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Anglian Water Services Limited

Environmental Statement

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Summary

Introduction

The assessment has been based on the Guidelines for the Environmental Assessment of Road Traffic (GEART) by the Institute of Environmental Management and Assessment (IEMA) (IEMA, 1993). It is recognised that this guidance has been updated and that professional judgement should be applied when determining impacts and the importance of agreeing assessment scope with local stakeholders.

This chapter summarises and builds upon information contained within the Transport Assessment (TA) for the proposed Development (Appendix 19.3, App Doc Ref 5.4.19.3).

Assessment years

The Traffic and Transport Chapter of the Environmental Statement has considered the effects of the Proposed Development on the local transport infrastructure in Year 3 of construction (currently assumed to be 2026) which is the expected peak year of vehicle movements, in Year 4 of construction (assumed to be 2028) for decommissioning of the existing Cambridge WWTP and operation of proposed WWTP in the expected Year 1 plus ten years (expected to be 2038). The assessment also considers what would happen in the event that the programme was to be delayed and the assessment years become altered. A review of growth factors indicates that shifting the peak years does not alter the validity of the assessment despite changes in background traffic levels. TEMPro growth factors, used to understand background traffic growth, increase by approximately one percentage point per year but this does not affect the results of the assessment.

Study area

The assessment of the construction phase has considered road links incorporated into construction routes. These are indicated within Figure 19.2 Construction route and access points (Book of Figures – Traffic and Transport, App Doc Ref 5.3.19).

The assessment of the operation phase has considered the new permanent access to the proposed WWTP (indicated within 4.11.1 Design Plans – Highways Horningsea Road & Proposed WWTP Access Layout Plan (App Doc Ref 4.11.1)).

Assessment approach

LinSig local junction models supplied by CCC have been used to predict changes to junctions and makes use of baseline traffic data. The future year traffic flow data includes traffic predictions from committed developments in the area. These are accounted for within growth factors obtained from TEMPro. These growth factors are used to factor existing baseline 2021 traffic survey data to the future assessment years. Traffic survey data comprises data obtained in December 2021, and additional Automatic Traffic Counts (ATC) surveys from May 2022, to verify counts.

Personal Injury Collision (PIC) data for the 2016-2021 period has been obtained from Cambridgeshire County Council (CCC) and referred to in the assessment of accident risk in relation to the Proposed Development.

The approach to the assessment of vehicle movements has been discussed through a series of Technical Working Group (TWG) Traffic and Transport meetings with Cambridge County Council and National Highways, held between 2020 and 2022.

Mitigation summary

Primary measures

Measures inherent to the design of the Proposed Development that intend to mitigate impacts on traffic and transport during the construction and operation phases are:

- Construction
 - speed control of Horningsea Road between Fen Ditton and Horningsea;
 - inclusion of a temporary track adjacent to Hatridge's Lane for pedestrian access from Clayhithe Road to Clayhithe Farm;
 - inclusion of a temporary construction track adjacent to Hatridge's Lane for construction vehicles from Clayhithe Farm to worksite;
 - temporary diversion of the PRoW 85/6 at the outfall works area using 85/8 and a temporary path to re-join the PRoW 85/6 upstream of the outfall works area; and
 - temporary junction control at selected roads within Waterbeach (Bannold Road / Bannold Drove and Bannold Road / Burgess Drove junctions).
- Operation
 - provision of a pedestrian island crossing on Horningsea Road;
 - provision of a new footway section on the east side of Horningsea Road south of the junction with Low Fen Drove Way to the proposed new access road;
 - introduction of speed control of the Horningsea Road between Fen Ditton and Horningsea;
 - widening of the shared pedestrian / cycle path on a section on the western side of Horningsea Road;
 - incorporation of a segregated pedestrian and cyclist access to the proposed WWTP;

- cycle parking provision for up to 50 cycles (the mixture of regular, cargo and EV cycles will be agreed as part of the Travel Plan) within the proposed WWTP; and
- provision of Electric Vehicle (EV) parking for up to 30% of spaces within the proposed WWTP on commencement of operation, with passive provision for a further 30% of spaces implemented through the Operational Workers Travel Plan, (App Doc Ref 5.4.19.7 Volume 4, Chapter 19 Appendix 19.8).

Secondary measures

The Application includes a number of documents indicating the approach to management during construction and operation. Those relevant to traffic and transport are the Code of Construction Practice (CoCP) Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2), Construction Traffic Management Plan (CTMP) (Appendix 19.7, App Doc Ref 5.4.19.7), Construction Workers Travel Plan (Appendix 19.9, App Doc Ref 5.4.19.9), outline Operational Logistics Traffic Plan (Appendix 19.10, App Doc Ref 5.4.19.10), and Operational Workers Travel Plan (Appendix 19.8, App Doc Ref 5.3.19.8).

During the construction phase, the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) and the Construction Traffic Management Plan (Appendix 19.7, App Doc Ref 5.4.19.7) specify the range of measures to avoid and minimise impacts that may occur in construction. These include but are not limited to:

- a commitment to prohibit the movement of construction traffic through Fen Ditton and Horningsea;
- a general requirement that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;

- measures for temporary traffic control during the construction period at locations in Waterbeach; and
- monitoring of vehicle movements along Horningsea Road through the use of Automatic Number Plate Recognition (ANPR).

An Outline Decommissioning Plan (Appendix 2.3, App Doc Ref 5.4.2.3) and an Operational Workers Travel Plan (Appendix 19.8, App Doc Ref 5.4.19.8) would apply respectively to the decommissioning phase and operation phase of the Proposed Development and outlines the measures to avoid and minimise impacts that may occur in these phases.

An Operational Logistics Traffic Plan (Appendix 19.10, App Doc Ref 5.4.19.10), would be required to manage the movement of operational vehicles at the main proposed WWTP and like the CTMP, would need to clearly state working hours, restrictions on vehicle movements (if any), and other measures.

Tertiary measures

For traffic and transport, tertiary mitigation would take the form of specific measures secured by the appropriate permits and consents that delivers the mitigation. This would be required for construction work in relation to the railway. The Applicant has entered into a Basic Asset Protection Agreement (BAPA) with Network Rail, for locations where the construction of the Proposed Development would potentially interact with railways e.g., level crossings. Measures to prevent impacts to rail infrastructure are secured through the BAPA. The measures will include construction in line with approved method statements covering construction techniques, depths and monitoring.

For all highway related approvals, Cambridge County Council are consulted as per the standard highway approvals process to ensure traffic management works are coordinated with the wider highway network operation. However, the DCO provides the Applicant with the necessary powers to undertake the works that are needed.

Assessment approach

The receptors considered in the assessment are users of the transport network (highway, footway, cycleway and public rights of way (PRoW)).

Effects are reported by different components of the Proposed Development in recognition of the differences between activities for the construction of the proposed WWTP, the construction of the Waterbeach pipeline and activities occurring at the existing Cambridge WWTP.

The rules set out within GEART (IEMA, 1993) have been applied to determine the scale and extent of the assessment, as follows.

- Rule 1: include highways links where traffic flows will increase by more than 30% (or the number of heavy goods vehicle (HGVs) will increase by more than 30%).

- Rule 2: include any other sensitive areas (e.g., accident black spots, conservation areas, hospitals, links with high pedestrian flows, etc.) where traffic flows have increased by 10% or more.

Despite not meeting the 10%/30% requirement, some road links have been included in the assessment to provide greater clarity into the construction, operation and maintenance, and decommissioning activities related to the Proposed Development.

The changes to flows on affected road links in the future have been assessed using TEMPro. This applies baseline traffic flows in addition to the predicted traffic movements required for the construction and operation of the Proposed Development. The assessment considers different baseline years corresponding to the indicative programme and the timing of expected peak vehicle movements.

The assessment identifies the effects of severance, delay (motorised and non-motorised), fear and intimidation, accidents and road safety, and hazardous loads on users across the study area. The study area incorporates all affected road links in construction and operation.

The receptor sensitivity has been established for each road link (including footway/cycleway) and PRoW.

Assessing residual effects

The assessment has taken into account mitigation by first assessing the magnitude of impact and significance of effect on a type of effect (for example, severance) while taking into account primary and tertiary measures. The assessment then considers secondary measures and how these would mitigate impacts.

Residual significant effects are reported where the primary, secondary and tertiary mitigation measures do not reduce impacts sufficiently.

The traffic flow numbers used to inform the impact assessment are a maximum design scenario (i.e. the peak traffic demand) and are informed by assumptions based on the current understanding of construction logistics. The maximum design scenario is set out in Section 2.6 and provides the parameters on which the traffic and transport assessment has been based. These are the parameters which are judged to give rise to the maximum levels of effect for the assessment undertaken. As a result, there are no effects of greater significance than those already assessed.

Construction

The Proposed Development consists of the construction of several separate elements during the 4-year construction period, which have specific construction vehicle requirements. These elements are:

- the proposed WWTP (including the landscape masterplan, treated effluent pipeline and outfall);
- the Transfer tunnel and shafts; and

- the Waterbeach pipeline.

The assessment considers Year 3 of construction as the busiest year because, at this point, both the Proposed WWTP and the Transfer Tunnel are under construction. The Waterbeach pipeline construction is programmed to be completed by this point. To assess a reasonable worst-case scenario the Waterbeach pipeline has been assumed as delayed, so this typical traffic is added to the Construction Year 3 peak.

The assessment for construction of the proposed WWTP (including the landscape masterplan, treated effluent pipeline and outfall)

This considers the peak of construction in Construction Year 3 (2026) with a daily peak of 629 movements on Horningsea Road and junction 34 of the A14. These would access and egress the land required for the proposed WWTP via the permanent access road constructed at the start of the programme. This daily peak is based on the assumption that the construction of the proposed WWTP, the Transfer Tunnel and Waterbeach pipeline would all occur simultaneously.

The sequencing of the construction programme is such that the Waterbeach pipeline is expected to be completed in Construction Year 1 (assumed to be 2024). Consequently, peak construction activities and the construction vehicle movements associated with the Waterbeach pipeline would not occur at the same time as the construction of the proposed main WWTP (including permanent access and landscape masterplan) and the Transfer Tunnel. However, typical daily construction flows for the Waterbeach pipeline have been included in the reasonable worst-case scenario so that an allowance is made for a potential delay to the Waterbeach programme.

For each element the construction vehicle movements are:

- 492 daily total movements representing the peak traffic flow required for the proposed WWTP (including works for the landscape masterplan);
- 67 daily total movements for the Transfer tunnel and shafts; and
- 68 daily total movements as the typical day traffic flow for the Waterbeach pipeline.

For the number of construction vehicle movements for the Waterbeach pipeline, typical construction vehicle numbers have been used instead of the peak vehicle numbers. This is because the peak represents a site set up or taken down scenario that would not coincide with the other peak periods.

The assessment for construction of the Transfer Tunnel

This considers the effects of transfer tunnel peak daily vehicle movements on the sites in Milton Road and Cowley Road and on Horningsea Road and junction 34 of the A14 in Year 3 of construction.

The assessment for construction of the Waterbeach pipeline

This considers the effects of the peak Waterbeach pipeline vehicle movements on the routes to the sites in Waterbeach, including Car Dyke Road, Denny End Road and Bannold Road; sites in Chesterton including Milton Road, Cowley Road and Fen Lane. The consideration of Waterbeach pipeline effects on Horningsea Road is considered within the proposed WWTP assessment.

As set out previously the construction programme has the Waterbeach pipeline complete in Construction Year 1. However, the reasonable worst-case scenario has assumed a delay in the programme to test the impacts if the proposed WWTP, transfer tunnel and Waterbeach pipeline were built concurrently in Construction Year 3.

The Waterbeach pipeline has a peak traffic movement period of eight weeks that occurs at the start and the end of the site set up and taken down scenario referred to above. This peak daily construction movements, in Construction Year 3, are:

- for road links in Waterbeach (north of the A14): 82 HGVs and 28 workforce; and
- for sites on Horningsea Road and on Cowley Road (south of the A14): 90 HGVs and 28 workforce.

Decommissioning

The assessment for decommissioning of the existing Cambridge WWTP considers the Construction Year 4 (assumed to be 2028) with 150 daily vehicle movements on Milton Road and Cowley Road. These would access and egress the existing Cambridge WWTP via Cowley Road. This daily peak is based on the assumption that all decommissioning activities would occur simultaneously.

Operation

The assessment for operation of the proposed WWTP considers Year 10 of operation. Based on the indicative programme the assessment years for operation would be 2038. The 2038 operation assessment year has been agreed with CCC based on its Transport Assessment Guidance document (Cambridgeshire County Council, 2019), which requires modelling to assess traffic flows 10 years after the opening year. Operational vehicle movements volume are low enough (less than 10%) that they do not require an assessment as per GEART Rule 2.

In operation year 10 (2038)

The assessment has considered the vehicle movements required to operate the proposed WWTP at full development capacity. The daily peak of 238 vehicle movements are derived as follows:

- Cars and LGVs (in vehicle movements)
 - 12 Operational and maintenance staff travelling to/from work

- 4 AW technical / managerial visitors (weekdays and out of peak only)
- 60 Office workers (AW and other contractors) using the facility daily
- 4 Deliveries and contractors supporting the WWTP operation
- 12 HGV / Tanker drivers using the office facilities
- HGVs (in vehicle movements)
 - 62 Liquid sludge imports
 - 10 Biosolid exports
 - 14 non-routine tanker movements
 - 60 Septic waste movements

There would be a short term increase in vehicle movements associated with the works to construct an additional above-ground storage tank (AST) and primary settlement tank (PST) to take the proposed WWTP to full capacity. These works would take up to 12 months to complete. There would be a range of construction movements per day of between 5 to 20 movements.

Summary of construction effects

Although the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) Section 4.2 includes a requirement to avoid vehicle movements in the peak hour, there will be exceptions associated with vehicle movements required for short-term intermittent time critical activities (e.g., concrete pours or direction drilling activities) in the peak hours during the peak construction year.

In the case of the construction of the proposed WWTP these vehicle movements would be concentrated around Junction 34 of the A14 and would travel via:

- Horningsea Road;
- Junction 34 of the A14;
- Junction 33 of the A14 (the Milton Interchange); and
- the A14 section between Junction 33 and Junction 34.

These short-term intermittent activities would not all occur simultaneously at the work sites and would be limited in duration, typically two to three days and therefore would be unlikely to generate a significant effect.

Proposed WWTP (including permanent access and landscape masterplan)

All effects have been determined to be either neutral or slight and not significant.

With the application of the secondary measure within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) to restrict peak period construction movements residual effects have been determined to be neutral and therefore are not significant

Waste water transfer tunnel

All effects have been determined to be either neutral or slight and not significant.

With the application of the secondary measure within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) to restrict peak period construction movements residual effects have been determined to be neutral and therefore are not significant.

Treated effluent pipeline to outfall

Without secondary mitigation, a temporary a major effect on pedestrian delay would occur on PRoW 85/6 and 85/8 due to construction activities intersecting with the PRoW, and this is significant.

Once secondary mitigation has been applied, in the form of diversion and gated access over the PRoW, the major significant effect on PRoW 85/8 would become minor. With secondary mitigation, a residual temporary major effect on pedestrian delay would remain on PRoW 85/6 owing to the additional journey time.

A short-term moderate and therefore significant effect on pedestrian delay has been determined to take place at PRoW 85/6 and 85/8 due to the required diversion resulting from the construction works crossing over sections of the PRoW.

Waterbeach pipeline

All effects have been determined to be either neutral or slight and not significant.

With the application of the secondary measure within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) to restrict peak period construction movements residual effects have been determined to be neutral and therefore are not significant.

Summary of operational effects

The operation phase consists of the redistribution of vehicle movements from the existing Cambridge WWTP to the proposed WWTP and includes an assessment of the worst-case year of 2038.

Effects have been determined to be neutral or slight and not significant.

With the application of measures within the outline OLTP (Appendix 19.10, App Doc Ref 5.4.19.10) and OWTP (Appendix 19.8, App Doc Ref 5.4.19.8) this would mitigate any residual effects associated with operational vehicle movements.

Summary of decommissioning effects

Decommissioning activities for the existing WWTP are scheduled to occur at the end of the construction phase in Construction Year 4 (assumed to be 2028).

Effects have been determined to be neutral or slight and not significant.

With the application of the secondary measure within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) to restrict peak period construction movements residual effects have been determined to be neutral and therefore are not significant.

Enhancements

The proposals include improvements along Horningsea Road these would result in minor beneficial effects to users of the footway:

- pedestrian island crossing on Horningsea Road;
 - This would improve the ability for pedestrians to cross Horningsea Road safely by providing a refuge and improves connections to other walking routes in close proximity such as PRow. This results in a residual benefit by improving the existing environment, which would reduce the effects of severance and fear and intimidation and would improve road safety.
- new footway section on the east side of Horningsea Road, south of the junction with Low Fen Drove Way;
 - The provision of a new section of footway on Horningsea Road between the main proposed WWTP and Low Fen Drove Way would improve walking and cycling connectivity and provide a safer walking and cycling environment. This results in a residual benefit by improving the existing environment, and reducing the effects of severance and fear and intimidation and would improve road safety.
- speed control of the Horningsea Road between Fen Ditton and Horningsea;
 - Lowering traffic speeds would result in a safer and more welcoming environment for non-motorised users (NMUs). Lower speeds would also potentially reduce the volume of accidents on the road. A residual benefit would be observed as a result of reducing the effects of fear and intimidation and would improve road safety.
- extension of the shared pedestrian / cycle path to the west of Horningsea Road.
 - This would provide an uninterrupted connection between the A14 off-slip and Biggins Lane to the greater walking and cycling network in proximity of the area and create a safer and more welcoming environment for NMUs. This results in a residual benefit by improving the existing environment, which would reduce the effect of severance and fear and intimidation and would improve road safety.

Summary

A temporary significant effect is identified on pedestrian delay on PRow 85/6 and 85/8 without the application of secondary / further mitigation secured via the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1).

With the application of secondary mitigation, no significant effect would be reported on PRow 85/8. A residual temporary major effect which is significant would remain for users of PRow 85/6.

1 Introduction

1.1 Purpose of this chapter

- 1.1.1 This chapter of the Environmental Statement (ES) presents the findings of the Environmental Impact Assessment (EIA) completed in relation to the potential impacts of the Proposed Development on traffic and transport.
- 1.1.2 The ES has been prepared as part of the application to the Planning Inspectorate (PINS) for development consent. This chapter has considered the potential traffic and transport impacts of the Proposed Development during its construction (including commissioning), operation and maintenance, and decommissioning phases.
- 1.1.3 The assessment of traffic and transport effects is based on traffic data for the construction, decommissioning and operation phases. This data is used for the assessment of effects for the following topics:
- Chapter 7: Air Quality (App Doc Ref 5.2.7);
 - Chapter 11: Community (App Doc Ref 5.2.11); and
 - Chapter 17: Noise and Vibration (App Doc Ref 5.2.17).
- 1.1.4 The assessment of hazardous and abnormal loads in this chapter, associated with potentially contaminated waste, has been carried out based on information available in Chapter 16: Material Resources and Waste. Up to two movements for the delivery of batteries as part of the battery energy storage system may also be required. Controls on these are identified in Chapter 21: Major Accidents and Disasters (App Doc Ref 5.2.21).
- 1.1.5 The effects on the users of the River Cam are considered in Chapter 11: Community (App Doc Ref 5.2.11).
- 1.1.6 This chapter summarises information from supporting studies, technical reports and publicly available data which are included within:
- Appendix 19.1 (App Doc Ref 5.4.19.1) Baseline Traffic Surveys;
 - Appendix 19.3 (App Doc Ref 5.4.19.3) Transport Assessment (TA);
 - Appendix 19.4 (App Doc Ref 5.4.19.4) Pedestrian Counts;
 - Appendix 19.5 (App Doc Ref 5.4.19.5) Traffic Flow Diagrams;
 - Appendix 19.6 (App Doc Ref 5.4.19.6) Junction Capacity Reports;
 - Appendix 19.7 (App Doc Ref 5.4.19.7) Construction Traffic Management Plan (CTMP);
 - Appendix 19.8 (App Doc Ref 5.4.19.8) Operational Workers Travel Plan (OWTP);

- Appendix 19.9 (App Doc Ref 5.4.19.9) Construction Workers Travel Plan (CWTP);
- Appendix 19.10 (App Doc Ref 5.4.19.8) Operational Logistics Traffic Plan (OLTP);
- Appendix 2.1 and 2.2 (App Doc Ref 5.4.2.1 and 5.4.2.2) Code of Construction Practice (CoCP) Part A & B; and
- ES Chapter 21: Major Accidents and Disasters (App Doc Ref 5.2.21).

