Inn	○ Users of PRoW west of West Layton, PRoW east of West Layton, PRoW 20.55/1/1 and 20.55/6/1 south of the A66 ○ Visitors to Mainsgill Farm Shop • Likely significant effects at year 15 on: ○ A localised part of Moors Fringe landscape character type ○ Residents at Monks Rest Farm ○ Users of PRoW 20.55/1/1 and 20.55/6/1 south of the A66 ○ Visitors to Mainsgill Farm Shop
Material Assets and Waste	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).
Noise and Vibration	• There is potential for significant effects across the scheme. Effects will be temporary and localized depending on the specific activity and construction stage. • The location and duration of these effects are yet to be determined and are subject to further assessment.	• Significant adverse effects are predicted to 26 residential receptors and one non-residential receptor. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to eight residential receptors.
Population and Human Health	• Walkers, cyclists and horse riders – potential likely significant effects due to the severance of PRoW and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings – potential likely significant effects due to the loss of or damage to key characteristics, features or elements of the agricultural holding and potential effect of this change on viability. • FP 20.23/8/1 - potential likely significant effects as the Footpath will be severed by the draft DCO boundary.	• Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Residents of rural properties, potentially negative health effects due to impacts on quality of life from noise and visual effects.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	• BW 20.23/5/1 - potential likely significant effects as the Bridleway will be severed by the draft DCO boundary. • Potentially negative effects on mental wellbeing due to a perceived reduction in the quality of the living environment and concerns about air quality and road safety due to increased HGV movements. • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise effects. • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities.	• Rural communities - potentially positive health effect due to improved access to community facilities resulting from improved traffic flows on the A66.
Road Drainage and the Water Environment	• No likely significant effects anticipated.	• No likely significant effects anticipated.

A1(M) Junction 53 Scotch Corner

Table 16-10: Summary of preliminary assessment of likely significant environmental effects – A1(M) Junction 53 Scotch Corner

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
Air Quality	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above).
Biodiversity	• There is the potential for significant adverse effects on habitats (Deciduous woodland, Hedgerow and Poor semi-improved grassland) due to loss of mature woodland). Subject to ongoing design and mitigation.	• There is the potential for significant adverse effects on habitats (Deciduous woodland, Hedgerow and Poor semi-improved grassland) due to loss of mature woodland). Subject to ongoing design and mitigation. • There is potential for significant adverse effects on Limekiln Wood Site of Importance for Nature Conservation and Limekiln Ancient Woodland relating to air quality, subject to further assessment.
Climate	• No likely significant effects anticipated.	• No likely significant effects anticipated.
Cultural Heritage	• No likely significant effects anticipated.	• No likely significant effects anticipated.
Geology and Soils	• No likely significant effects anticipated.	• No likely significant effects anticipated.
Landscape and Visual Effects	• No likely significant effects anticipated.	• No likely significant effects anticipated at year 1 or year 15.
Material Assets and Waste	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).	• Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above).
Noise and Vibration	• There is potential for significant effects across the scheme. Effects will be temporary and localized depending on the specific activity and construction stage. • The location and duration of these effects are yet to be determined and are subject to further assessment and mitigation design.	• Significant adverse effects are predicted to 12 residential receptors one non-residential receptors. Subject to on-going mitigation design and further assessment.
Population and Human Health	• Strategic Direction of Growth Area – Scotch Corner Designer Outlet Village – potential for significant effects related to disruption of access to this site	• Moderate beneficial effects for the Strategic Direction of Growth Area – Scotch Corner Designer Outlet Village. • Local residents – potential for negative effects on wellbeing from increased traffic noise.

Factor	Preliminary assessment of likely significant environmental effects	
	Construction stage	**Operation stage**
	during construction cannot be ruled out at this stage. • Local residents – potentially negative effects from temporary traffic delays affecting access from rural communities to Middleton Tyas. • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities.	• Rural communities - potentially positive health effect due to improved access to community facilities resulting from improved traffic flows on the A66.
Road Drainage and the Water Environment	• No likely significant effects anticipated.	• No likely significant effects anticipated.