1.2 Competency statement

1.2.1 Summaries of the qualifications and experience of the Chapter authors are set out in Table 1-1.

Table 1-1: Competent experts

Author	Qualification / Professional Membership	Years of experience	Project experience summary
■	Chartered member of the Institute of Logistics and Transport	22	Experienced delivering transport assessment and modelling for DCO applications.
■	Transport Planning Society	4	Transport assessment, travel plan, ES experience over 3-4 years.
■	Member of the Institute of Highways and Transportation	3	Transport Assessments, travel plan, junction modelling, crowd modelling 3 years of experience.
■	Transport Planning Society	1	Experience in transport assessments, travel plans, transport policy and strategy.

1.3 Planning policy context

National Policy Statement (NPS) requirement

1.3.1 Planning policy on waste water Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to traffic and transport, is contained in the National Policy Statement (NPS) for Waste Water (Department of Environment, Food and Rural Affairs, 2012).

1.3.2 Table 1-2 sets out how this chapter complies with the NPS for Waste Water.

Table 1-2: NPS Compliance

NPS requirement	Compliance of ES scope with NPS requirements
Paragraph 4.13.3 The applicant's ES should include a transport assessment.	The project is likely to have significant transport implications. Therefore, a Transport Assessment (TA) has been prepared and is provided in Appendix 19.3 (App Doc Ref 5.4.19.3): Transport Assessment.

NPS requirement	Compliance of ES scope with NPS requirements
<p>Paragraph 4.13.3</p> <p>An agreed methodology of assessment (with National Highways and the Local Highway Authority).</p>	<p>A Transport Assessment Scoping Report was provided to the Highways team at Cambridgeshire County Council (CCC) and National Highways to inform the scope of the TA and the associated methodology through pre-application discussions.</p>
<p>Paragraph 4.13.3</p> <p>Use of WebTAG as stipulated in DfT's Transport Assessment Guidance or any successor to such methodology.</p>	<p>The TA follows Department for Transport (DfT's) Transport Assessment Guidance and uses WebTAG. It is located within the TA (Appendix 19.3, App Doc Ref 5.4.19.3).</p>
<p>Paragraph 4.13.4</p> <p>Preparation of a Travel Plan, including details of proposed measures to improve access by public transport, walking and cycling.</p>	<p>As the CWWTPR project meets the criteria for requiring a Transport Assessment, an Operational Workers Travel Plan has been prepared (see Appendix 19.8, App Doc Ref 5.4.19.8: Operational Workers Travel Plan) and includes demand management measures to mitigate transport impacts and reduce the need for parking.</p>

National planning policy

1.3.3 National planning policy of relevance to traffic and transport, and pertinent to the Proposed Development are listed below:

- National Planning Policy Framework (NPPF) (DLUHC, 2021) with particular reference to Section 9 - Promoting Sustainable Transport paragraph 104(d), which states that any significant environmental impacts from the development should be identified, assessed and taken into account. This includes opportunities for the mitigation of any adverse effects.
- National Planning Practice Guidance (DLUHC, 2021), which identifies priorities and needs which should be considered, including giving priority first to pedestrian and cycle movements, addressing the needs for people with disabilities and reduced mobility, creating places that are safe, secure and attractive, and allowing for the efficient delivery of goods, and access by service and emergency vehicles.
- Web-based Transport Analysis Guidance (TAG) (DfT, 2022), a transport appraisal guidance and toolkit, consisting of software tool and guidance on transport modelling and appraisal methods that are applicable for highways and public transport interventions. Analysis using TAG guidance is required for all interventions that require government approval.

Local planning policy

1.3.4 Local planning policy of relevance to the Proposed Development is summarised below.

- South Cambridgeshire District Council Local Plan 2018 (South Cambridgeshire District Council, 2018) with particular reference to
 - Policy SS/4 (Cambridge Northern Fringe) Chapter 3.34: Designation of a re-development area. The Cambridge Northern Fringe East (CNFE) and Cambridge North railway will allow for the creation of an

employment focused area centred around a new transport interchange. The amount of development, site capacity and viability, and phasing of development is established through an Area Action Plan (AAP).

- Policy TI/8 (Infrastructure and New Developments) Chapter 10.49: planning permission will only be granted for planning proposals that have made the appropriate arrangements for the provision or improvement of infrastructure necessary to make the scheme acceptable in the long term.
- Policy TI/3 (Parking Provision) Chapter 10.21: car parking provision should be provided through a design-led approach and should consider the site location, car ownership levels, availability of public transport and other local services. The Council encourages innovative solutions to car parking.
- South Cambridgeshire District Council Plan Local Development Framework 2010 (South Cambridgeshire District Council, 2010): a non-technical summary providing an overview of the Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA) of the Core Strategy, Development Control policies, and site specific policy development plans documents prepared by South Cambridgeshire District Council.
- Cambridge City Council Local Plan 2018 (Cambridge City Council, 2018) with particular reference to policy 5 (Sustainable transport and infrastructure): Development proposals must be consistent with and contribute to the implement of the transport strategies and priorities set out in the Cambridge Local Transport Plan (LTP). Cambridge City Council will work with partners to further support active travel.
- Cambridgeshire and Peterborough Minerals and Waste Local Plan 2021 (Peterborough City Council & Cambridgeshire County Council, 2021) with particular reference to Policy 23: traffic, highways, and rights of way: new mineral and waste management developments must provide appropriate opportunities to promote sustainable transport modes can be, or have been, taken up, to the degree reasonably available given the type of development and its location.
- Cambridgeshire and Peterborough Combined Authority Local Transport Plan 2020 (Cambridgeshire & Peterborough Combined Authority, 2022): describes how transport interventions can be used to address current and future challenges and opportunities for Cambridgeshire and Peterborough. Key areas identified for action include reducing emissions from road traffic, electric vehicle charge point mandate for new or upgrade highway infrastructure, maintaining low emissions through the planning process, and improving public health.

- Emerging North East Cambridge Area Action Plan 2020 (Greater Cambridge Shared Planning, 2020), with reference to Policies 16 (Sustainable Connectivity) and 17 (Connecting to the wider network).
- North East Cambridge Action Plan 2021 (Greater Cambridge Shared Planning, 2021): planning policy framework which will guide the development of the new low-carbon city district in North East Cambridge (NEC). NEC will have a greater focus on health and active travel, with particular emphasis on walking and cycling.
 - Policy 16 Sustainable connectivity: NEC will be designed around walkable neighbourhoods and healthy towns to promote sustainable travel. New pedestrian and cycle connections will be developed in line with this objective;
 - Policy 17 Connecting to the wider network: To improve connectivity between NEC and other areas, development will be required to contribute to new and improved connections for non-motorised users (NMF);
 - Policy 18 Cycle parking: cycling parking should be provided in excess of the minimum requirement listed in the 2018 Cambridge Local Plan. A minimum 5-10% of cycle parking should be provided to accommodate for non-standard cycles and electric charging points will also need to be considered. Developers must provide justification in the Travel Plan for the level and type of cycle parking infrastructure proposed to demonstrate it will meet the trip budget listed in Policy 22; and
 - Policy 22 Managing motorised vehicles: Development proposals will be supported where it can be demonstrated that they can be delivered within the vehicle trip budget. Development will not be permitted if proposals exceed the vehicle trip budget. The maximum vehicular trip budget for the Area Action Plan area on to Milton Road is 3,900 two-way trips in the AM peak, 3,000 two-way trips in the PM peak. For access on to King’s Hedges Road, the maximum vehicle trip budget is 780 two-way trips in the AM peak and 754 two-way trips in the PM peak.

1.4 Legislation

- 1.4.1 The principal legislative and planning context in relation to the assessment of the effects of the Proposed Development on traffic and transport comprises of the following:

National legislation

- 1.4.2 Legislation relating to traffic and transport and pertinent to the Proposed Development comprises the following:

- Highways Act (1980) (Parliament of the United Kingdom, 1980) There are general powers in the Highways Act 1980 for Public Rights of Way (PRoW) – see PINS PRoW Section Advice Note No 9 (9th Revision January 2018) “General Guidance on Public Rights of Way Matters” at paras. 16-38;
- New Roads and Street Works Act (1991) (Department for Transport, 1991); establishes statutory undertakers duties for highways work;
- Traffic Management Act (2004) (Department for Transport , 2004); to make provision in relation to the management of road networks; to make new provision for regulating the carrying out of works and other activities in the street;
- Planning Act (2008) (Parliament of the United Kingdom, 2008) for the approval of major new infrastructure projects such as airports, roads, harbours, energy facilities such as nuclear power and waste facilities; and
- The Countryside and Rights of Way Act (2000) (Parliament of the United Kingdom, 2000) establishes statutory rights of access to designated rights of way and ‘open access land’ comprising mountain, moor, heath, down and registered common land. This right may be exercised only by foot.

Local bylaws

- 1.4.3 The Conservators of the River Cam are the navigational authority for the River Cam. A set of bylaws regulate the navigation of the River Cam and all other related matters (Conservators of the River Cam, 1996).

1.5 Consultation

Scoping

1.5.1 Table 1-3 provides a summary of key points raised during scoping.

Table 1-3: Key points raised during scoping by Inspectorate

ID	Consultee	Points raised	Response
3.15.4	PINS	<p>Reference is made to the surrounding Strategic Road Network being “known to experience congestion and delay” prior to Covid-19 lockdown periods.</p> <p>The ES and transport assessments should clearly set out how the pandemic has influenced the gathering of baseline data, highways and access options selected for the Proposed Development and any assumptions made on long-term traffic and behavioural changes that have been made in the assessments.</p>	Traffic data collected in December 2021 is compared to data collected in May 2022 to ensure a suitable traffic baseline is used for assessment. These data are provided in ‘Traffic Survey Data and Comparison’ Appendix 19.1 (App Doc Ref 5.4.19.1).
n/a	Greater Cambridge Shared Planning	Construction and operational traffic along the Cambridge-Waterbeach-Ely corridor is likely to have significant cumulative impacts. It is recommended that this is included in the EIA for consideration so that the Proposed Development can be delivered with limited impact to the existing traffic conditions.	The A10 corridor forms part of the TA in Appendix 19.3 (App Doc Ref 5.4.19.3). The assessment years considered (2026, 2028, 2038) account for traffic growth including from committed developments by using TEMPro growth factors. These factors consider background traffic growth and includes growth originating from committed developments. Growth factors have been used to build the 2026, 2028 and 2038 future baselines based on the existing 2021 baseline.
n/a	Greater Cambridge Shared Planning	The commitment to avoid HGV traffic through Horningsea and Fen Ditton is welcomed. Assumptions behind the conclusions on routing need to be fully expressed in the ES so that the local planning authorities can take on a view on robustness.	Routing is set out in the TA (Appendix 19.3, App Doc Ref 5.4.19.3), which includes commitments to avoid HGV traffic in Horningsea and Fen Ditton.
n/a	CCC	A full Transport Assessment (TA) will be required to accompany any forthcoming planning application so that the transport implications of the Proposed Development can be fully understood.	A full TA is included in the Appendix 19.3 (App Doc Ref 5.4.19.3).

ID	Consultee	Points raised	Response
n/a	East of England Ambulance Service Trust (EEAST)	EEAST would request the design of the internal road network should also take account the potential requirements for emergency services to access and move around the site, during and post construction.	Noted and accepted. Access for emergency services has been accounted for in the design.
n/a	Fen Ditton Parish Council (FDPC)	FDPC consider that Option 1a is unsatisfactory as a construction access.	Option 1a is not the preferred access option and has not been further developed as part of CWWTPR project. The options explored and process of selection is provided in Chapter 3: Site Selection and Alternatives (App Doc Ref 5.2.3).
n/a	Fen Ditton Parish Council	Horningsea Road north of the A14 is not classed as the B1047 but as a C road.	Noted.
n/a	Fen Ditton Parish Council	FDPC support the construction of Option 3 (A14 access) outside normal construction hours if this accelerated its availability for use as a construction access.	Option 3 is not the preferred access option. Option 1b was brought forward instead. The options explored, and process of selection is provided in Chapter 3: Site Selection and Alternatives (App Doc Ref 5.2.3).
n/a	Fen Ditton Parish Council	FDPC stresses the impacts on air quality and non-motorised road and PRoW users.	Air quality impacts are considered in Chapter 7: Air Quality (App Doc Ref 5.2.7). The potential impacts on non-motorised road users and PRoW users has been considered in Section 0 (Construction phase) of the Assessment of Effects.
n/a	National Highways	The application should be accompanied by a full TA. The TA should be undertaken in accordance with DfT Circular 02/2013 "The Strategic Road Network and the Delivery of Sustainable Development". The TA should be informed by a Walking Cycling and Horse Riding Assessment Report (WCHAR). Full assessment should be made of A14 junctions 33-35.	A full TA is included in Appendix 19.3 (App Doc Ref 5.4.19.3). A Walking Cycling and Horse-riding Assessment Report (WCHAR) is provided in the TA Part 1 (Appendix 19.3, App Doc Ref 5.4.19.3, Appendix E). As Option 1b has been selected as the permanent access, an assessment of junction 35 (the Stow Cum Quy Interchange) has not been included as the construction route does not travel through it.
n/a	Network Rail	Any EIA should include consideration of how the scheme and its construction will impact on the operational railway infrastructure. It should include a TA that gives details of construction traffic haulage routes particularly with regards to railway assets (such as bridges and level crossings etc).	Noted and accepted. This is included in the TA Part 1 (Appendix 19.3, App Doc Ref 5.4.19.3).
n/a	Royal Mail	The scheme has been identified as having potential to affect Royal Mail operational interests due to the potential for construction phase traffic impact on the highway network. Royal	Noted.

ID	Consultee	Points raised	Response
		Mail wishes to reserve its position to submit a consultation response/s at a later stage in the DCO consenting process and to submit representations to the Public Examination, if required.	
n/a	East of England Ambulance Service Trust	EEAST believes that Option 1b has the greatest potential to minimise the impact of the link road construction while supporting road infrastructure improvements (Highway Network Alterations paragraph 2.8).	Option 1b is the selected access option and as such, the assessment provided in Section 4 (Assessment of Effects) is based upon this option.
n/a	East of England Ambulance Service Trust	EEAST (and other blue light emergency services) will need to be involved in the risk analysis of hazardous loads during construction and decommissioning in the event of an accident and the likely effect such an event.	Noted and accepted. All junctions have been designed to appropriate Design Manual for Roads and Bridges (DMRB) and CCC highway standards. Liaison with emergency services will occur through the Community Liaison Group.
n/a	East of England Ambulance Service Trust	EEAST together with other blue light emergency services would be willing to conduct further work on the transport assessment methodology and assessment of the impact in consultation with Cambridgeshire County Council and National Highways.	Noted and accepted. To be raised and discussed with EEAST. Ongoing discussion to continue during detailed design phase post application for the Proposed Development.

Technical working groups

1.5.2 Table 1-4 provides a summary of key points raised during engagement with Technical Working Groups.

Table 1-4: Key points raised during engagement with Technical Working Groups

Date	Consultee	Points raised	How and where addressed
4 March 2021	Cambridge County Council (CCC)	Requested detail on the construction of the new tunnels and how this would be managed in terms of moving material	Traffic numbers and modelling have been discussed and agreed in the TWG meetings with CCC and to be presented at the following meeting (13 April 2021). The traffic data is provided in 'Traffic Survey Data and Comparison' Appendix 19.1 (App Doc Ref 5.4.19.1).
13 April 2021	NH, CCC	Purpose of meeting was to review traffic survey data and access optioneering. CCC questioned the use of 2021 future baseline data the A14 junction 33 (the Milton Interchange) due to its perception of being a COVID year.	The 2021 baseline traffic data have not been used in isolation for the purposes of TA and have only been used for the purposes of access optioneering. The traffic data is provided in 'Traffic Survey Data and Comparison' (Appendix 19.1, App Doc Ref 5.4.19.1). To counter issues with factoring from 2013-2021 with TEMPro, traffic surveys were carried out in December 2021 to develop a 2021 baseline. Additional Automatic

Date	Consultee	Points raised	How and where addressed
		<p>Questioned the use of TEMPro growth factors for Cambridgeshire, stating that a comparison for a 2013-2021 growth factor will need to be made to validate this factor.</p> <p>The construction material delivery split of 10% from the east and 90% from the west questioned.</p>	<p>Traffic Count (ATC) re-surveys were carried out in May 2022. The re-surveys were compared to the 2021 surveys to confirm the robustness of the data.</p> <p>The TEMPro growth factors are provided in the TA Part 2 (Appendix 19.3, App Doc Ref 5.4.19.3, Appendix K).</p>
26 April 2021	CCC and Highways England (HE)	<p>List of access options presented at the meeting.</p> <p>Concerns were raised in regard to the distribution of traffic on the network. Construction numbers were requested for next meeting.</p>	<p>The Applicant has provided construction numbers, which were presented during the TWG meeting on 27/05/2021 with CCC and National Highways. These were discussed and agreed through the Technical Working Group for traffic and transport.</p>
27 May 2021	CCC and HE	<p>Discussion of construction route options selected ahead of Phase Two Consultation.</p> <p>Questioned on construction route and where signs will be put up (for HGVs and all vehicles).</p> <p>Also queried how would this be enforced and reported. It was pointed out by CCC that this is a very sensitive issue, especially with regards to construction traffic at Waterbeach.</p> <p>CCC have also mentioned that Fen Ditton has a weight limit.</p>	<p>The construction access routes have been discussed and agreed with the district council.</p> <p>The CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) include commitments to manage vehicle movements and the reporting process for traffic related concerns.</p>
6 October 2021	CCC, Greater Cambridge Partnership (GCP) and HE National Highways (NH)	<p>The purpose of the meeting was to feedback on the design capacity analysis of the 4 permanent access options selected at Consultation 2.</p>	<p>A Safety Risk Assessment (SRA) has been undertaken in accordance with GG104 of the DMRB and to assess the access options identified from both National Highways Strategic Road Network (SRN) and the CCC highway network. Road safety assessments to be undertaken.</p>

Date	Consultee	Points raised	How and where addressed
		<p>It was highlighted by the TWG that Option 2 would need the bridge on High Ditch Road to be widened and strengthened.</p> <p>National Highways agreed that a GG104 safety risk assessment would be required to better understand each proposed access option.</p>	
4 November 2021	CCC, GCSP, NH	<p>Review of the four access options and their respective impacts on the local road network.</p> <p>Review of construction material origins / locations. Confirmed to be coming to the site with a split of 10% from the east and 90% from the west.</p> <p>It was highlighted by the TWG that access Option 2 would require a number of mitigation measures. Further highway design work would be required to see if Option 2 would be a viable option.</p> <p>the junction spacing between junction 34 and Option 3 would not comply with DMRB standards.</p>	<p>The Applicant confirmed that the construction delivery split remains the same, 10% from the east and 90% from the west owing to the location / origins of construction material.</p> <p>Option 2 and 3 are no longer relevant owing to lack of technical feasibility:</p> <p>Option 2 would require significant changes and improvements to the existing highway network to mitigate the impacts of HGV traffic movements along the proposed construction route</p> <p>Option 3 would require significant changes and improvements to the A14 and would disrupt the A14 during construction.</p> <p>Option 1b has been determined the option to be taken forward.</p>
27 January 2022	CCC, NH, GCSP	<p>The purpose of this meeting was to outline the construction traffic proposals including details of the flow and routes across the project.</p> <p>It was highlighted that the project would need to enter into a BAPA with Network Rail. Construction route travelling through level crossings will</p>	<p>The Applicant has entered into a Basic Asset Protection Agreement (BAPA) with Network Rail.</p> <p>The commitment for construction traffic to avoid travelling through the settlements of Horningsea and Fen Ditton is a requirement. This requirement is recognised in section 6.7 of the CoCP Part A.</p>

Date	Consultee	Points raised	How and where addressed
		<p>require further discussion with Network Rail.</p> <p>The commitment for no construction vehicles to travel through Horningsea and Fen Ditton was emphasised.</p>	
25 March 2022	SCDC, CCC, AWS	<p>The purpose of this meeting was to review PRoW proposals and confirm the PRoWs and roads affected by the Proposed Development.</p> <p>An overview of the proposed permanent changes to the PRoW network – bridleway was provided to TWG.</p>	<p>The affected PRoW and roads have been assessed within Section 4.2 (Construction phase) of the Assessment of Effects in this ES chapter.</p> <p>An assessment of the bridleway is available in Chapter 11: Community, Section 4.3 (Operation Phase, App Doc Ref 5.2.11).</p>
28 April 2022	NH, GCSP, CCC	<p>Meeting to confirm approach to ATC re-surveys, which took place on the 16 May, across five sites, for two weeks.</p> <p>CCC expressed concern over the accuracy of the flows as new flows are likely to be higher, especially given the issues regarding traffic flows around Cambridge having not yet settled to pre-pandemic levels.</p> <p>It was highlighted that further discussions around the A14 mitigation measures would be required.</p> <p>Regarding the Travel Plan, key issues that were identified were the Rights of Way Improvement Plan (Cambridgeshire County Council, 2016) and horse riding connections.</p>	<p>A comparison of the May 2022 and December 2021 traffic flows has been carried out. This is contained in the TA Part 2 (Appendix 19.3, App Doc Ref 5.4.19.3, Appendix I).</p> <p>A Construction Workers Travel Plan is provided in Appendix 19.9 (App Doc Ref 5.4.19.9) and Operational Workers Travel Plan provided in Appendix 19.8 (App Doc Ref 5.4.19.8).</p>

Date	Consultee	Points raised	How and where addressed
28 April 2022	CCC	<p>Other than this, no particular comments were raised.</p> <p>Discussed the following:</p> <ul style="list-style-type: none"> ● feedback and project proposals and agreed the forward approach leading up to the DCO application submission. ● discussed potential temporary closures of PRoW; and ● options for keeping PRoW open where feasible and safe to do so. 	<p>It has been determined that some PRoW would require a short diversion owing to the construction activities nearby. Measures in relation of management of PRoW in construction are included in the Code of Construction Practice Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2).</p> <p>Controlled access gates will be used for other PRoW where and when construction activities occur/cross over PRoW.</p>
23 June 2022	CCC	<p>A new bridleway is proposed between the Gatehouse and Station Road. The bridleway proposal has been supported at Phase Two Consultation and Phase Three Consultation by the majority of stakeholders (including local authorities) but is opposed by landowners.</p> <p>The landowners have requested that AWS consider whether a permissive path agreement could be used in place of the bridleway.</p> <p>CCC have asked for a potential to change the status of Low Fen Drove Way under the DCO.</p>	<p>The Applicant has actioned a permissive path agreement in relation to this feature. Discussions have been held with landowners to understand what type of permissive path agreement could be drawn up.</p> <p>It is considered difficult to justify making the change of to Low Fen Drove Way on the basis that the Proposed Development would be unlikely to lead to an increase in antisocial behaviour.</p>
30 June 2022	NH, GCSP, CCC	<p>Current proposals for mitigation measures were shared for Horningsea Road, which comprised:</p>	<p>Mitigation measures relating to Horningsea Road and Junction 34 are outlined within the TA Part 1 (Appendix 19.3, App Doc Ref 5.4.19.3) and the CTMP (Appendix</p>

Date	Consultee	Points raised	How and where addressed
		<ul style="list-style-type: none"> • a 3m wide footway/cycleway and minimum offset of 1m from the carriage; • new crossing point with a central island; • with regard to the bridge deck, proposing to realign the existing carriage to the east and to narrow the verge, and reduction of the carriage from 7.4m to 7m, allowing for the creation of footway/cycleway; and • reduction of the speed limit along this part of the road to 40mph, which will extend to Fen Ditton. 	<p>19.7, App Doc Ref 5.4.19.7). New proposals for mitigation (on top of what was presented to consultees) include:</p> <ul style="list-style-type: none"> • new footway section on the east side of Horningsea Road south of the junction with Low Fen Drove Way • extension of the shared use path on the west side of Horningsea Road
		<p>The proposed mitigation on Horningsea Road was also shared with the Horningsea Greenway team. It was noted that a safety assessment would need to be carried out and raised with the Greenway team.</p> <p>It was also noted that all CCC proposals must include an equality assessment, which would include the Greenway.</p> <p>It was noted that the while aim of the proposed mitigation is to facilitate walking and cycling to the site, that it would be difficult for the Applicant to justify further works beyond the Proposed Development and that this</p>	

Date	Consultee	Points raised	How and where addressed
		would need to be further discussed with the Greenway team.	

Statutory s42 consultation

1.5.3 Table 1-5 provides a summary of key points raised during statutory s42 consultation relevant to Traffic and transport.

Table 1-5: Key points raised during statutory s42 consultation

Date	Consultee	Points raised	How and where addressed
18/08/21	Cambridge Past, Present & Future (CPPF)	The main area of uncertainty is the vehicle access. CPPF strongly objects to any proposals to provide vehicular access into the site from the farm access bridge at Honey Hill via Junction 35 (Option 2).	Option 2 was not selected, the access within the Proposed Development is Option 1b, which does not interact directly with Junction 35. The selection of vehicle access and consideration of all options is discussed further within Chapter 3: Site Selection and Alternatives Considered (App Doc Ref 5.2.3). The assessment provided in Section 4 (Assessment of Effects) of this chapter assesses Option 1b.
12 August 2021	National Highways	Access option 1a remains National Highways' preferred option, closely followed by Option 1b. Access option 3 would be contrary to policy 'The Strategic Road Network and the delivery of sustainable development' and therefore National Highways object to this proposal.	Option 3 has not been selected on account of technical issues around creating a new junction off the A14 based on National Highways' feedback – the access is Option 1b. The selection of vehicle access and consideration of all options is discussed in further within Chapter 3: Alternatives Considered. The assessment provided in Section 4 (Assessment of Effects) of this chapter assesses Option 1b.
12 August 2021	National Highways	The TA should also consider any other development that makes up part of the application, such as the proposed recreation facilities.	Noted and accepted. The TA (Application 19.3, App Doc Ref 5.4.19.3) covers all aspects of Proposed Development, including the proposed visitor centre.
13 August 2021	East Cambridge District Council	Most acceptable options are options 1a and 1b. To create an additional access from the A14 is unlikely to be acceptable.	The preferred access option is Option 1b.
18 August 2021	Urban and Civic	U&C offers a preliminary view that a new junction off the A14 appears, without the benefit of the detailed assessments that	Noted. Option 3 has not been selected on account of technical issues around creating a new junction off the A14

Date	Consultee	Points raised	How and where addressed
		will follow, to be preferable and justified given the strategic importance of the proposed facility.	based feedback provided by National Highways– the access is Option 1b. The selection of vehicle access and consideration of all options is discussed in further detail within Chapter 3:Site Selection and Alternatives Considered (App Doc Ref 5.2.3). The assessment provided in Section 4 (Assessment of Effects) of this chapter assesses Option 1b.
16 August 2021	Natural England	Access assessment needs to include air quality assessment. A CEMP is also needed.	Noted. An air quality assessment has been undertaken as part of Chapter 7: Air Quality. The CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) requires a CEMP to be produced prior to any works commencing on site.
17 August 2021	Cambridgeshire County Council	Cambridgeshire County Council (CCC) has worked with the applicant to ensure that this junction (junction 34 of the A14) has been modelled in accordance with CCC requirements and the modelling done so far shows that this junction will operate within capacity. This is subject to further work on the flows and so is the preliminary findings of the modelling. The assessment will need to include the construction traffic as well as the operational, and visitor traffic once built. Improvements are proposed to the cycle and pedestrian route on the north and south of the new Waste Water Treatment Plant site access. The applicant is asked to continue to ensure that the drawings for this area are coordinated with the Greater Cambridge Partnership and the Horningsea Greenway project.	Noted and accepted. As stated, Junction 34 of the A14 has been modelling in accordance with CCC requirements, whereby preliminary findings show that the junction works within capacity. The TA (Appendix 19.3, App Doc Ref 5.4.19.3) includes information on modelling during construction, operation (including visitor traffic) and decommissioning. Mitigation proposals and drawings for Horningsea Road have taken into account the Horningsea Greenway project.
17 August 2021	South Cambridge District Council	If Option 1b remains, the District Council will expect to see within the DCO, carefully detailed designs for the junction and details of control systems to prevent vehicles travelling to and from the site using any access routes other than the A14 during the construction and operation stages. Given the rationale presented by Anglian Water for the choice of Option 1b, the District Council’s recommendation again if this remains the proposed option, it should also deliver enhanced pedestrian and	Option 1b) has been selected and taken forward into the Proposed Development. Option 3 has not been selected on account of technical issues around creating a new junction off the A14 based on feedback provided by National Highways. The TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides details on the mitigation measures on Horningsea Road, which is also summarised in the section 2.8 of this chapter.

Date	Consultee	Points raised	How and where addressed
		<p>cycle access, cycling facilities. Importantly, details indicating how access to the site would not compromise cycling safety along Horningsea Road, in the vicinity of the new junction/4th arm will be required as part of the DCO. In addition, the District Council considers that measures to avoid traffic queuing/congestion on Denny End Road and Bannold Road need to be incorporated into the DCO proposals as this route is prone to congestion. The District Council remains of the opinion that direct access from the A14 would be the preferred option rather than Option 1b and asks Anglian Water to reconsider.</p>	<p>These mitigation measures ensure that access to the site does not compromise safety along Horningsea Road</p> <p>The TA (Appendix 19.3, App Doc Ref 5.4.19.3) includes a review of the junctions with the A10 / Denny End Road and A10 / Car Dyke Lane to assess capacity and delay during the construction works. Bannold Road at its junction with Denny End Road is noted as narrow (Appendix G: Swept path: App Doc Ref 5.4.19.3) and mitigation will be in place to prevent parking on that corner to minimise traffic conflicts.</p> <p>The CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) set out the construction route to and from the proposed WWTP site.</p>
17 August 2021	Fen Ditton Parish Council	<p>FDPC considers extra mitigation is required and should include:</p> <ul style="list-style-type: none"> Commitment to model overall traffic performance with historic data as a baseline and not rely on AWS surveys since these were at a time when traffic into Cambridge was below historic levels. 	<p>The modelling approach and use of survey information has been discussed and agreed with CCC. This includes checks to ensure survey results provided by AWS are not abnormal due to the Covid-19 pandemic. The TA (Appendix 19.3, App Doc Ref 5.4.19.3) is supported by additional surveys completed to verify the data used.</p>
24 August 2021	Horningsea Parish Council	<p>HPC is not aware of any evaluation assessment material being published by AWS and would like to request this information to allow HPC a full understanding of the relevant facts. We also request a copy of the determination by Highways that found it was not possible to access the site from the A14, Option 3.</p>	<p>Chapter 3:Site Selection and Alternatives Considered (App Doc Ref 5.2.3) provides details of the access options considered for the project. Option 3 has not been selected on account of technical issues around creating a new junction off the A14 based on feedback from National Highways.</p>
24 August 2021	Horningsea Parish Council	<p>We fear that the traffic volume has been underestimated. We would like to see this analysis including all of the access routes into the site; including A14 westbound and A14 eastbound.</p>	<p>The modelling approach and use of survey information has been discussed and agreed with CCC. This includes checks to ensure that survey results provided by AWS are not abnormal due to the Covid-19 pandemic. The TA (Appendix 19.3, App Doc Ref 5.4.19.3) is supported by additional surveys completed to verify the data used.</p>

Date	Consultee	Points raised	How and where addressed
24 August 2021	Horningsea Parish Council	HPC also supports reduced speed limits on Horningsea Road. Suggest reduce to 30mph and 20mph in the village and enforce with speed cameras and traffic calming measures. We also want confirmation that this mitigation is within the control of AWS.	A set of mitigation measures for Horningsea Road have been included in the design and are outlined in Section 0 (Mitigation measures adopted as part of the Proposed Development).
24 August 2021	Horningsea Parish Council	It is a significant concern that we believe AWS has failed to factor in the cumulative traffic impact of previous recorded congestion at junction 34, reduction in traffic flows (due to Covid) during the 2021 AWS surveys, CWWTP Construction traffic, CWWTP operational traffic, the proposed additional J34 arm, Waterbeach New Town, Marleigh, development at Fulbourn, dualling of the A10, general traffic growth and the pending development of the airport site.	The modelling approach and use of survey information has been discussed and agreed with CCC. This includes checks to ensure survey results provided by the Applicant are not abnormal due to the Covid-19 pandemic. The TA (Appendix 19.3, App Doc Ref 5.4.19.3) is supported by additional surveys completed to verify the data used. Impacts associated with committed developments in the area are accounted for within the TEMPro growth factors used, which has been agreed with CCC.
24 August 2021	Horningsea Parish Council	We request forecast operational HGV movements. Most of the movements are liquid sludge imports and septic tank movements, why are these being trucked here from destinations such as Ely and Huntingdon? We request forecast for operational HGV movements and an alternative plan for the movement of sludge lorries to more appropriate sites.	The TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides information on operational HGV movements. The routing of HGVs in operation has been based on sludge imports at the existing Cambridge WWTP. Technical note (Appendix 19.3- C: Sludge Imports Technical Note of the TA (Appendix 19.3, App Doc Ref 5.4.19.3, Appendix C) outlines the origins of sludge imports during operation in 2020 at the existing Cambridge WWTP.

Statutory s47 local community consultation

1.5.4 The Consultation Report (App Doc Ref 6.1) details the responses to all comments made during the public consultation. Matters raised in relevance to traffic and transport include:

- providing further information on signage for routing during operation to ensure that journeys on Newmarket Road and through Fen Ditton are minimised;
- providing further information on construction traffic levels outside the peak months;
- mitigation during pipeline laying to ensure continued access;
- cumulative traffic impacts from other proposed major developments;
- use of SRN for access and opposition to 4th arm addition to junction 34 / Horningsea Road to keep vehicles off local roads;
- the use of CTMP ensure that the permanent access road into use early and minimise the use of Low Fen Drove Way;
- the use of the CTMP to govern movement of excavated material to ensure material is used near to its point of origin;
- commitments to prevent vehicle movements in the villages of Horningsea and Fen Ditton;
- provision of a single postcode reference to vehicles travelling to the Proposed Development to avoid satnav errors and erroneous movements on village roads (Fen Ditton Parish Council);
- concerns over the impact of construction traffic and works on the village of Waterbeach including Bannold Road and Long Drove (Waterbeach Parish Council);
- reference to the need for accessibility on Bannold Road and Long Drove, including for large agricultural and emergency vehicles;
- inclusion of safe passing places to accommodate construction traffic;
- concerns traffic incidents on the A10 and short term routing of traffic through Waterbeach and Horningsea and emergency plans to avoid construction traffic having an additive effect on congestion;
- request to consider equestrians in relation to alterations along Horningsea Road and the landscape masterplan (Waterbeach and District Bridleways Group);
- alternative proposals for bridleway to north east of the landscape masterplan extent; and

2 Assessment Approach

2.1 Guidance

- 2.1.1 The assessment is based on the Guidelines for the Environmental Assessment of Road Traffic (GEART) by the Institute of Environmental Management and Assessment (IEMA) (IEMA, 1993).
- 2.1.2 Following the publishing of this assessment the GEART guidance was updated by IEMA. A review of the updates and the effect on the assessment undertaken can be found in Appendix 19.12: Comparison of IEMA 1993 and 2023 Guidance (App Doc Ref 5.4.19.12).

2.2 Assessment methodology

- 2.2.1 The general approach to assessment is described in Chapter 5: EIA Methodology (App Doc Ref 5.2.5).
- 2.2.2 Following the preliminary assessment of the likely significant effects of the Proposed Development, any further mitigation measures (secondary mitigation) are identified and described. These mitigation measures would further reduce an adverse effect or enhance a beneficial one. The assessment of likely significant effects is then carried out taking into account the identified secondary mitigation measures to identify the 'residual' environmental effects.
- 2.2.3 This section provides specific details of the Traffic and transport assessment methodology applied to the assessment of the Proposed Development.
- 2.2.4 The full method of assessment for Traffic and transport used for the Proposed Development is detailed in the TA (Appendix 19.3 App Doc Ref 5.4.19.3).
- 2.2.5 The scope of this assessment has been established through the formal EIA scoping process with the planning inspectorate. A request for an EIA scoping opinion was made in 2021 see 'Scoping Report' Appendix 4.2 (App Doc Ref 5.4.4.2).
- 2.2.6 The points raised at scoping and how they are addressed are provided in Section 1.5.
- 2.2.7 The spatial scope of assessment for Traffic and transport are provided in Section 2.3.
- 2.2.8 The assessment parameters approach described in Section 1.5 of Chapter 5 is addressed for Traffic and Transport in Section 2.5.

Impact assessment criteria

- 2.2.9 The significance of an effect is determined based on the magnitude of an impact and the sensitivity of the receptor affected by the impact of that magnitude. This section describes the criteria applied in this chapter to characterise the magnitude of potential impacts and sensitivity of receptors. The terms used to define magnitude and sensitivity are based on traffic and transport.

2.2.10 The assessment criteria used to assess the potential effects on traffic and transport arising from the Proposed Development differs from the generic EIA methodology and are described below.

Magnitude of impact

2.2.11 The criteria for defining magnitude for the assessment of impacts to traffic and transport are defined within Table 2-1.

2.2.12 The IEMA guidance establishes thresholds in respect to changes in the volumes and composition of traffic to facilitate a subjective judgment of traffic impacts and significance. However, paragraph 4.5 of the GEART guidelines (IEMA, 1993) states that:

“For many effects there are no simple rules or formulae which define the thresholds of significance and there is, therefore, a need for interpretation and judgment on the part of the assessor, backed-up by data or quantified information wherever possible. Such judgments will include the assessment of the number people experiencing a change in environmental impact as well as the assessment of the damage to various natural resources”.

Table 2-1: Impact magnitude criteria

Magnitude of impacts	Criteria	Examples
Severance		
Negligible	Changes in total traffic or HGV flows of less than 30%	If 1 vehicle is added during construction to a road link where 10 vehicles have been observed, this constitutes a 10% change, and is therefore a negligible impact.
Minor	Change in total traffic or HGV flows of 30-60%	If 3 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 30% change, and is therefore a minor impact.
Moderate	Change in total traffic or HGV flows of 60-90%	If 6 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 60% change, and is therefore a moderate impact.
Major	Change in total traffic or HGV flows over 90%	If 10 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 100% change, and is therefore a major impact.
Pedestrian delay		
Negligible	Journey lengths increase <100m	Construction activities may require controlled gates across PRoW in short intervals and/or diversion of PRoW which would add to the total journey length.
	Changes in total traffic or HGV flows of less than 30%	If 1 vehicle is added during construction to a road link where 10 vehicles have been observed, this constitutes a 10% change, and is therefore a negligible impact.
Minor	Journey lengths increase by up to 100-250m	Construction activities may require controlled gates across PRoW in short intervals and/or diversion of PRoW which would add to the total journey length.
	Change in total traffic or HGV flows of 30-60%	If 3 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 30% change, and is therefore a minor impact.
Moderate	Journey lengths increase by 250-500m	Construction activities may require controlled gates across PRoW in short intervals and/or diversion of PRoW which would add to the total journey length.
	Change in total traffic or HGV flows of 60-90%	If 6 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 60% change, and is therefore a moderate impact.
Major	Journey lengths increase by over 500m	Construction activities may require controlled gates across PRoW in short intervals and/or diversion of PRoW which would add to the total journey length.
	Change in total traffic or HGV flows over 90%	If 10 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 100% change, and is therefore a major impact.
Driver delay		

Magnitude of impacts	Criteria	Examples
Negligible	Changes in average delay per Passenger Car Unit (PCU) in seconds of less than 30%	If construction vehicles cause an increase in average delay per PCU of 1 second at a junction where the average delay per PCU is 10 seconds, this constitutes a 10% change and is therefore a negligible impact.
Minor	Changes in average delay per PCU in seconds of 30-60%	If construction vehicles cause an increase in average delay per PCU of 3 seconds at a junction where the average delay per PCU is 10 seconds, this constitutes a 30% change and is therefore a minor impact.
Moderate	Changes in average delay per PCU in seconds of 60-90%	If construction vehicles cause an increase in average delay per PCU of 6 seconds at a junction where the average delay per PCU is 10 seconds, this constitutes a 60% change and is therefore a negligible impact.
Major	Changes in average delay per PCU in seconds over 90%	If construction vehicles cause an increase in average delay per PCU of 10 seconds at a junction where the average delay per PCU is 10 seconds, this constitutes a 100% change and is therefore a negligible impact.
Fear and intimidation		
Negligible	Changes in total traffic or HGV flows of less than 30%	If 1 vehicle is added during construction to a road link where 10 vehicles have been observed, this constitutes a 10% change, and is therefore a negligible impact.
Minor	Change in total traffic or HGV flows of 30-60%	If 3 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 30% change, and is therefore a minor impact.
Moderate	Change in total traffic or HGV flows of 60-90%	If 6 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 60% change, and is therefore a moderate impact.
Major	Change in total traffic or HGV flows over 90%	If 10 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 100% change, and is therefore a major impact.
Accidents and road safety		
Negligible	Changes in total traffic or HGV flows of less than 30%	If 1 vehicle is added during construction to a road link where 10 vehicles have been observed, this constitutes a 10% change, and is therefore a negligible impact.
Minor	Change in total traffic or HGV flows of 30-60%	If 3 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 30% change, and is therefore a minor impact.
Moderate	Change in total traffic or HGV flows of 60-90%	If 6 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 60% change, and is therefore a moderate impact.
Major	Change in total traffic or HGV flows over 90%	If 10 vehicles are added during construction to a road link where 10 vehicles have been observed, this constitutes a 100% change, and is therefore a major impact.

Magnitude of impacts	Criteria	Examples
Hazardous loads		
Negligible	Where hazardous loads account for less than 30% of total vehicle movements	If 1 vehicle delivers hazardous loads during operation when there are 10 total vehicle movements, this constitutes a 10% change, and is therefore a negligible impact.
Minor	Where hazardous loads account for 30-60% of total vehicle movements	If 3 vehicle delivers hazardous loads during operation when there are 10 total vehicle movements, this constitutes a 30% change, and is therefore a minor impact.
Moderate	Where hazardous loads account for 60-90% of total vehicle movements	If 6 vehicle delivers hazardous loads during operation when there are 10 total vehicle movements, this constitutes a 60% change, and is therefore a moderate impact.
Major	Where hazardous loads account for over 90% of total vehicle movements	If 10 vehicle delivers hazardous loads during operation when there are 10 total vehicle movements, this constitutes a 100% change, and is therefore a major impact.

Source: GEART (IEMA, 1993)

- 2.2.13 As per the IEMA guidance, pedestrian delay is likely to occur owing to changes in the volume, composition, or average speed of traffic, which may affect the ability of pedestrians to cross roads. An increase in traffic flow is likely to lead to a greater delay for pedestrians. Other factors such as overall pedestrian activity and the pedestrian infrastructure available may also influence pedestrian delay.
- 2.2.14 For PRoW users, the impact of construction works altering the route or traffic crossing the route is the key issue. As such, the added distance in metres to journeys has been used alongside the increase in traffic flow to determine the magnitude of impact on pedestrian delay exclusively on PRoW. As PRoWs are primarily used for recreational purposes, it is considered that distance rather than time is the most important factor to journey impacts.
- 2.2.15 IEMA guidance indicates that where a development is likely to generate an increase in traffic and/or HGV volumes, there is a greater likelihood for accidents to occur. However, there are no formal thresholds for assessing accidents and road safety and as such, professional judgement has been used. Therefore, based on IEMA guidance Rule 2, only road links where traffic flows will increase by more than 10% have been assessed.
- 2.2.16 As per IEMA guidance and Table 2-1, changes in traffic flow of 30%, 60% and 90% are used to represent a corresponding minor, moderate, and major magnitude of impact on accidents and road safety, respectively. A change of less than 30% means the impact magnitude can be considered negligible and would not require a detailed assessment.

Sensitivity of receptor

- 2.2.17 The criteria for defining receptor sensitivity for the assessment of impacts to traffic and transport are defined within Table 2-2.
- 2.2.18 The sensitivity of a road or other type of transport link, such as a footpath, can be defined by the vulnerability of the groups who use it, e.g., older or younger people. A sensitive area may be where pedestrian activity is high or where there is already an existing accident issue.

Table 2-2: Sensitivity and descriptors (assuming adverse effects)

Sensitivity	Criteria	Examples
Low	The receptor is tolerant of change without detriment to its character and is of low or local importance. This also includes users of the road network making frequent non-essential journeys and those making essential journeys infrequently.	Receptors of low sensitivity to traffic flow include places of worship, public open space, tourist attractions and residential areas with adequate footway provision.
Medium	The receptor/resource has moderate capacity to absorb change without significantly altering its present character or is of high importance. This also includes users of the road network making essential journeys but have an alternative route available.	Receptors of moderate sensitivity to traffic flow include those at congested junctions, doctors' surgeries, shopping areas, roads with narrow footways, recreation facilities.

Sensitivity	Criteria	Examples
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character or is of international or national importance. This also includes users of the road network making essential journeys and who do not have an alternative route available.	Receptors of high sensitivity to traffic flow are those which include schools, colleges, playgrounds, retirement homes, hospitals, or accident clusters, or are roads without footways that are used by pedestrians.
Very High	The receptor/resource no ability to absorb change without fundamentally altering its present character or is of international or national importance.	Receptors of very high sensitivity to traffic flow are those which include World Heritage Sites, and other sites of rarity that is international in scale.

Source: GEART (IEMA, 1993)

2.2.19 The receptors for the traffic and transport are the users of the road and PRow routes identified in the baseline section. Each link is assessed in Section 4, Assessment of Effects based on the criteria in Table 2-1.

Significance of effect

2.2.20 The significance of the effect upon identified receptors is determined by assigning an impact magnitude and sensitivity to the receptor. Table 2-3 sets out the significance matrix used to determine significant effects. Where a range of significance is presented, the final assessment for each effect is based upon expert judgement.

2.2.21 For the purpose of this assessment, any effects with a significance level of slight or less are considered to be not significant.

Table 2-3: Significance matrix

Magnitude of impacts	Sensitivity/value of receptor			
	Low	Medium	High	Very High
Negligible	Neutral	Neutral	Slight	Slight
	Not significant	Not significant	Not significant	Not significant
Minor	Neutral	Slight	Moderate	Moderate
	Not significant	Not significant	Significant	Significant
Moderate	Slight	Moderate	Moderate	Major
	Not significant	Significant	Significant	Significant
Major	Slight	Moderate	Major	Major
	Not significant	Significant	Significant	Significant

Source: GEART (IEMA, 1993)

Residual effect

2.2.22 The assessment of effects follows the approach set out within Chapter 5: EIA Methodology. Effects (App Doc Ref 5.2.5) have been assessed to take into account for both embedded (primary) mitigation, best practice and measures secured by legal requirements (tertiary mitigation), and after the application of further mitigation measures (secondary mitigation). Effects after mitigation are referred to as 'residual effects'.

2.3 Study area

- 2.3.1 The maximum area of land required for the construction, operation, and maintenance of the Proposed Development and decommissioning of the existing Cambridge WWTP is expected, including land required for permanent and temporary purposes, is within the Scheme Order Limits as provided within App Doc Ref 4.1.
- 2.3.2 The study area for Traffic and transport includes the local and Strategic Road Network, the existing public transport infrastructure, and network of PRow in the vicinity of, or within settlements. The extent of the traffic and transport study area was agreed with CCC and National Highways via the Transport Assessment Scoping Note submitted in April 2021. A copy of the note is provided in the TA Part 1 (Appendix 19.3, App Doc Ref 5.4.19.3, Appendix B).
- 2.3.3 Following the completion of the PEIR, there have been a number of refinements to the proposed access point locations. The traffic and transport study area has therefore been revised to consider these amendments. The amendments are summarised in Table 2-4.

Table 2-4 Amendments to access points

Old access point number/reference	New reference	Location
14	COA1	Cowley Road access point
13	CA1	Fen Road
12	CA2 / CA3	B1047 Horningsea Road
11	CA6	J34 proposed WWTP main access
10	COA3 / CA10	Low Fen Drove Way
9	CA16	Horningsea Road layby area
8	COA9	Grange Farm Access
7	COA20	Hatridge's Lane
6	COA14	Burgess Drove (<i>southern end by level crossing</i>)
5	CA26	Burgess Drove (<i>western side</i>)
4	COA13	Burgess Drove (<i>eastern side</i>)
3	COA14	Bannold Road
2	CA29	Long Drove
1	COA17 – COA18	Bannold Drove

- 2.3.4 The traffic and transport study area includes junction 34 of the A14, which is the main point of access to the proposed WWTP, and junction 33 (the Milton Interchange), which is used for turning of construction or operational vehicles due to the lack of east facing slip roads at junction 34. The study area is shown in Figure 19.2 'Traffic and transport study area' (Book of Figures – Traffic and Transport, App Doc Ref 5.3.19). For the local and Strategic Road Network, this includes:
- junction 33 (The Milton Interchange) of the A14;

- junction 34 of the A14;
- junction 35 (the Quy Interchange) of the A14;
- the A14, where appropriate;
- the A10, where appropriate;
- A1309 Milton Road;
- Cowley Road;
- Green End Road;
- Fen Road;
- B1047 Horningsea Road;
- Horningsea Road;
- All roads in Waterbeach that are part of the construction route;
- Clayhithe Road; and
- Low Fen Drove Way.

2.3.5 The traffic and transport study area is divided into separate highway sections for construction and operation. These sections are referred to as links, which are defined as sections of highway with similar characteristics and traffic flows.

2.3.6 Routes that extend beyond the traffic and transport study area are routes where construction traffic has been distributed and/or includes roads with negligible sensitive receptors. These parameters combine and do not represent significant impacts on the existing highway network.

2.3.7 The study area for the assessment of traffic and transport effects has been adjusted in accordance with GEART (IEMA, 1993). The rules set out within GEART have been applied to determine the scale and extent of the assessment:

- Rule 1: include highways links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%).
- Rule 2: include any other sensitive areas (e.g., accident black spots, conservation areas, hospitals, links with high pedestrian flows, etc.) where traffic flows have increased by 10% or more.

2.3.8 Where links are not considered to be sensitive (Rule 2), the 30% change in traffic flow requirement set out in Rule 1 has been used instead to determine which links require further assessment.

2.3.9 Development flows above the 30% level do not automatically indicate the impacts as significant, therefore professional judgement (considering factors such as duration of impact, absolute number of vehicles and type of vehicle to determine the significance) is applied.

2.3.10 Traffic flow changes that are less than 10% are generally accepted as being similar in magnitude to daily variation in traffic flows and are therefore considered to have no discernible environmental impact.

2.3.11 The study area also incorporates parts of the PRoW network that may be affected by the temporary and permanent use of land within the Scheme Order Limits. A desk-study was undertaken to identify PRoW which may need to be closed or diverted (temporarily or permanently) in order to remove any potential conflict between non-motorised users and development generated traffic and ensure the new proposed routes are integrated within the existing PRoW route network.

2.3.12 The local road and strategic road routes affected by each phase of works is set out in Table 2-5.

Table 2-5: Traffic and transport scoping scenario

Scenario	Year	Roads	PRoW
Baseline	2021	Junction 33 of the A14 (the Milton Interchange);	85/6
		Junction 34 of the A14;	85/8
		Junction 35 of the A14 (the Quy Interchange);	162/1
		The A14, where appropriate;	130/2
		The A10, where appropriate;	130/10
		Milton Road;	130/8
		Cowley Road;	130/6
		Green End Road;	247/10
		Fen Road;	130/13
		B1047 Horningsea Road;	130/16
		All roads in Waterbeach that are part of the construction route; and Clayhithe Road.	162/1
Construction year baseline	2026	Junction 33 of the A14 (the Milton Interchange);	85/6
		Junction 34 of the A14;	85/8
		Junction 35 of the A14 (the Quy Interchange);	162/1
		The A14, where appropriate;	130/2
		The A10, where appropriate;	130/10
		Milton Road;	130/8
		Cowley Road;	130/6
		Green End Road;	247/10
		Fen Road;	130/13
		B1047 Horningsea Road;	130/16
		All roads in Waterbeach that are part of the construction route; and Clayhithe Road.	162/1
Peak construction year (inc. commissioning of proposed WWTP)	2026	Junction 33 of the A14 (the Milton Interchange);	85/6
		Junction 34 of the A14;	85/8
		Junction 35 of the A14 (the Quy Interchange);	162/1

Scenario	Year	Roads	PRoW
		The A14, where appropriate;	130/2
		The A10, where appropriate;	130/10
		Milton Road;	130/8
		Cowley Road;	130/6
		Green End Road;	247/10
		Fen Road;	130/13
		B1047 Horningsea Road;	130/16
		All roads in Waterbeach that are part of the construction route; and Clayhithe Road.	162/1
Decommissioning existing WWTP	2026 / 2028	The A14, where appropriate; Cowley Road; Horningsea Road; and Milton Road.	n/a
Operation year baseline	2028	The A14, where appropriate; Cowley Road; and B1047 Horningsea Road.	n/a
Operation year plus 10	2038	The A14, where appropriate; Cowley Road; and B1047 Horningsea Road.	n/a

2.4 Temporal scope of assessment

2.4.1 From the point of assessment, over the course of the development and operational lifetime of the Proposed Development (to 2050), long-term traffic growth trends mean that the condition of the baseline environment is expected to evolve.

Construction

2.4.2 For the assessment, these effects are taken to be those for which the source begins and ends during the construction and commissioning stages prior to the proposed WWTP becoming fully operational as set out in Chapter 2 Project Description.

2.4.3 The assumed assessment period for construction is from Year 1 to Year 4 (assumed to be 2024 to 2028). Within this period, vehicle movements have been assessed for Year 3 (assumed to be 2026) when the peak construction vehicle movements would occur.

2.4.4 To take account of sub-regional growth in housing and employment, a proportionate approach to forecasting future traffic growth has been agreed with CCC and National Highways through the TWG. The forecasting uses factors from the DfT Trip End Model Presentation Programme (TEMPro) to convert baseline traffic flows to future year traffic flows.

2.4.5 The percentage point increase in TEMPro growth factors compared with the 2021 baseline is shown in Table 2-6. Appendix 19.1 (App Doc Ref 5.4.19.1) contains full details of these growth factors and a summary of the baseline traffic flows for all links within the traffic and transport study area.

Table 2-6: TEMPro growth factor increase

Years	Difference to 2021 (percentage point increase)
2021-2026	6%
2021-2028	8%
2021-2033	13%
2021-2038	18%

Source: DfT

2.4.6 Without the Proposed Development the growth traffic volumes would be expected to continue. It is however noted that the trip budget within the NECAAP, policy 22, would be expected to apply and the increase in Table 2-6 would not be as high. These growth factors are therefore considered to be a worst case scenario.

2.4.7 The growth predictions to 2040 have been reviewed to understand the potential for changes to baseline traffic volumes that may occur should expected assessment years alter due to programme changes. Should the expected construction start date of 2024 be delayed by an assumed period of 2 years and subsequently change the peak year for construction movements from 2026 to 2028, the assessed baseline would remain valid as future baseline traffic is forecast to increase by 2% over this period. This level of traffic growth would not materially change the findings of the construction assessment.

2.4.8 For Traffic and transport, the temporal scope of assessment of the construction phase is provided in Table 2-7.

Table 2-7: Assessment years for construction

Activity	Maximum duration (months)	Expected start year	Expected end year	Peak vehicle movements
Proposed WWTP				
Enabling works and site mobilisation (land required for WWTP)	3.5	Year 1	Year 1	The peak would be in Construction Year 3 (assumed to be 2026) and associated with the construction of the proposed WWTP (including preparation, STC, WRC and landscaping). In the event delay to the start of the construction
Construction of the access road to the proposed WWTP	4	Year 1	Year 1	
Construction of the transfer tunnel from the existing Cambridge WWTP	21	Year 1	Year 2	

to the proposed WWTP				programme, the number of construction vehicles required would not change.
Construction of the proposed WWTP (including preparation, STC, WRC and landscaping)	28	Year 1	Year 3	
Construction of the treated effluent pipeline and outfall	9	Year 1	Year 2	
Modifications to A14 road bridge	13	Year 3	Year 4	
Horningsea Road footway improvements	4	Year 3	Year 4	
Commissioning of the proposed WWTP	14	Year 3	Year 4	
Waterbeach pipeline				
Waterbeach compound set up and enabling	1	Year 1	Year 1	The peak would be associated with the first and last 8 weeks of activity
Install Waterbeach pipeline	12	Year 1	Year 1	
Existing Cambridge WWTP				
Shaft 1,2 and 3 construction, tie ins to new pipelines, utilities work	24	Year 1	Year 3	The peak is associated with the tunnelling between shafts
Decommissioning existing Cambridge WWTP for permit surrender	6	Year 4	Year 4	

2.4.9 The percentage change associated with background traffic growth with the addition of construction movements would not change the conclusion of the assessment.

Operation and maintenance

2.4.10 For the assessment, these are the effects that, start once the proposed WWTP is commissioned and fully operational and includes the effects of the physical presence of the infrastructure, its operation, use and maintenance, including the permanent change in land use.

2.4.11 For traffic and transport, the assessment of operation considers the following:

- Year 1 + 5 of operation (as required by CCC TA requirements);
- an assumed year for phase 2 activities for construction of an additional PST and FST; and
- Year 1 + 10 of operation (as required by CCC TA requirements).

2.4.12 The proposed WWTP will become operational in 2028, therefore the assessment years for the operation phase are 2033 and 2038 respectively.

2.4.13 Phase 2 construction is within the operational lifetime of the WWTP, expected to be 2036-2050, but likely before 2041. Phase 2 of operation associated with the construction of an additional PST and FST which would not materially alter traffic and transport impacts. This is related to the relatively small increases or variations in associated vehicle movements which would not result in different effects or new significant traffic effects as the expected construction movements in combination with operational movements would be less than the peak assessed in Year 3 during construction. Construction activities would be controlled by measures within a CEMP (and associated sub-plans), a CTMP, and CWTP approved prior to the start of construction.

2.4.14 Should the expected operation year of 2028 be delayed by an assumed 2 years as a result of programme changes, the assessed baseline would remain valid as future baseline traffic is forecast to increase by 2% between 2028 and 2030. This level of traffic growth would not materially change the findings of the operational assessment.

2.4.15 Future growth of traffic would continue without the Proposed Development and therefore constraints resulting from that future traffic growth would occur sooner in the operation phase should the start year be delayed.

2.4.16 For traffic and transport the temporal scope of assessment of the operation phase is provided in Table 2-8.

Table 2-8: Assessment years for operation and maintenance

Year/ activity	Maximum duration (months)	Expected year	Vehicle peak movements
Year 1 of operation	NA	2028	<p>66.6% of HGV movements occur during the operational day (08:00am-06:00pm)</p> <p>33.3% of HGV movements are overnight</p> <p>Operational workforce movements and visitors occur during the operational day (9:00am – 5pm)</p> <p>Peak movements are comprised of:</p> <ul style="list-style-type: none"> • Cars and LGVs (in vehicle movements) • Operational and maintenance staff travelling to/from work • Visitors (weekdays and out of peak only)

			<ul style="list-style-type: none"> • Office workers using the facility daily • Deliveries (waste water and sludge, consumables) (7 days a week) • Cars travelling daily <p>HGVs (in vehicle movements)</p> <ul style="list-style-type: none"> • Liquid sludge imports • Biosolid exports • non-routine tanker movements • Septic waste movements <p>Peak assessed covers vehicle movements associated with the maximum development capacity</p>
Year 10 of operation	NA	2038	<p>As above</p> <p>There may be short term increases associated with major asset replacement activities. Vehicle movements associated with these are expected to be no more than 10% above the peak of normal operational movements and similar to typical variability in traffic movements.</p>
Phase 2 expansion (construct additional PST and FST)	12	2037	<p>In addition to the vehicle movements associated with normal operations there would be additional vehicle movements associated with works to construct additional tanks to bring the proposed WWTP to full capacity. These are expected to comprise 5 to 20 movements per day.</p>

Duration of effects

2.4.17 Timescales associated with these effects, regardless of phase are as follows:

- Short-term – endures for up to 12 months after construction or decommissioning
- Medium-term – endures for 1-5 years
- Long-term – endures for 5-15 years
- Permanent effects – endures for more than 15 years and / or effects which cannot be reversed (e.g. where buried archaeology is permanently removed during construction)

2.5 Baseline study

Desktop data

2.5.1 Baseline information within the traffic and transport study area was collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 2-9.

Table 2-9: Desktop information sources

Item or feature	Year	Source
OS Map	2021-22	OS Map
Level crossings	2021-22	Network Rail information
Active travel resources	2021-22	Greater Cambridge Partnership information.
Public transport data	2021-22	CCC and National Rail information.
Personal Injury Collision (PIC) data covering the latest period available.	For the period November 2016 - November 2021 (PIC data for the year 2021 is provisional)	CCC

Surveys

2.5.2 In addition to existing information, surveys were completed to inform the traffic and transport assessment. Table 2-10 details the traffic and transport surveys completed in relation to the Proposed Development.

Table 2-10: Summary of surveys for traffic and transport

Survey	Coverage	Completed by	Date
Manual Classified Counts (MCC)	Details of locations are provided in Table 2-11.	Intelligent Data Collection	4 to 8 December 2021
Automatic Number Plate Recognition (ANPR)	Junction 33 of the A14.	Intelligent Data Collection	4 to 8 December 2021
Automatic Traffic Count surveys	Details of locations are provided in Table 2-11.	Intelligent Data Collection	17 May 2022 to 30 May 2022
User count surveys	Recreational User Counts (5.4.19.4) provides an overview of user count survey locations.	Mott MacDonald	May to July 2022

2.5.3 Traffic surveys were completed during December 2021, as agreed with CCC via the TWG meeting on the 13 April 2021, at the locations indicated in Table 2-11. Data collected has been used to quantify baseline vehicular demand along key routes to and from the Proposed Development. These data have formed the basis of calculations to quantify the impact of construction and operational traffic on the surrounding road network.

2.5.4 Table 2-11 sets out the Manual Classified Counts (MCC) data collection locations. These locations were confirmed through consultation with CCC and National Highways. Surveys were conducted across two consecutive weekdays and one weekend day, covering both the AM and PM peak periods at a time deemed to

represent close to “normal flow” conditions. Survey locations are shown in Figure A.37, Appendix A: ‘Traffic Count Locations-December 2021’ (App Doc Ref 5.4.19.3).

Table 2-11: Traffic survey locations

Ref	Location	Survey Period
TS01	Ely Road A10/Denny End Road intersection (MCC Count) Ely Road A10 – (North) Ely Road A10 (South) Denny End Road (East)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS02	Denny End Road/High Street intersection (MCC & NMU Count) Denny End Road– (North) High Street (South) Bannold Road (East)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS03	Way Lane/Bannold Road intersection (MCC & NMU Count) Bannold Road – (West) Way Lane (South) Bannold Road (East)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS04	Bannold Road and Bannold Drove intersection Location (MCC & NMU Count) Bannold Road (West) Bannold Drove (North) Bannold Road (East)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS05	Way Lane and Burgess Road intersection (MCC & NMU Count) Way lane (North) Burgess Road (East) Way Lane (South)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS06	Burgess Road and Rosemary Road intersection (MCC & NMU Count) Burgess Road (East) Burgess Road (West) Rosemary Road (South)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS07	Cambridge Road/Chapel Street and Green Side intersection (MCC & NMU Count) Green side (North) Cambridge Road (West) Chapel Street (East)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS08	Chapel Street/St Andrews Hill intersection (MCC & NMU Count) Chapel Street (South)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)

Ref	Location	Survey Period
	Chapel Street (North) St Andrews Hill (East)	
TS09	Car Dyke Road/A10 intersection (MCC Count) Ely Road A10 (North) Ely Road A10 (South) Car Dyke Road (East)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS10	Clayhithe Road (Level Crossing survey) Clayhithe Road (East) Clayhithe Road (West)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS11	Junction 33 - Milton Interchange (ANPR MCC Count) Ely A10/Waterbeach (North) Cambridge Road (North East) A14 (East) Milton Road (A1309) (South) A14 (West)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS12	Milton Road (MCC Count) Milton Road A1309 (North) Milton Road A1309 (South) Cowley Road (East)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS13	Cowley Road (MCC with NMU Count) Milton Road A1309 (North) Cowley Road (East) A1309 Milton Road (South)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS14	Biggin Lane/Horningsea Road/Low Fen Drove Way Intersection (MCC & NMU Count) Horningsea Road (North) Low Fen Drove way (East) Biggin lane (West) B1047 Horningsea Road (South)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS15	Cowley Park Road (MCC Count) Milton Road A1309 (North) Milton Road A1309 (South) Cowley Park Road (East)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS16	A14/Horningsea Road intersection (MCC and NMU count) (Northern section) Horningsea Road (North) B1047 Horningsea Road (South)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)

Ref	Location	Survey Period
TS17	A14/Horningsea Road intersection (MCC and NMU Count) (Southern slip road section – West Bound) Horningsea Road (North) A14 (West) Horningsea Road (South)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS18	Kings Hedges Road/Milton Road/Green End Road intersection (MCC Count) Milton Road A1309 (North) Kings Hedges Road (West) Green End Road (East) Milton Road A1309 (South)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS19	Scotland Road/Green End Road intersection (MCC Count) Green end Road (North) Scotland Road (South) Green End Road (East)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS20	Green End Road/High Street/Water Lane Roundabout (MCC Count) Green End Road (North) Water Lane (East) High Street (South)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS21	High Ditch Road/Low Fen Drove way intersection (MCC with NMU count) Low Fen Drove Way (North) High Ditch Road (East) High Ditch Road (West)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS22	Junction 35 A14 Roundabout (ANPR MCC Count) Newmarket Road (North) A14 (East) Newmarket Road (South) A14 (West)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS23	Newmarket Road A1303/High ditch road intersection (MCC and NMU Count) High Ditch Road (North) Newmarket Road (East) Newmarket Road (West)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
TS24	Horningsea Road, immediately before the Horningsea Road/Low Fen Drove Way junction	Ten consecutive days, 24 hours

Traffic Modelling

- 2.5.5 As part of this assessment, traffic modelling has been carried out and is based on multiple sets of assumptions. The TA (Appendix 19.3, App Doc Ref 5.4.19.3) contains details about and a summary of junction capacity modelling carried out for the junctions most affected during construction, operation, and decommissioning.
- 2.5.6 A 2021 baseline has been established based on traffic survey data collected on the 4th, 7th, 8th December 2021. A second set of surveys were also completed in May 2022, after discussion with CCC, to confirm the robustness of the 2021 traffic surveys.
- 2.5.7 The 2021 baseline has been factored up using TEMPro growth factors to form the 2026 and 2038 future baselines in the AM and PM peak hour (08:00-09:00 and 17:00-18:00), which only considers background traffic growth without development. 2026 corresponds to the expected peak in construction activity in Construction Year 3, and 2038 is the expected tenth operational year of the proposed WWTP. The potential implications of variations to the indicative programme for the proposed WWTP and resultant changes to the expected assessment years are discussed in Section 2.4.
- 2.5.8 The estimated hourly construction traffic flows in the 2026 peak and operational traffic flows in 2038 have subsequently been added to the 2026 and 2038 future baselines in the peak hours to form the 2026 'With Construction' year and 2038 'With Operation' traffic flows, respectively.
- 2.5.9 A 2028 future baseline has also been established based on the 2021 baseline. This corresponds to the start of the existing Cambridge WWTP decommissioning programme and estimated decommissioning traffic flows have been added to form the 2028 'With Decommissioning' traffic flows.

2.6 Maximum design envelope parameters for assessment

- 2.6.1 The design parameters and assumptions presented are in line with the 'maximum design envelope' approach (base scheme design) as described in introductory chapters of the ES (Chapter 2 and 5, App Doc Ref 5.2.2 & 5.2.5). For each element of this chapter the maximum design envelope parameters detailed within Table 2-12 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group.
- 2.6.2 The assessment parameters are based on the design of the proposed WWTP and access, transfer tunnel route and outfall location, Waterbeach pipeline and connections within the existing Cambridge WWTP as described in Chapter 2: Project Description (App Doc Ref 5.2.2). The assessment considers a realistic maximum design envelope based on the maximum scale of the elements and as a result no effects greater significance than those assessed are likely.

Table 2-12: Maximum design envelope parameters for traffic and transport assessment

Potential impact	Maximum design scenario	Justification
Construction route affects the road network and all road users for the duration of the construction programme	<p>The construction programme begins in Year 1 and ends in Year 4, with the peak in construction traffic expected to occur in Year 3.</p> <p>Usage of the construction route by construction-related traffic could result in the impacts to users of:</p> <ul style="list-style-type: none"> ● Junction 33 (The Milton Interchange) of the A14; ● Junction 34 of the A14; ● Junction 35 (the Quy Interchange) of the A14; ● The A14, where appropriate; ● The A10, where appropriate; ● A1309 Milton Road; ● Cowley Road; ● Green End Road; ● Fen Road; ● Low Fen Drove Way; ● B1047 Horningsea Road; ● Horningsea Road; ● All roads in Waterbeach that are part of the construction route; and ● Clayhithe Road. 	The dates and volumes outlined represent the likely busiest periods for construction traffic associated with the Proposed Development.
Construction of the permanent access affects the road network in close proximity	<p>Scheduling construction of the permanent access at the start of the construction programme so that the access can be used to facilitate the remaining period of construction.</p> <p>There will be temporary traffic controls for up to 6 months during construction and testing of the fourth arm at the junction</p>	<p>Represents the longest likely duration of the works to create the temporary and permanent access points to the land required for the proposed WWTP.</p> <p>Represents the peak disruption to the junction during construction of the main access.</p>

Potential impact	Maximum design scenario	Justification
Construction of the proposed WWTP and landscape masterplan	<p>In total, at the permanent access for the proposed WWTP (indicative access point CA6), a daily total of 627 two-way vehicle movements would be required at junction 34 and Horningsea Road. For each structure of the Proposed Development, this has been split as follows:</p> <ul style="list-style-type: none"> ● 492 peak daily total vehicle movements for the proposed main WWTP (including permanent access and landscape masterplan) ● 67 peak daily total vehicle movements for the waste water transfer tunnel ● 68 daily total vehicle movements for the Waterbeach pipeline <p>Peak vehicle movements assumed that there would be no batching plant in use.</p> <p>The daily total of 627 vehicle movements accounts for worker mobilisation movements. Unlike other construction vehicle movements, these worker mobilisation movements do not take place every hour across the 8-hour working day but are instead concentrated in the AM and PM peak periods. As part of the reasonable worst case scenario (RWCS), worker mobilisation has been modelled to take place in the assessed peak hours (08:00-09:00 and 17:00-18:00). The Proposed Development would require a total of 150 vehicle movements in the peak hour on Horningsea Road and at junction 34.</p> <p>For the number of construction vehicle movements for the Waterbeach pipeline, typical construction vehicle numbers have been used instead of the peak vehicle numbers. This is because the sequencing of the construction programme has been set up such that the eight week peak construction activity period, and the associated construction vehicle movements, cannot occur at the same time as the peak in construction associated with the proposed WWTP (including permanent access and landscape masterplan) and the waste water transfer tunnel.</p> <p>Short term intermittent / time critical activities (e.g., concrete pours) would be required in the peak hours as part of the construction of the Proposed Development, which would amount to a total 263 two-way daily movements. These activities would however not occur simultaneously:</p> <ul style="list-style-type: none"> ● Movement of imported stone for site infrastructure and temporary working platforms within the proposed WWTP: 60 movements ● Large concrete pours to bases of process units within the proposed WWTP: 133 movements 	Represents the peak volumes and use of Horningsea Road by construction vehicles.

Potential impact	Maximum design scenario	Justification
	<ul style="list-style-type: none"> • Delivery of precast concrete units for tanks walls within the proposed WWTP: 40 movements • Delivery of asphalt for road surfacing within the proposed WWTP: 30 movements <p>The assumptions around deliveries and worker movements over a standard 8-hour working day have been built in traffic modelling. The full list of modelling assumptions is available in Section 4 (Reasonable worst-case scenario test)</p>	
	<p>Horningsea Road (the section north of the existing junction to indicative access point COA3) will experience up to 494 total two-way movements on a peak day in construction, which is equivalent to 35 HGV movements and 8 workforce movements on average in each direction every 60 minutes, over an eight-hour day.</p> <p>A total 280 daily HGV movements will be required.</p> <p>A total 150 daily workforce movements will be required, of which 75 movements are required before the AM peak hour and 75 movements are required after the PM peak hour.</p> <p>A total 62 daily workforce movements are required outside of the peak traffic hours (08:00 – 09:00, 15:00 – 16:00 and 17:00 – 18:00)</p>	<p>Represents the peak volumes and use of Horningsea Road by construction vehicles</p>
	<p>Disruption to Low Fen Drove way and access to byway 85/14 for up to 6 months during construction and use of the temporary construction access.</p>	<p>Represents the peak period of use for construction vehicles on Low Fen Drove Way</p>
	<p>Abnormal loads will be required for access platform, process tank and pipe bridges, and pre-assembled process control kiosks, and that delivery of these would be via the main access point CA6.</p> <p>Abnormal loads will be required for Waterbeach pipeline sites to deliver the horizontal directional drilling rig. The rig would be transported on a vehicle type of maximum legal HGV dimensions, but with a weight category that classes as abnormal load.</p> <p>Abnormal load procedures to be followed by appointed contractors.</p>	<p>Represents the types of activities subject to abnormal load requirements</p>
	<p>There will be a batching plant within the area of land required for the construction of the proposed WWTP. However, the forecast vehicle movements assessed assume there would be no batching plant in use to reflect a reasonable worst case.</p>	<p>Represents the likely scenario in relation to construction</p>

Potential impact	Maximum design scenario	Justification
Construction of the transfer tunnel including shafts 4 and 5	Horningsea Road (section south of the existing junction to indicative access point CA2/CA3) will experience up to 67 two-way vehicle movements on a peak day during construction. This includes 5 HGV movements in each direction every 60 minutes, over an eight-hour day. There would also be 27 two-way workforce vehicle movements per day, of which 10 movements are required before the AM peak period and 10 movements after the PM peak period for workforce mobilisation purposes. An additional 7 movements, across the day, would be required for engineer, supervision or visits / audit movements outside of the peak traffic periods.	Represents the peak volumes and use of Horningsea Road by construction vehicles
	Temporary disruption to the shared pedestrian/cycling footway along Horningsea Road for up to 24 months in the area south of the junction with the A14	Represents the maximum duration to disruption of non-motorised users of Horningsea Road
	<p>The route will cross each of the Fen Line railway, the River Cam, Horningsea Road and the A14.</p> <p>The river crossing will be subject to an environmental permit.</p> <p>The rail crossing will be subject to a BAPA with Network Rail.</p> <p>The road crossings and highway works will be subject to notification of work to the Local Highway Authority (LHA) and for the A14 with National Highways.</p>	Represents to total number of interfaces with the river and existing transport assets and further agreements placing controls on these activities
Construction of the Waterbeach pipeline	<p>For the construction of the Waterbeach pipeline, the following daily construction vehicle movements would be required:</p> <ul style="list-style-type: none"> ● for road links in Waterbeach (work sites north of the A14): 82 HGVs and 28 workforce vehicles; and ● for sites on Horningsea Road and on Cowley Road (work sites south of the A14): 90 HGVs and 28 workforce vehicles. 	Represents the maximum peak daily volumes and use of road links in Waterbeach by construction vehicles
	<p>Vehicle movements would be highest during the first 8 weeks of construction when all the equipment is delivered, and the compound area setup.</p> <p>Construction vehicle movements will then peak again during the last 8 weeks when the temporary haul road is removed and the compounds dismantled.</p>	Represents the maximum peak activities associated with Waterbeach
	Denny End Road will experience up to 110 two-way vehicles movements on a peak day in construction. This is equivalent to 10 HGV movements on average in each direction every 60 minutes over an eight-hour day. This also includes 28 two-way workforce vehicle movements	Represents the maximum peak volumes and use of Denny End Road by construction vehicles

Potential impact	Maximum design scenario	Justification
	<p>per day outside of the peak traffic periods, with 14 required before the AM peak and 14 required after the PM peak for workforce mobilisation purposes.</p>	
	<p>Car Dyke Road to Clayhithe Road will experience up to 110 two-way vehicle movements on a peak day in construction. This is equivalent to 10 HGV movements on average in each direction every 60 minutes over an eight-hour day. This also includes 28 two-way workforce vehicle movements per day outside of the peak traffic periods, with 14 required before the AM peak and 14 required after the PM peak for workforce mobilisation purposes.</p>	<p>Represents the maximum peak volumes and use of Car Dyke to Clayhithe Road by construction vehicles</p>
	<p>Use of a four-way gated system for the duration of the disruption during installation of the pipeline at PRow at the following locations:</p> <ul style="list-style-type: none"> ● Footpath 130/10 ● Bridleway 130/8 ● Footpath 130/6 ● Footpath 130/16 ● Bridleway 130/12 ● Bridleway 247/10 	<p>Represents the total number of PRow temporarily affected by the construction</p>
	<p>It is not expected that any PRow will be impacted for more than 1 week with the exception of FP130/6 as continued access will be required to the working area to the South.</p> <p>The use of gates would be the equivalent to the distance a user on a PRow would have covered in two minutes and equates to 170m.</p>	<p>Represents the maximum duration of the disturbance to PRow</p> <p>Represents the maximum equivalent delay</p>
	<p>The route will cross each of the Fen Line railway, and the River Cam in two locations.</p> <p>The route will cross Horningsea Road and the A14 in one location.</p> <p>The route will cross one ditch which will require permits from the LLFA and or the Internal Drainage Board.</p> <p>The main river crossings will be subject to an environmental permit from the Environment Agency.</p> <p>The rail crossings will be subject to a BAPA agreement with Network Rail.</p> <p>The road crossings will be subject to network management agreements with the LHA and for the A14 National Highways.</p>	<p>Represents to total number of interfaces with the river and existing transport assets and further agreements placing controls on these activities</p>

Potential impact	Maximum design scenario	Justification
Construction of the treated effluent pipelines and outfall	Requirement to access land to the east of Horningsea Road for up to 2 months to create new ditch habitat. Vehicle movements limited to under 10 per day.	Represents the maximum number of vehicle movements for the 12 months preceding the treated effluent and outfall works
	Temporary closure of Footpath 85/6 for up to 11 months. PRoW 85/6 would be diverted along PRoW 85/8 in part, which is intersected by the pipeline works corridor and would therefore require a gate access. This diversion would increase the journey length by 610m (from 160m to 770m) plus a further 170m (equivalent to the distance a user on a PRoW would have covered in two minutes) added as a result of the gated access on PRoW 85/8. The diversion on PRoW 85/6 results in an increase in of 780m in total journey length.	Represents the maximum duration the footpath is closed, and the diversion is in place
	The route will cross Horningsea Road by open cut methods. The route will cross a water course (ditch parallel to the River Cam). The construction of the outfall will require a temporary restriction to the navigation for up to 4 months.	Represents the total number of interfaces with the river and Horningsea Road and further agreements placing controls on these activities
Decommissioning phase traffic route affects road users on the surrounding road network	Decommissioning of the existing Cambridge WWTP takes place in 2028. Usage of the road network by decommissioning traffic to access the existing Cambridge WWTP could result in impacts to users of: <ul style="list-style-type: none"> ● The A10, where appropriate; ● Milton Road; ● Cowley Road; and ● The NCR 11. 	The dates and volumes are the busiest likely periods for operation traffic associated with the Proposed Development.
	Cowley Road will experience up to 150 two-way vehicle movements on a peak day during decommissioning. This is equivalent to 11 HGV and 8 LGV movements on average in each direction every 60 minutes, over an eight-hour day. This would occur over a period of up to 6 months.	

Potential impact	Maximum design scenario	Justification
Vehicle movements during the peaks related to time critical construction activities	<p>There will be time critical activities for some elements of construction. These may require construction vehicle movements that coincide with the AM/ PM peaks. These activities are expected to be:</p> <ul style="list-style-type: none"> • Concrete pours at each of the shafts for the transfer tunnel • Movement of imported stone for site infrastructure and temporary working platforms within the proposed WWTP • Large concrete pours to bases of process units within the proposed WWTP • Delivery of precast concrete units for tanks walls within the proposed WWTP. • Delivery of asphalt for road surfacing within the proposed WWTP 	Represents the activities that may require vehicle movements during the AM/PM peak.
Operational traffic route affects road users on the surrounding road network	Year 1 of operation commences in 2028, whereby operational and maintenance vehicle movements would be reassigned post-relocation of proposed WWTP.	Represents the year when traffic would reassign from the existing to the proposed WWTP.
	The 5 year (2033) and 10 year (2038) post-opening periods have been assessed. This assessment is reported in detail in the TA (Appendix 19.3, App Doc Ref 5.4.19.3).	Represents future baseline (including to 2050 as 2038 conditions remain valid) and aligns with CCC assessment requirements.
	The proposed WWTP would operate continuously with up to a third of vehicle movements outside of daytime operational working hours (09:00 – 18:00).	Represents maximum proportion of vehicle movements outside of daytime working hours.
	Horningssea Road at junction 34 (modified signalised junction) would experience up to 322 two-way vehicle movements on a peak day in operation. This is equivalent to 18 HGV movements and 22 workforce vehicle movements on average in each direction every 60 minutes, over an eight-hour day. It is assumed that the office staff, operational staff and Discovery Center Centre visitors all arrive or depart in the peak hours. The daily peak traffic has therefore been determined based on all parking spaces within the proposed WWTP being occupied in the peak hours. In total, this equates to 78 vehicle movements in the AM and PM peak hours.	The dates and volumes are the busiest likely periods for operation traffic associated with the Proposed Development at full development capacity.
Sludge would be imported from up to 45 satellite locations.	Represents the maximum number of sites and maximum distance from the proposed WWTP that vehicles would	

Potential impact	Maximum design scenario	Justification
	There would be up to 6 vehicle movements per week for the removal of screenings and grit from the proposed WWTP (included in the operation HGV vehicle numbers).	travel to import sludge to the proposed WWTP Represents maximum number of vehicle trips associates with removal of grit generated by treatment process
Operation of the proposed WWTP	Maintenance of the Waterbeach pipeline and outfall would be very minimal and the changes in traffic flow would be 1-2 vans (less than 1% traffic change) visiting sections of the pipeline or outfall on an infrequent basis.	Represents maximum vehicle movements associated with maintenance visits to the Waterbeach pipeline
	Maintenance of the proposed WWTP would be very minimal and the resulting vehicle movements would require less than 1% traffic change on an infrequent basis.	Represents maximum vehicle movements associated with maintenance activities related to the proposed WWTP
	There would be infrequent incidences where there are additional vehicle movements during operation associated with major upgrade activities. These activities are not likely to occur frequently, and in each instance, would be expected to last up to a week and require few vehicle movements (i.e. the use of two vans, one excavator and one LGV).	Represents the expected maximum vehicle movements associated with 'abnormal' operation
Phase2 expansion	There would be a range of vehicle movements per day of between 5 to 20 over the duration of the construction of the additional tanks. Construction of 2 additional tanks would not result in new or worse impacts. The TA modelled a 2038 scenario with full build out of the WWTP, including the additional tanks and associated traffic operational movements.	Represents phase 2 expansion in combination with operational movements

2.7 Impacts scoped out of the assessment

2.7.1 The following potential impacts, listed in Table 2-13, have been scoped out of this assessment.

Table 2-13: Impacts scoped out of the traffic and transport assessment

Potential impact	Justification
In-combination impacts to amenity on pedestrian, equestrian and cyclists and impacts on ability to access community resources and social infrastructure	<p>These matters are assessed in detail as part of Chapter 11: Community (App Doc Ref 5.2.11).</p> <p>The Scoping Opinion accepted the approach that the assessment does not need to be duplicated as part of this chapter.</p>
Proximity to aviation safeguarding zone for Cambridge Airport	<p>Matters relating to safety associated with tall structures (such as cranes and permanent infrastructure) are scoped out on the basis that controls in relation to Major Accidents and disasters are required as part of the Proposed Development. Refer to the following sections of Chapter 2: Project Description (App Doc Ref 5.2.2) which set out the design measures, permits and operational activities relevant to the control of aviation risk so that the risk are as low as reasonably practicable:</p> <ul style="list-style-type: none"> • Section 1.8 sets out the heights of structures and associated navigation lighting required in accordance with Appendix 2.5, App Doc Ref 5.4.2.5. • Section 1.2 sets out the required consents in the case of construction equipment. • Section 6 sets out the operational and maintenance activities in relation to the prevention of nuisance wildlife within the proposed WWTP (as Implemented through a Wildlife Hazard Management Plan) <p>Section 5.12 (Cranes and Other Temporary Tall Structures) of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) requires that:</p> <ul style="list-style-type: none"> • all cranes will be operated in accordance with the requirements of CAP1096 (Guidance to crane users on the crane notification process and obstacle lighting marking). • the Civil Aviation Authority (CAA) are notified of all cranes, regardless of location, by the Principal Contractor(s) prior to erection if at any point during the planned lifting operations the highest point of the crane or load would exceed 10m above ground level or the surrounding structures or trees (if higher). • any other tall structures on site such as a concrete batching plant, be notified to the CAA and the operator of Cambridge Airport and that any safety recommendations incorporated into the site set up. <p>An outline Wildlife Hazard Management Plan is provided as part of the application (Appendix 8.18, App Doc Ref 5.4.8.18) which sets out the requirements in construction and operation in relation to wildlife controls in the context of aviation risk.</p>
Pipeline crossings under the Fen Line railway	<p>On the basis of routine mitigation and Network Rail controls (Basic Asset Protection Agreement) to avoid impacts on the railway, it has been agreed that this matter can be scoped out.</p>

Potential impact	Justification
LNG deliveries in operation	Section 4.5 of Chapter 2 Project Description (App Doc Ref 5.2.2) sets out the required consents/permits in the case of works affecting the railway. There would be 1 or 2 deliveries in the operation phase of the Proposed Development. These are minimal in context of overall vehicle movements and covered by existing regulations European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR 2017).

2.8 Mitigation measures adopted as part of the Proposed Development

- 2.8.1 This section refers to the mitigation types, as defined in Section 3.7 of the ES Chapter 5: EIA Methodology (App Doc Ref 5.2.5), and how they apply to the assessment of Traffic and transport.
- 2.8.2 In developing the Proposed Development through an iterative process including consultation and engagement with consultees, and through the Environmental Impact Assessment (EIA), the Applicant has sought to identify and incorporate suitable measures and mitigation for potentially significant adverse effects, as well as maximising beneficial effects where possible.
- 2.8.3 Some measures are ‘embedded’ in the design of the Proposed Development for which consent is sought by virtue of the scope of the authorised development as set out in Schedule 1 to the DCO and the accompanying Works Plans. These are considered primary mitigation. For example, adjustment of Order Limits to avoid sensitive features, amending the sizing and location of temporary access routes and compounds.
- 2.8.4 Secondary measures may be detailed activities, for example the preparation of detailed AIMS in accordance with the CoCP, the preparation and delivery of a monitoring plan for specific matters (air quality, water quality) or the preparation and delivery of specific environmental management plans (for example air, noise, water), and the preparation and implementation is secured through the CoCP. These secondary measures are differentiated from the good practice measures.
- 2.8.5 Tertiary measures comprise good practice measures (such as measures within Considerate Contractors Scheme) and measures integrated into legal requirements secured through environmental permits and consents (least flexible as either the legislation exists to create the mitigation or does not (i.e., Protected Species Licensing).
- 2.8.6 The Consents and Other Permits Register (Application Doc Ref 7.1) sets out required permits and consents related to the Proposed Development.
- 2.8.7 Where beneficial effects are voluntarily introduced without the requirement to mitigate an effect, these are termed ‘enhancement measures’.

2.8.8 The remainder of this section sets out the embedded measures (primary), good practice and legal requirements (tertiary) and additional measures (secondary) relevant to the assessment of traffic and transport.

Primary (embedded) and tertiary measures

2.8.9 Primary and tertiary mitigation form part of the Proposed Development and therefore, the preliminary assessment of effects takes account of these measures.

2.8.10 Table 2-14 sets out the embedded mitigation measures that will be adopted during the construction, operation, maintenance and decommissioning of the Proposed Development.

Table 2-14: Primary and tertiary mitigation measure relating to traffic and transport adopted as part of the Proposed Development

Mitigation measures	Applied to	Type	During	Justification
Pedestrian island crossing on Horningsea Road	Horningsea Road	Primary	Operation	This provides additional protection for pedestrians and cyclists crossing the road and ensures safe connection to shared footway. The traffic island prevents right-turns from the permanent site access road, which reduces potential conflicts at the A14 off-slip Road/Horningsea Road junction.
New footway section on the east side of Horningsea Road south of the junction with Low Fen Drove Way (App Doc Ref 4.11.1)	Horningsea Road	Primary	Operation	This improves the overall accessibility and connectivity of walking and cycling in the area, as well as providing more protection for pedestrians and cyclists on the east bank, where there is currently no walking and cycling path provision.
Speed control of the Horningsea Road between Fen Ditton and Horningsea (also see TA (Appendix 19.3 App Doc Ref 5.4.19.3)	Horningsea Road	Primary	Construction and Operation	This improves overall road safety and comfort for pedestrians and cyclists making use of the shared footway.
Extension of the shared pedestrian / cycle path on the west side of Horningsea Road	Horningsea Road	Primary	Operation	This provides a more continuous connection through the cycle network on Horningsea Road.
Incorporation of a segregated pedestrian and cyclist access to the proposed WWTP	Proposed WWTP	Primary	Operation	This provides more protection for pedestrians and cyclists traveling to the proposed WWTP.
Inclusion of a temporary track adjacent to Hatridge's Lane for pedestrian access from Clayhithe Road to Clayhithe farm (Works Plan 22 Access for Works Area 30)	Waterbeach pipeline	Primary	Construction	Provides unhindered access to the users of Hatridge's Lane during construction.
Temporary diversion of the PRoW 85/6 at the outfall works area using 85/8 and a temporary path to re-join the PRoW 85/6 upstream of the outfall works area	Outfall / Treated effluent pipeline works area	Primary	Construction	Provides temporary connectivity during construction of the outfall.
Temporary junction control at selected roads within Waterbeach	Waterbeach junctions:	Primary	Construction	These junctions are currently not wide enough for HGVs' turning movements and therefore require temporary control measures. More detail is available

Mitigation measures	Applied to	Type	During	Justification
	<ul style="list-style-type: none"> Bannold Road / Bannold Drove Bannold Road / Burgess's Drove 			in Swept Path Analysis (Appendix G, App Doc Ref 5.4.19.3).
Cycle parking provision for up to 50 bikes within the proposed WWTP. Provision to include for E-bikes and cargo bikes (or other oversized cycles as necessary).	Within the proposed WWTP	Primary	Operation	Provision is based on CCC's cycle parking guidance for new developments.
EV parking provision for up to 30% of spaces within the proposed WWTP with passive provision for a further 30% of spaces.	Within the proposed WWTP	Primary	Operation	Provision is based on CCC's EV parking guidance for new developments.
Permits and consents would be required for construction work under railways, highways, and rivers, or those required for the stopping up or diversion of PRoW.	Proposed Development	Tertiary	Construction	Required to gain the appropriate consents. The appointed contractor would be obligated to obtain all required permits and agreements and comply with any associated conditions.
Basic Asset Protection Agreement (BAPA)	Proposed Development - where the Proposed Development would potentially interact with railway (e.g. level crossings)	Tertiary	Construction	Required to gain the appropriate consents.

Secondary measures

2.8.11 Secondary measures related to the mitigation of traffic and transport related impacts are contained within the Code of Construction Practice Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2), the Construction Traffic Management Plan (CTMP) (Appendix 19.7, App Doc Ref 5.4.19.7), the Construction Workers Travel Plan (CWTP) (Appendix 19.9, App Doc Ref 5.4.19.9), and the Operational Workers Travel Plan (OWTP) (Appendix 19.8, App Doc Ref 5.4.19.8). In addition, an Outline Operational Logistics Traffic Plan (Appendix 19.10, App Doc Ref 5.4.19.10) has been prepared in relation to the management of operational traffic movements. This document would be reviewed and developed post consent.

Construction

- 2.8.12 During the construction phase (including the decommissioning to surrender the existing Cambridge WWTP permit), the CoCP and associated management plans specify the range of measures to avoid and minimise impacts that may occur in construction (CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1)). Post grant of the DCO and prior to commencement of construction of specific construction activities the contractor will prepare the CEMP and associated sub-plans as specified in the COCP Part A. These detailed plans will be approved by the Applicant. The CEMP and associated management plans will remain 'live' documents and periodically modified throughout the duration of construction.
- 2.8.13 During the construction phase, the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and the CoCP (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) and associated management plans specify the range of measures to avoid and minimise impacts that may occur in construction.
- 2.8.14 The outline CTMP secures the commitments in relation to the management of construction vehicle movements. The outline CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) will be developed into a final plan post grant of the DCO and prior to commencement of development following the submission of the DCO application. The final CTMP will set out the detailed management measures, procedures and best practices required for managing the impact of construction traffic on the local and strategic road networks during the construction period.
- 2.8.15 A Community Liaison Plan (App Doc Ref 7.8) sets out the approach to ongoing communication with residents, the community, and businesses, including communication in relation to traffic and transport matters. Post grant of the DCO and prior to commencement of development a detailed plan will be prepared and agreed with the local authority. This will remain a 'live' document and periodically modified throughout the duration of construction.
- 2.8.16 Section 3 of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) (Community Consultation and Engagement) requires a proactive approach to communication with the local community and stakeholders. Through a Community Liaison Plan the local community and stakeholders will be informed of the works taking place, including durations, particularly where these will involve works outside of the core

working hours or impact community facilities and business and local infrastructure such as Public Rights of Way (PRoW)/cycleways.

2.8.17 ~~An outline~~A Construction Workers Travel Plan (CWTP) (Appendix 19.9, App Doc Ref 5.4.19.9) has been developed to minimise the impact of staff during the construction. It seeks to encourage construction workers to use more sustainable travel modes, to reduce single occupancy vehicle trips and will investigate the potential for flexible working patterns to facilitate travel outside of the peak periods. This includes details on active travel initiatives, car-sharing schemes, and staff parking strategies. Post grant of the DCO and prior to commencement of operation the outline plan will be updated. This will remain a 'live' document and periodically modified in line with the review cycles set out in the plan.

2.8.18 Specific measures in the CoCP, CTMP, CWTP relevant to traffic and transport are described below.

Code of Construction Practice

2.8.19 Measures within the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) include but are not limited to the following and are referred to in relation to all areas of the transport network potentially affected by the Proposed Development:

- Section 5.11 of CoCP Part A (Working Hours) Table 5-1 sets out the working hour restrictions applied to the construction of the Proposed Development. This section also reinforces the commitment for ongoing communication in relation to works activities and timing.
- Section 7.7 of CoCP Part A (Traffic and Transport) includes:
 - measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through the Fen Ditton and Horningsea;
 - a requirement for all PRoW to be restored to the same condition as before the works took place or to a standard which is acceptable to the Local Highway Authority; and
 - a requirement for the use of safety gates to be put in place and users allowed to safely cross the construction working area.

2.8.20 Measures within Section 3 of the CoCP Part B (Appendix 2.2, App Doc Ref 5.4.2.2) include but are not limited to the following:

- Section 3.1 measures in relation to PRoW, maintaining farm access, and temporary traffic arrangements (Horningsea Road) as part of the final effluent pipeline and outfall to River Cam construction;
- Section 3.2 measures in relation to deliveries to shaft 4;
- Section 3.3 measures in relation to temporary accesses, temporary diversions on Horningsea Road as part of the proposed WWTP site access construction;

- Section 3.4 measures in relation to gates access on PRow, and access arrangements with farm holdings;
- Section 3.5 measures in relation to temporary traffic management on Cowley Road; and
- Measures in relation to coordination with other developments that may overlap with construction of the Proposed Development such that environmental management plans are developed and agreed through engagement with developers to avoid and minimise impacts so that cumulative effects are reduced or eliminated.

Construction Traffic Management Plan

2.8.21 Measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) include but are not limited to the following and are referred to in relation to all areas of the transport network potentially affected by the Proposed Development:

- Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
- Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads. As a minimum this will include internal haul road speed limits, warning (hazard signs), potential vehicle or pedestrian crossing points, distances to destinations, height/width restrictions and passing places;
- Section 6.3 (Adherence to Designated Routes) which includes a requirement for a strategy for reporting noncompliance as well as encouraging local residents to report HGV movements within villages (Fen Ditton and Horningsea);

- Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works;
- Section 6.4 (Vehicle Scheduling) which requires adherence to works hours;
- Section 6.5 (Deliveries) which requires the management of deliveries via a scheduling system with deliveries scheduled so that they do not coincide with peak hours, especially during the AM and PM peak hours to minimise the possibility of adding to congestion on the road network; and
- Section 7.2 (Monitoring Strategy) requires that the Principal Contractor(s) to implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development. This will include the following;
 - documented pre-commencement meetings with the site management team as a contractual requirement;
 - active traffic management; and
 - FORS and CLOCS accreditation.

Abnormal loads

2.8.22 Section 4.2 (Local routeing and site plant vehicle routeing) which identifies the potential for conflict as a result of an abnormal load accessing the land required for the proposed WWTP and the need for additional support in order to make the required turning movement from or onto Horningsea Road. It indicates that mitigation required to prevent impact on other users of the highway network would be temporary considered on an individual basis, including appropriate vehicle escort and marshalling where required and scheduled outside peak hours (i.e., school start and finishing times).

Horningsea and Horningsea Road

2.8.23 The following measures are of particular relevance to Horningsea and Horningsea Road:

- Section 4.2 (Local routeing and site plant vehicle routeing) which:
 - identifies the off and on-slip of the A14 as a potential conflict area which may require traffic marshalling during peak hours;
 - recognises the potential conflict of site access points CA2/CA3 which will cross the existing footway / cycleway on the west side of Horningsea Road which may require marshalling during peak hours and/or traffic management measures to provide a safe crossing point for site traffic and pedestrians and cyclists; and

- requires that all deliveries will be made outside of peak hours (08:00-09:00, 15:00-16:00 and 17:00-18:00) unless it is determined to be essential that the delivery is to be completed during peak hours.
- Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which:
 - refers to site access point COA3, CA6, CA2/CA3 which indicates the majority of the highway works can be carried out under TM that maintains vehicular access on Horningsea Road, under temporary signal control and requires that the existing footway / cycleway to the west of the Horningsea Road carriageway will be maintained at all times with suitable barriers separating the footway from the works; and
 - requires that speed restrictions to Horningsea Road will be put in place for the duration of the works in accordance with the Temporary Traffic Regulation Order (TRO) (the detail of which will be subject to agreement with Cambridgeshire County Council and any other relevant stakeholders).
- Section 7.2 (Monitoring Strategy) requires that the Principal Contractor(s) implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, which includes ANPR cameras along Horningsea Road.

Fen Ditton

2.8.24 The following measures are of particular relevance to Fen Ditton:

- Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which:
 - indicates that for the temporary site access point COA3, CA6, CA2/CA3 (to access land required for the construction of the Transfer tunnel, shafts 4 and 5 and the southern section of Waterbeach pipeline) the majority of highway works will be carried out under traffic management that maintains vehicular access on Horningsea Road, under temporary signal control;
 - requires the existing footway / cycleway to the west of the Horningsea Road carriageway to be maintained at all times with suitable barriers separating the footway from the works; and
 - recognises that there is no viable alternative route for pedestrians and cyclists from Horningsea to Fen Ditton (important as this is a route to Fen Ditton Primary School), and that any site crossing points on the footway will need to be controlled with suitable traffic management and traffic marshals where appropriate.

Waterbeach and Clayhithe

2.8.25 The following measures are of particular relevance to the roads in Waterbeach that are used as construction access routes (Burgess's Drove, Bannold Drove, Bannold Road, Clayhithe Road and Station Road):

- Section 4.2 (Local routeing and site plant vehicle routeing)
 - a requirement that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
- Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which includes:
 - a requirement for speed restrictions to Burgess's Drove, Bannold Drove and Bannold Road as well as Clayhithe Road will be put in place in accordance with a temporary TRO which will be set out within the DCO;
 - a requirement to avoid HGV movements on the roads through Waterbeach during school drop-off and pick-up hours during school term time; and
 - a temporary parking restriction on Bannold Road junction with Denny End Road / Car Dyke Road.

Cowley Road

2.8.26 The following measure is of particular relevant to Cowley Road:

- Section 4.2 (Local routeing and site plant vehicle routeing) which identifies the potential for conflict with the footpath/cycleway along Cowley Road

which may require diversion and traffic management measures (subject to agreement with the Local Highway Authority (LHA) for pedestrians and other NMUs).

- Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) includes a requirement for construction vehicles over 3.5 tonnes along Fen Road and Cowley Road to be limited to deliveries between 09:30 and 15:30.

Construction Workers Travel Plan

2.8.27 The measures within the CWTP (Appendix 19.9, App Doc Ref 5.4.19.9) include:

- Management of the Travel Plan through the appointment of a Travel Plan Coordinator (TPC)
- Raising awareness of sustainable travel with welcome packs which will include:
 - A map showing the location of the development in relation to the local area, highlighting the nearby bus stops;
 - Bus and Train journey planners / apps;
 - A map showing local cycle routes; and
 - Information relating to traffic-related environmental concerns, congestion problems and car sharing to raise awareness.
- Promote walking through the TPC by implementing the following initiatives:
 - Raise awareness of the health benefits of walking through site inductions;
 - Provide details of local food outlets for lunch breaks, at induction;
 - Ensure that walking routes on site are well maintained and lit with any defects reported to the site manager;
 - Provide safe tool storage on site; and
 - Provide adequate welfare facilities on site, including showers and lockers.
- Promote cycling through the TPC by implementing the following initiatives:
 - Provide a minimum of 50 safe secure cycle parking stands on site;
 - Ensure adequate welfare facilities on site, including showers and lockers, are available for use by staff arriving by non-motorised means;
 - Investigate the potential to set up a Bicycle User Group (BUG) or cooperate with an existing local group to encourage staff to cycle to work;

- Promote the availability of cycling information, including route maps and useful tips and guidance through site inductions; and
- Establish contact with local cycle shops to attract discounts on equipment.
- Developing personalised travel plans. The TPC would be responsible for providing staff with personalised travel plans.
- Promotion of car sharing schemes/initiatives through the TPC.

Operation

2.8.28 An outline Operational Logistics Traffic Plan (App Doc Ref 5.4.19.10) and Operational Workers Travel Plan (Appendix 19.8, App Doc Ref 5.4.19.8) set out mitigation measures relating to vehicle movements associated with the operation of the proposed WWTP. The purpose of these is summarised below:

- Operational Logistics Traffic Plan: details the overall traffic management strategy for operational traffic; and
- Operational Workers Travel Plan: details operation work and programme, site access requirements for staff, staff travel patterns and expected workforce locations.

2.8.29 Post grant of the DCO and prior to commencement of operation the framework OWTP will be updated. This will remain a 'live' document and periodically modified in line with the review cycles set out in the plan, including but not limited to updates to incorporate the findings of a travel survey, to be completed 6 months after the commencement of operation. The updated OWTP will be shared with CCC Highways.

2.8.30 Operation and maintenance activities related to the proposed WWTP would be subject to operational management plans and procedures. The management plans and procedures will sit within the EMS written management system required under the environmental permitting regime. These would be 'live' documents that identify the environmental risks and legal obligations associated with the operations of the Proposed Development once construction has been completed. These specify the management measures the operator will implement in order to prevent or minimise the environmental effects associated with the Proposed Development.

Decommissioning

Decommissioning ~~Management~~ Plan

2.8.31 Decommissioning of the existing Cambridge WWTP would be subject to a Decommissioning ~~Management~~ Plan which is to be agreed with the Local Planning Authority (LPA). An outline Decommissioning ~~Management~~ Plan (Appendix 2.3, App Doc Ref 5.4.2.3) describes measures applied to this activity. Post grant of the DCO and prior to commencement of decommissioning, a detailed plan will be prepared by the Applicant and agreed with the relevant Local Planning Authority and the

Environment Agency in accordance with activities to surrender the existing environmental permit for the existing Cambridge WWTP.

2.9 Assumptions and limitations

2.9.1 The study area proposed for the construction, decommissioning, and operation phase has been determined by the understanding of the road network and an assessment of where the likely impacts will extend. This assessment is based on an analysis of the traffic flow changes that are likely to occur during all phases. It is assumed where construction traffic is not permitted on sections of public highway that there would be no impact on traffic levels due to the Proposed Development on those sections of road.

2.9.2 It is assumed that there will be no major change to the origins and destinations of external operational movements between the time of traffic survey for the existing Cambridge WWTP and the first year of operation of the proposed WWTP.

Model assumptions

2.9.3 Deliveries are expected to take place between 07:00 and 18:00, which would equate to an 11-hour working day. The traffic modelling has been based on an 8-hour working day, which accounts for the general restrictions on peak hour travel (08:00-09:00, 15:00-16:00, 17:00-18:00), as set out in Section 4 of the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7). All assessments have been based on an 8-hour working day. For consistency and comparison purposes, only the 8-hour working day has been used across mitigated and unmitigated scenarios.

2.9.4 The modelling has been based on the following set of assumptions in relation to the restriction on the routing of vehicle movements through Horningsea and Fen Ditton in construction:

- The model only considers the weekday AM and PM peak hours (08:00-09:00 and 17:00-18:00);
- No construction traffic is allowed to travel through the settlements of Horningsea and Fen Ditton;
- Construction traffic will primarily make use of the Strategic Road Network and primary road network, the A14 and the A10;
- On the A14, 90% of construction traffic has been assumed to originate from the west and 10% from the east when travelling to work sites based on the location of construction material. A sensitivity test to review a 50:50 split has been undertaken. This is contained in Appendix 19.13 (App Doc Ref 5.4.19.13); and
- To account for construction deliveries, worker movements and worker mobilisation, a standard 8-hour working day has been assumed which accounts for worker mobilisation and the peak hour restrictions set out by the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7).

2.9.5 In operation, the following assumptions have been made within the traffic model:

- The model only considers the weekday AM and PM peak hours (08:00-09:00 and 17:00-18:00);
- Operation Logistics Traffic Plan (OLTP) mitigation measures would restrict travel through Horningsea and Fen Ditton by HGV traffic and manage HGV arrivals and departures during peak hours if required;
- Operational traffic should primarily make use of the Strategic Road Network and primary road network, such as the A14 and A10;
- On the A14, 50% of operational traffic has been assumed to originate from the west and 50% from the east when travelling to work sites, this is based on operational HGV vehicle movements related to the existing Cambridge WWTP;
- Overnight deliveries account for 30% of the HGV traffic entering and exiting the site, this is based on the operational vehicle movement pattern experienced at the existing Cambridge WWTP; and
- To account for operational deliveries, worker movements and worker mobilisation, a standard 8-hour working day has been assumed.

2.9.6 For decommissioning, the following assumptions have been made within the traffic model:

- The model only considers the weekday AM and PM peak hours (08:00-09:00 and 17:00-18:00);
- Decommissioning vehicle movements should primarily make use of the Strategic Road Network and primary road network, such as the A14;
- On the A14, 90% of decommissioning traffic has been assumed to originate from the west and 10% from the east of the junction 33 (the Milton Interchange) when travelling to the existing Cambridge WWTP; and
- To account for decommissioning activities, worker movements and worker mobilisation, a standard 8-hour working day has been assumed, which accounts for worker mobilisation periods and the peak hour restrictions set out by the CTMP.

3 Baseline Environment

3.1 Current baseline

- 3.1.1 The current baseline conditions for traffic and transport are summarised in the sections below. A summary of the future baseline traffic flows is set out in Section 3.2.
- 3.1.2 The baseline section describes the road and PRoW routes relevant to each settlement as well as public transport infrastructure. Where road and PRoW routes are assessed in Section 4 (Assessment of Effects) it is noted which settlement each route is relevant to.
- 3.1.3 The TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides detailed information on the baseline conditions and the associated figures in relation to the following:
- the primary highway network the local highway network providing access to the Proposed Development;
 - baseline traffic flows and the public transport network; and
 - an analysis of road safety via Personal Injury Collisions including the location of the personal injury collisions in relation to the Proposed Development.
- 3.1.4 Figure 19.2 in the ES Volume 3: Book of Figures Traffic and Transport (App Doc Ref 5.3.19) shows the study area and proposed construction routes.

Primary Road Network

A10

- 3.1.5 The study area considers the section of the A10 between Waterbeach and junction 33 of the A14 (the Milton Interchange), also known as Ely Road.
- 3.1.6 A shared-use footpath, which is approximately 1.3m wide, runs alongside the southbound lane of the A10 and provides a walking and cycling connection between the settlements of Milton and Waterbeach. No active travel infrastructure is available on the northbound side of the A10.
- 3.1.7 Table 3-1 provides an overview of the observed traffic flows during the network peak hours of 08:00-09:00 and 17:00-18:00 for traffic accessing and egressing the A10 via junction 33 (the Milton Interchange) of the A14.

Table 3-1: AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) traffic flows on the A10

Road	AM peak hour (08:00-09:00)		PM peak hour (17:00-18:00)	
	Total Vehicles	HGV	Total Vehicles	HGV
A10 northbound	1,107	77	1,023	23
A10 southbound	984	63	922	42

Source: Mott MacDonald

A14

- 3.1.8 The study area considers the section of the A14 between junction 33 (the Milton Interchange) and junction 35 (the Quy Interchange). The A14 is a strategic dual carriageway road, which starts at the M6 near Birmingham and continues east past Cambridge to Felixstowe. It is part of the Strategic Road Network and provides access to Cambridge City and other settlements in the area as well as to the wider strategic road network.
- 3.1.9 Table 3-2 shows the 2019 and 2020 two-way Annual Average Daily Traffic (AADT) for the sections of the A14 between junctions 33, 34 and 35. A percentage is also shown to demonstrate the difference in two-way AADT between 2019 and 2020 when COVID-19 lockdowns occurred.

Table 3-2: Two-way AADT on the A14 between junction 33 and junction 35

Link	2019 two-way AADT	2020 two-way AADT	Percentage difference
A14 between junction 33 (the Milton Interchange) and junction 34	62,420	44,487	-29%
A14 between junction 34 and junction 35 (the Quy Interchange)	50,966	36,566	-28%

Source: Department for Transport

Existing Cambridge WWTP

- 3.1.10 The existing Cambridge WWTP is bordered by the A14 to the north. The existing WWTP connects to the A14 via junction 33, a grade separated signalised junction known as the Milton Interchange. The village of Waterbeach can be reached from the Milton Interchange by heading northbound via the A10.
- 3.1.11 The eastern side of the existing Cambridge WWTP is bordered by the Fen Line, on which Great Northern and Greater Anglia run train services from Cambridge and Cambridge North to numerous stations across the wider East of England region, including King’s Lynn to the north. Further to the east of the WWTP lies the River Cam.
- 3.1.12 To the south of the existing Cambridge WWTP lies an area of largely industrial land use, as well as Cambridge North mainline railway station.
- 3.1.13 To the west of the existing Cambridge WWTP lies the A1309 (Milton Road), a key radial route into Cambridge City Centre.
- 3.1.14 Cambridgeshire County Council (CCC) is the local highway network authority for local transport infrastructure, with the exception of the A14, which falls under the jurisdiction of National Highways.
- 3.1.15 The existing Cambridge WWTP can be accessed from Cowley Road, which connects to Milton Road via a signalised junction approximately 400m south of the Milton Interchange. Currently at this junction, there is dedicated slip lane access for southbound traffic, allowing largely unopposed movement into the WWTP. For

northbound traffic, there is a dedicated right-hand turn facility, allowing vehicles to queue at the junction, minimising any blocking back along Milton Road.

Horningsea

3.1.16 The settlement of Horningsea is located to the north of the A14. It is connected to the wider road network by Horningsea Road to the south and Clayhithe Road to the north.

Walking in Horningsea

- 3.1.17 Horningsea is directly served by two PRoW (Footpath 130/4 and 130/6), both of which lie to the north of the village.
- 3.1.18 Footpath 130/4 runs directly north of Horningsea from Clayhithe Road, providing an off-road path running parallel to this road (which features no pavement north of the village), whilst also connecting with Footpath 130/5.
- 3.1.19 Footpath 130/6 begins approximately 200m further north along Horningsea Road from Footpath 130/4, and heads in an easterly direction.
- 3.1.20 Footpath 162/1 runs parallel to Horningsea along the opposite bank of the River Cam. To access this path, which provides an off-road route south to Cambridge, pedestrians would need to head directly south along Horningsea Road, and use Footpath 85/7 to access Baits Bite Lock, which features a bridge across the river.
- 3.1.21 Within the existing road network in Horningsea, footways run along both sides of Horningsea Road throughout most of the village. Coupled with the 30mph speed limit within the village, this provides a mostly pedestrian-friendly environment. However, there are no pedestrian crossing facilities within Horningsea.
- 3.1.22 Appendix A, Figure A.14 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the PRoW network in and around the vicinity of Horningsea.

Cycling in Horningsea

- 3.1.23 A shared use pedestrian and cycleway, the Fen Ditton to Horningsea Cycleway, runs immediately south of the village alongside Horningsea Road for 2km to the village of Fen Ditton. The cycle path provides a safe connection over the A14 via a ramped bridge at Junction 34 of the A14, to the south of Horningsea. It is lit along its length using studded solar lighting embedded into the cycleway surface.
- 3.1.24 The proposed Horningsea Greenway will use this section of cycleway, providing an active travel route between Horningsea and Midsummer Common in Cambridge. The draft route will include a new wider path on the A14 bridge (Greater Cambridge Partnership, 2021), and will provide wider connections to other Greenways, most notably the proposed Swaffham and Bottisham Greenways and the recently completed Chisholm Trail (Greater Cambridge Partnership, 2021).
- 3.1.25 North of the Fen Ditton to Horningsea Cycleway, on the High Street within Horningsea itself, there is limited cycling infrastructure. There is no publicly available cycle parking within the village.

3.1.26 National Cycle Route (NCR) 11 runs along the River Cam beside Horningsea and provides a potential cycling connection to Cambridge City Centre. To access this route from Horningsea however, cyclists would need to head directly south along Horningsea Road, and use Footpath 85/7 to access Baits Bite Lock, which features a bridge across the river. This scenic route is largely used for leisure and is not generally used for commuting as it skirts around the rural fringe and does not provide a direct route to Cambridge city centre. Consequently, this route is often without traffic.

3.1.27 Appendix A, Figure A.17 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the cycle network in and around the vicinity of Horningsea.

Public transport in Horningsea

3.1.28 Horningsea is served by bus route 19 (Landbeach-Cambridge). Bus route 19 and only operates on weekdays (bustimes.org, 2022), with services running twice in the morning at 07:00 and 09:30 and twice in the afternoon at 12:30 and 17:55. These services operate from two sets of bus stops on the High Street in the village (St John's Lane and Priory Road stops). This bus route provides connections with Drummer Street Bus Station in Cambridge to the south, and Waterbeach Station to the north, allowing for further onward travel.

3.1.29 Bus stops within Horningsea feature the following facilities:

- the St John's Lane southbound stop has a bus shelter, but there is no shelter at the northbound stop. Neither stop has real time bus information screens; and
- the Priory Road stops have no bus shelters and no real time bus information screens.

3.1.30 The nearest railway station is Waterbeach, located approximately 2.5km to the north.

3.1.31 Public transport services and related infrastructure are shown in Appendix A, Figure A.18 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

Local road network in Horningsea

3.1.32 Horningsea can be accessed from the south via Horningsea Road. This road can be accessed from a signal-controlled junction servicing an eastbound only off-slip of junction 34 of the A14, or along the B1047 north from Fen Ditton. To the north, Horningsea can be accessed via Clayhithe Road, which runs south from Waterbeach via an Automatic Half Barrier (AHB) level crossing over the railway.

3.1.33 Horningsea Road is a single carriageway road with a width of about 7m, with the Fen Ditton to Horningsea shared pedestrian/cycleway running along the western side of the carriageway. No streetlighting is present to the north of junction 34 of the A14.

3.1.34 Clayhithe Road is a single carriageway road with a width of about 7m with grass verges on both sides. No pedestrian infrastructure or street lighting is present.

3.1.35 No construction traffic will be permitted to travel either northbound or southbound along the High Street through Horningsea.

Traffic flows in Horningsea

3.1.36 Existing traffic flows in Waterbeach have been determined using traffic data collected from surveys in December 2021.

3.1.37 The following junctions were surveyed in Horningsea using MCCs which included queue length analysis:

- Horningsea Road/Low Fen Drove Way/Biggin Lane;
- Horningsea Road/A14 off-slip; and
- Horningsea Road/A14 on-slip.

3.1.38 An automatic traffic count (ATC) was also installed on Horningsea Road, immediately to the south of the Horningsea Road/Low Fen Drove Way/Biggin Lane junction, to capture two-way flows. A summary of ATC results is provided in Table 3-3.

Table 3-3: Summary of ATC two-way flows on Horningsea Road (total vehicles)

Road	5-day average Northbound traffic flow, AM peak (07:00-10:00)	5-day average Southbound traffic flow, AM peak (07:00-10:00)	5-day average Northbound traffic flow, PM peak (16:00-18:00)	5-day average Southbound traffic flow, PM peak (16:00-18:00)
Horningsea Road	393	716	698	423

Source: Mott MacDonald

3.1.39 Table 3-4 provides an overview of the key movements at the surveyed junctions in Horningsea.

Table 3-4: Surveyed junctions in Horningsea – key movements

Junction name	Characteristics	Method of control	Key movements
Horningsea Road/Low Fen Drove Way/Biggin Lane	Crossroads	Non-signalised	Horningsea northbound Horningsea southbound
Horningsea Road/A14 off-slip	Three arm junction	Signalised	Horningsea northbound Horningsea southbound
Horningsea Road/A14 on-slip	Three arm junction	Signalised	Horningsea northbound Horningsea southbound

Source: Mott MacDonald

Collision analysis in Horningsea

3.1.40 Personal Injury Collision (PIC) data were obtained from CCC for the five-year period from November 2016 to November 2021 (Appendix 19.3, App Doc Ref 5.4.19.3, Appendix D).

3.1.41 A total of five collisions were recorded in the vicinity of Horningsea excluding collisions recorded at junction 34 of the A14. Of these five collisions, two were classified as slight and three were classified as serious. No fatal collisions were recorded.

3.1.42 Two slight collisions were recorded in 2018 and 2020, respectively. Neither collision involved vulnerable individuals. No common pattern can be identified to explain the occurrence of these collisions.

3.1.43 Three serious collisions were recorded and occurred on Horningsea Road. No vulnerable individuals were involved. No common pattern can be identified to explain the occurrence of these collisions.

3.1.44 Table 3-5 summarises the recorded conditions for serious collisions.

Table 3-5: Overview of serious collisions

Location	Date and time	Road surface conditions	No. of vehicles	Weather
Clayhithe Road	28.09.2020, 16:04	Dry	3	Fine without high winds
Clayhithe Road	27.02.2021, 11:01	Dry	3	Fine without high winds
Horningsea Road	09.05.2021, 21:44	Dry	1	Fine without high winds

Source: CCC

3.1.45 On the A14 approaching junction 34 and at junction 34 itself, four collisions were recorded. No common pattern can be identified to explain the occurrence of these collisions. An overview of these collisions is provided in Table 3-6.

Table 3-6: Overview of collisions in the vicinity of the A14

Severity	Location	Date and time	Road surface conditions	No. of vehicles	Weather
Fatal	A14 - 143 m from the junction with A14	13.05.2021, 09:13	Dry	1	Fine without high winds
Serious	Junction 34 A14	23.11.2017, 17:27	Dry	3	Fine without high winds
Slight	A14 on-slip near junction with Horningsea Road	15.07.2021, 21:05	Dry	1	Fine without high winds
Slight	Junction 34 A14	24.10.2018, 09:58	Dry	2	Fine without high winds

Source: CCC

3.1.46 CCC defines collision clusters as a site which corresponds to a junction or 100-metre length of road (in a 3-year period) with:

- 6 or more injury collisions;
- 3 or more fatal or serious collisions; and
- 5 or more injury collisions providing that one of them is a fatal collision (Cambridgeshire County Council, 2011).

- 3.1.47 No collision clusters have been identified in or around Horningsea as per CCC's definition of collision clusters (Cambridgeshire County Council, 2011).
- 3.1.48 PIC data provided by CCC covers the period November 2016 to November 2021. PIC data provided for the year 2021 is provisional. Additionally, contributory factors have not been included in the data which limits the extent to which it is possible to determine if the road layout is causing road safety concerns.

Fen Ditton

- 3.1.49 The settlement of Fen Ditton is located to the south of the A14 and is connected to the wider road network via the B1047 Horningsea Road, which runs in a north-south direction through the settlement.

Walking in Fen Ditton

- 3.1.50 Fen Ditton is directly served by five PRoW (Footpaths 85/9, 85/1, 85/2, 85/3 and 85/16).
- 3.1.51 Footpath 85/9 starts on High Ditch Road on the eastern edge of Fen Ditton, and extends for approximately 1km south, providing an off-road pedestrian connection to the A1303 Newmarket Road. This footpath also provides a pedestrian route between Fen Ditton and the Cambridge Ice Arena and the Newmarket Road Park & Ride site.
- 3.1.52 Footpath 85/1 starts at the junction of Church Street and the High Street within Fen Ditton. It extends approximately 500m south, providing an off-road pedestrian connection to Howard Road in Barnwell.
- 3.1.53 Footpath 85/2 starts approximately 150m to the west of footpath 85/1 and extends south-west running parallel to the River Cam. It provides a connection to the recently completed Chisholm Trail, a walking and cycling route, which provides a partial off-road and traffic-free route between Cambridge railway station and Cambridge North railway station.
- 3.1.54 Footpath 85/3 starts on Church Street/Green End and runs north, connecting with Footpaths 85/4 and 85/6.
- 3.1.55 Footpath 85/16 is a short 50m path running from Green End to the River Cam. It does not provide a through route to any other paths or roads.
- 3.1.56 Within Fen Ditton, High Ditch Road, the High Street and the B1047 Horningsea Road have footways on both sides of the road. Signalised toucan crossings are provided on the B1047 Horningsea Road at both the junction with the High Street/High Ditch Road and outside Fen Ditton Community Primary School to the north of the village. Church Street and Green End have a narrow footway on one side of the road. Despite this, existing pedestrian facilities provide a mostly pedestrian friendly environment.
- 3.1.57 Appendix A, Figure A.20 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the PRoW network in and around the vicinity of Fen Ditton.

3.1.58 Table 3-7 provides pedestrian (including cyclists and equestrians) flows on Horningsea Road/Low Fen Drove Way and Low Fen Drove Way/High Ditch Road.

Table 3-7: Pedestrian movements

	Horningsea Road/Low Fen Drove Way	Low Fen Drove Way/High Ditch Road
AM peak (08:00 – 09:00)	4	4
PM peak (17:00 – 18:00)	20	16

Source: Mott MacDonald

Cycling in Fen Ditton

3.1.59 The Fen Ditton to Horningsea Cycleway, as described earlier in paragraph 3.1.23, runs alongside Horningsea Road for 2km starting immediately north of Fen Ditton and continuing north to the village of Horningsea.

3.1.60 A separate shared use pedestrian and cycleway also runs on the west side of Horningsea Road for approximately 200m from the junction with the High Street/High Ditch Road to Fen Ditton Community Primary School. There are two signalised toucan crossings providing a connection between this route and the Fen Ditton to Horningsea Cycleway. This route is lit via street lighting.

3.1.61 To the south of the junction between the B1047 Horningsea Road and the High Street/High Ditch Road, a shared use pedestrian and cycleway runs along the eastern edge of the B1047 Ditton Lane for approximately 360m. This provides a connection between Fen Ditton and National Cycle Route (NCR) 51.

3.1.62 NCR 51 is an off-road cycle path that provides a route towards Cambridge, including connections with the Chisholm Trail. It also provides a longer distance cycle route, connecting Cambridge with Ipswich and Colchester to the east, and Bedford, Milton Keynes, and Oxford to the west. It can also be accessed from Fen Ditton by cycling southbound on Footpath 85/1.

3.1.63 Fen Ditton will be served by both the proposed Horningsea Greenway and the proposed Swaffhams Greenway (Greater Cambridge Partnership, 2022). The Horningsea Greenway will use the existing Fen Ditton to Horningsea Cycleway, providing an active travel route between Fen Ditton and Horningsea. The proposed route will include a new wider path on the A14 bridge (Partnership, 2022). The Swaffhams Greenway will provide an active travel route to Swaffham Prior in the east (including a connection to the proposed Bottisham Greenway) and Midsummer Common in the west (including a connection with the recently completed Chisholm Trail).

3.1.64 Appendix A, Figure A.23 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the cycle network in and around the vicinity of Fen Ditton.

Public transport in Fen Ditton

3.1.65 Fen Ditton is served by bus route 19 (Landbeach-Cambridge). Bus route 19 only operates on weekdays (bustimes.org, 2022), with services running twice in the morning at 07:26 and 09:56 and twice in the afternoon at 12:55 and 18:20. This

service operates from one set of bus stops on the High Street in the village (known as the Blue Lion PH stops).

- 3.1.66 The southbound Blue Lion PH stop has a bus shelter, but there is no bus shelter at the northbound Blue Lion PH stop. Neither bus stop has real time bus information screens.
- 3.1.67 This bus route provides connections with Drummer Street Bus Station in Cambridge to the south, and Waterbeach Station to the north, allowing for further onward travel.
- 3.1.68 The nearest railway station is Cambridge North, located approximately 1.1km to the east. The shortest route to access this station is via the Chisholm Trail Bridge over the River Cam.
- 3.1.69 Public transport services and related infrastructure are shown in Appendix A, Figure A.24 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

Local road network in Fen Ditton

- 3.1.70 Fen Ditton can be accessed from the north via the B1047 Horningsea Road. This road can be accessed from the A14 (junction 34) via a signal-controlled junction servicing an eastbound only off-slip, or via Horningsea Road from Horningsea to the north. To the south, Fen Ditton can be accessed via Ditton Lane, which provides a connection to the A1303 Newmarket Road. The village can also be reached from two unclassified roads (High Ditch Road to the east, and Church Street/Green End to the west).
- 3.1.71 The B1047 Horningsea Road is a single carriageway road with a width of approximately 7m, with the Fen Ditton to Horningsea shared pedestrian/cycleway running along the western side of the carriageway. For the first 200m north of the junction with the High Street/High Ditch Road, a separate shared pedestrian/cycleway runs on the eastern side of the carriageway.
- 3.1.72 The High Street and High Ditch Road are single carriageway roads, both of which are approximately 7m wide and have footways on both sides of the road.

Traffic flows in Fen Ditton

- 3.1.73 The following junctions were surveyed in the vicinity of Fen Ditton:
- High Ditch Road / Low Fen Drove Way;
 - junction 35 of the A14; and
 - A1303 Newmarket Road / High Ditch Road.
- 3.1.74 Table 3-8 provides an overview of the junctions in Fen Ditton.

Table 3-8: Surveyed junctions in Fen Ditton

Junction name	Characteristics	Method of control	Key movements
High Ditch Road / Low Fen Drove Way	Three arm junction	Non-signalised	High Ditch Road westbound High Ditch Road eastbound
Junction 35 of the A14 (the Quy Interchange)	Four-arm roundabout	Non-signalised	Newmarket Road northbound Newmarket Road southbound
A1303 Newmarket Road / High Ditch Road	Three arm junction	Non-signalised	Newmarket Road westbound Newmarket Road eastbound

Source: Mott MacDonald

3.1.75 Survey results have not been included for junction 35 of the A14, High Ditch Road and A1303 Newmarket Road as they are not affected by the construction route, and therefore do not require assessment.

Collision analysis in Fen Ditton

3.1.76 PIC data was obtained from CCC for the five-year period from November 2016 to November 2021.

3.1.77 A total of 11 collisions were recorded in the vicinity of Fen Ditton and on High Ditch Road (excluding the collisions at junction 34 of the A14, which have been described in relation to Horningsea). Of these 11 collisions, eight were classified as slight and three were classified as serious. No fatal collisions were recorded.

3.1.78 Six slight collisions were recorded in Fen Ditton itself. Two collisions were located immediately outside of the Fen Ditton Community Primary School and involved a collision between a vehicle and children. At the High Ditch Road/B1047 Horningsea Road junction, two slight collisions occurred between vehicles and did not involve any vulnerable users. Further north along B1047 Horningsea Road (close to the Musgrove Way bus stop), two slight collisions occurred between vehicles with no vulnerable users involved. No common pattern can be identified to explain the occurrence of these collisions.

3.1.79 To the east of Fen Ditton on High Ditch Road, two further slight collisions occurred. Both collisions involved a collision between a vehicle and two children. No common pattern can be identified to explain the occurrence of these collisions.

3.1.80 Of the three serious collisions recorded in the vicinity of Fen Ditton, two involved vulnerable road users. One was a collision between a vehicle and a cyclist and one was collision between a vehicle and a pedestrian. Again, no common pattern can be identified to explain the occurrence of these collisions.

3.1.81 Table 3-9 summarises the recorded conditions for serious collisions in the vicinity of Fen Ditton.

Table 3-9: Overview of serious collisions in the vicinity of Fen Ditton

Location	Date and time	Road surface conditions	No. of vehicles	Weather
High Ditch Road	07.10.21, 18:55	Dry	1	Fine without high winds
High Street at junction with Ditton Land (B1047)	12.10.19, 23:41	Wet/damp	2	Raining without high winds
Outside number 56 B1047 Horningsea Road	05.10.16, 19:14	Dry	1	Fine without high winds

Source: CCC

3.1.82 No cluster of collisions has been identified in or around Fen Ditton as per CCC's definition of collision clusters.

3.1.83 PIC data provided by CCC covers the period November 2016 to November 2021. PIC data provided for the year 2021 is provisional. Contributory factors have not been included in the data which limits the extent to which it is possible to determine if the road layout is causing road safety concerns.

Waterbeach

3.1.84 The settlement of Waterbeach is located to the east of the A10. It is connected to the A10 by Denny End Road and Car Dyke Road. Station Road provides a connection to the south and east. Beyond the level crossing, Station Road becomes Clayhithe Road which continues south towards Horningsea.

Walking in Waterbeach

3.1.85 Most of the PRow in the vicinity of Waterbeach are located within Waterbeach Green to the south (Footpaths 247/3, 247/4, 247/5 and 247/6).

3.1.86 Footpath 247/1 and 247/2 are situated to the west of Waterbeach Green and north of Gibson Close. They lead directly to a pathway along the A10, which provides a more pedestrian friendly and direct route connecting the A10 to Waterbeach Green in the centre (when compared to using Denny End Road and Car Dyke Road which connect Waterbeach to the A10 at northern and southern most points of the settlement).

3.1.87 Within the existing road network in Waterbeach, there are footways along at least one side of all roads. Coupled with the 30mph speed limit within the village, this provides a generally pedestrian friendly environment.

3.1.88 Bannold Road is a quiet two-way residential road with street lighting throughout, but varying levels of footpath provision. Notably, east of the Way Lane/Bannold Road junction, footways are either only found on one side of the road or are not provided at all.

- 3.1.89 Bannold Drove is a country lane with grass verges on both side and no pedestrian infrastructure.
- 3.1.90 South east of Waterbeach, Clayhithe Road is a two-way road with grass verges on both sides. Clayhithe Road provides a direct connection from Waterbeach to Horningsea, further to the south. Pedestrian infrastructure is available on one side of Clayhithe Road coming into Waterbeach, but the footways remain narrow with width of less than one metre.
- 3.1.91 To the west towards the outskirts of Waterbeach, Denny End Road and Car Dyke Road provide access and egress to and from the A10. Both roads have a varying level of pedestrian infrastructure provision, with either narrow footways or no footways provided.
- 3.1.92 Appendix A, Figure A.8 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the PRoW network in and around the vicinity of Waterbeach.

Cycling in Waterbeach

- 3.1.93 National Cycle Route (NCR) 11 connects Waterbeach to Cambridge city centre. The route begins to the east of Waterbeach station and runs parallel to the River Cam passing the villages of Horningsea and Fen Ditton. This scenic route is largely used for leisure purposes. It is not generally used for commuting as it skirts around the rural fringe and does not provide a direct route to Cambridge city centre.
- 3.1.94 Currently Waterbeach has poor cycling infrastructure beyond the A10 path and the Haling Way along the River Cam. Both paths have been reported to be narrow and inconvenient, and overall unsuitable for cyclists from a safety perspective (Waterbeach Cycling Campaign, 2020).
- 3.1.95 The cycle path along the eastern side of the A10 is narrow, unlit and intersects with driveways. Despite providing a direct connection to Milton, this is not an attractive route given its location and condition.
- 3.1.96 The proposed Waterbeach Greenway will provide a direct active travel route to travel from Waterbeach into Cambridge. The route will run almost in parallel to the railway line between Waterbeach station and Cambridge North station. Currently, the Greenway scheme is undergoing detailed design.
- 3.1.97 It is expected that the proposed Waterbeach Greenway will improve accessibility to the overall cycle network in Cambridgeshire from Waterbeach. It will connect to other cycling routes once in Cambridge, such as the Chisholm Trail.
- 3.1.98 Appendix A, Figure A.11 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the cycle network in and around the vicinity of Waterbeach.

Public transport in Waterbeach

- 3.1.99 Waterbeach is served by series of bus routes 9 (Cambridge-Littleport) and 19 (Landbeach-Cambridge), which connect the village to Milton and Cambridge to the south, and to Littleport to the north. Waterbeach station also provides a direct link to Cambridge North station and Cambridge station. The bus routes and stops, as well

as Waterbeach station are shown in Appendix A, Figure A.11 of the TA (App Doc Ref 5.4.19.3).

3.1.100 Bus route 9 (Cambridge-Littleport) operates every hour on Mondays-Saturdays and has stops on Denny End Road and Station Road (at the junction with Lode Road).

3.1.101 Bus route 19 (Landbeach-Cambridge) only operates on Mondays-Fridays and is far less frequent with on four services a day – two services between 07:00 and 10:00 and then one service at 12:00 and one service at 17:00. These services all stop on High Street, Bannold Road and Denny End Road.

3.1.102 Bus stops within Waterbeach on construction traffic routes feature the following facilities:

- the Pembroke Avenue bus stops have bus shelters. Neither stop features real time bus information screens;
- the Winfold Road bus stops have no bus shelters or real time bus information screens;
- the Barracks southbound bus stop has a bus shelter but there is no shelter at the northbound bus stop. Neither stop features real time bus information screens;
- the Waddlelow bus stops have no bus shelters or real time bus information screens;
- the Gibson Close southbound bus stop has both a bus shelter and a real time bus information screen. However, the northbound bus stop has no bus shelter or real time bus information screen;
- the Recreation Ground southbound bus stop has both a bus shelter and a real time bus information screen. The northbound bus stop has no bus shelter or real time bus information screen;
- the Car Dyke Road bus stops have no bus shelters or real time bus information screens. Access to the westbound stop is inhibited by vegetation overgrowth;
- the St Andrew's Hill bus stops have no bus shelters or real time bus information screens; and
- the Lode Avenue bus stops have no bus shelters or real time bus information screens.

3.1.103 The existing Waterbeach station is situated to the south east of Waterbeach along Station Road. Network Rail (NR) operates the station and is served by Great Northern and Greater Anglia rail services.

3.1.104 Great Northern runs southbound services to London King's Cross via Cambridge, Royston and Letchworth Garden City, and northbound services to King's Lynn via Ely,

Littleport, Downham Market and Watlington. During peak hours, services run every 30 minutes. At all other times the services are hourly (Greater Anglia, 2022).

3.1.105 Greater Anglia provides peak hour services to London Liverpool Street via stops including Cambridge North, Cambridge, and Stansted Mountfitchet and to King’s Lynn via the same stops as mentioned above.

3.1.106 Table 3-10 summarises the number of passenger services at Waterbeach railway station.

Table 3-10: Rail passenger services at Waterbeach railway station

Weekday Services Calling at Waterbeach		Between 0700hrs and 1000hrs (3 hours)	Between 1600hrs and 1900hrs (3 hours)	Daily service count
Great Northern Service	Southbound: Towards Cambridge and London	6	6	20
	Northbound: Ely and Kings Lynn	3	3	12
Greater Anglia Services	Southbound: Cambridge and London	6 (All to Kings Cross)	6 (All to Kings Cross)	22
	Northbound: Ely and Kings Lynn	3	3	12
Total		18 (6 per hour)	18 (6 per hour)	66

Source: National Rail

3.1.107 In addition to the above stopping services, there are other passenger and freight services between Cambridge and Ely that do not stop at Waterbeach.

3.1.108 An Automatic Half Barrier (AHB) level crossing is located on Station Road. No pedestrian or cycle bridge is available over the railway, which means all road users coming in or out of Waterbeach via the Station Road-Clayhithe Road route must wait at the barriers. The level crossing is therefore frequently used as it is located on the only existing access/egress route for users coming in or out of Waterbeach via Clayhithe Road.

3.1.109 Cycle parking is provided at Waterbeach railway station. The northbound platform has 12 cycle parking spaces.

3.1.110 A station car park is available to the south of Waterbeach station and can be accessed via Clayhithe Road. A total 83 parking spaces are available. The car park is located approximately 110m south east of the level crossing.

3.1.111 Public transport services and related infrastructure are shown in Appendix A, Figure A.12 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

Local road network in Waterbeach

- 3.1.112 Waterbeach can be accessed from the A01 to the west via Denny End Road and Car Dyke Road. The Car Dyke Road/A10 junction is a priority T-junction. The Denny End Road/A10 junction is a signal-controlled junction.
- 3.1.113 The A10 is a major road which lies to the immediate west of Waterbeach and connects the settlement to Milton and Cambridge to the south and Chittering and Stretham to the north. There are varying speed limits on the A10, with the section between Denny End Road and Car Dyke Road having a speed limit of 40mph.
- 3.1.114 The main road network within Waterbeach village comprises Denny End Road, Car Dyke Road, High Street, Bannold Road and Station Road. The existing Waterbeach Water Recycling Centre (WRC) can be accessed from Bannold Drove and Long Drove via Bannold Road.
- 3.1.115 Bannold Drove is a country lane with a width of about 3.5-5m with grass verges on both sides. No pedestrian infrastructure or street lighting is available.
- 3.1.116 Long Drove is a country lane with a width of about 2.5-3m with grass verges on both sides. No pedestrian infrastructure or street lighting is available.
- 3.1.117 The Waterbeach pipeline works corridor will be accessed during construction via Clayhithe Road, a two-way road with no pedestrian infrastructure and street lighting.

Traffic flows in Waterbeach

- 3.1.118 Existing traffic flows in Waterbeach have been determined using traffic data collected in December 2021.
- 3.1.119 -Table 3-11 provides an overview of the junctions, key movements and observed traffic in Waterbeach.

Table 3-11: Surveyed junctions in Waterbeach

Junction name	Characteristics	Method of control	Key movements
A10 Ely Road/Denny End Road	Three arm junction	Signalised	Ely Road southbound Ely Road northbound
Denny End Road/Bannold Road	Three arm junction	Non-signalised	Denny End Road northbound Denny End Road southbound
Bannold Road/Bannold Drove	Three arm junction	Non-signalised	Bannold Road westbound Bannold Road eastbound
A10 Ely Road/Car Dyke Road	Three arm junction	Non-signalised	Ely Road northbound Ely Road southbound

Source: Mott MacDonald

- 3.1.120 Survey results for Waterbeach are provided in Table 3-12.

Table 3-12: Traffic flows at junctions in Waterbeach (total vehicles)

Junction	AM Peak (08:00 – 09:00)		PM Peak (17:00 – 18:00)	
	Total Vehicles	HGV	Total Vehicles	HGV
A10 Ely Road/Denny End Rd	1579	140	1561	54
Denny End Rd/Bannold Rd	626	17	624	3
Bannold Rd/Bannold Drove	36	1	18	0
A10 Ely Road/Car Dyke Rd	1766	137	1714	57

Source: Mott MacDonald

Collision analysis in Waterbeach

- 3.1.121 A total of 32 personal injury collisions were recorded in the vicinity of Waterbeach. Of these 32 collisions, 21 were classified as slight, nine were classified as serious and two were classified as fatal.
- 3.1.122 Of the 21 slight collisions, 11 collisions were recorded within Waterbeach itself. Two slight collisions involved vulnerable road users – one was a collision between a vehicle and a cyclist, and one was a collision between a vehicle and a pedestrian. These 11 slight collisions do not form a cluster and no common patterns could be discerned.
- 3.1.123 At the A10/Denny End Road junction, eight slight collisions were recorded. Of these, three collisions involved a right-turning vehicle from the A10 onto Denny End Road while the remaining six did not involve any vehicle manoeuvres. Despite a high concentration of slight collisions at the A10/Denny End Road junction, no common pattern could be discerned.
- 3.1.124 One further slight collision was recorded on the section of the A10 between Denny End Road and Car Dyke Road.
- 3.1.125 Of the nine serious collisions, two occurred in Waterbeach itself and did not involve vulnerable users. One collision at the Bannold Road/Cody Road junction involved a cyclist. The remaining six collisions took place on the section of the A10 between Denny End Road and Car Dyke Road, or at the junctions with these two roads. Half of these collisions involved a right-turning vehicle from the A10 (two vehicles turning into Denny End Road, one vehicle turning into Car Dyke Road) while the other half did not involve any manoeuvres. Two separate collisions involved an old age pensioner (OAP) and a child. No common pattern can be ascertained for the serious collisions in Waterbeach itself. Equally, despite a high concentration of serious collisions at the A10/Denny End Road junction, no common patterns can be determined.
- 3.1.126 Table 3-13 summarises the recorded conditions for serious collisions.

Table 3-13: Overview of serious collisions in Waterbeach

Location	Date and time	Road surface conditions	No. of vehicles	Weather
C210 Station Road Waterbeach	20.02.2016, 17:08	Dry	3	Fine without high winds
Clayhithe Road B1047	31.7.2016, 01:45	Dry	1	Fine without high winds
Waterbeach A10 to Denny End Road	12.10.2016, 12:30	Wet/damp	1	Raining without high winds
Ely Road A10 at junction with Car Dyke Road	18.08.2017, 16:45	Dry	2	Fine without high winds
A10 Ely Road	27.06.2018, 07:28	Dry	2	Fine without high winds
Cody Road at junction with Bannold Road	23.05.2019, 20:55	Dry	2	Fine without high winds
Ely Road (A10) at junction with Denny End Road	06.11.2019, 18:50	Dry	2	Fine without high winds
Ely Road (A10) at junction with Denny End Road	11.11.2019, 12:50	Wet/damp	2	Fine without high winds
Ely Road (A10) – 143 metres from junction with Denny End Road	04.07.2020, 21:00	Dry	1	Fine without high winds

Source: CCC

3.1.127 Two fatal collisions occurred on the section of the A10 between Denny End Road and Car Dyke Road in the vicinity of Waterbeach. Neither collision involved any vulnerable users. Table 3-14 summarises the recorded conditions for fatal collisions.

Table 3-14: Overview of fatal collisions in Waterbeach

Location	Date and time	Road surface conditions	No. of vehicles	Weather
Ely Road at junction with unclassified road	14.05.2020, 10:27	Dry	3	Fine without high winds
Ely Road (A10) – 29m from junction with Waterbeach Road	22.01.2021, 15:53	Dry	2	Fine without high winds

Source: CCC

3.1.128 Within the settlement of Waterbeach itself, no collision cluster can be identified due to the low concentration of collisions in the area.

3.1.129 For the section of the A10 between Denny End Road and Car Dyke Road, and the section of the A10 approaching towards the A10/Denny End Road junction, a collision cluster can be identified composed of:

- five serious collisions; and
- nine slight collisions.

3.1.130 The A10/Denny End Road junction is a staggered T-junction with a 40mph speed limit. Table 3-15 below provides an overview of the collisions making up part of the cluster.

Table 3-15: Overview of clusters of collisions in Waterbeach

Severity	Location	Date	Road surface conditions	No. of vehicles	Weather
Serious	A10 (Ely Road) – 143m from the junction with Denny End Road	04.07.2020	Dry	1	Fine without high winds
Serious	Waterbeach: A10 (Ely Road) to Denny End Road	12.10.2016	Wet/damp	1	Raining without high winds
Serious	A10 (Ely Road)	27.06.2018	Dry	2	Fine without high winds
Serious	A10 (Ely Road) at the junction with Denny End Road	11.11.2019	Wet/damp	2	Fine without high winds
Serious	A10 (Ely Road) at the junction with Denny End Road	06.11.2019	Dry	2	Fine without high winds
Slight	A10 (Ely Road) at the junction with Denny End Road	26.11.2019	Dry	2	Fine without high winds
Slight	A10 (Ely Road) at the junction with Denny End Road	06.06.2016	Dry	3	Fine without high winds
Slight	Waterbeach: A10 (Ely Road) with Denny End Road	06.08.2016	Dry	4	Fine without high winds
Slight	A10 (Ely Road) junction with Denny End Road	25.02.2016	Dry	2	Fine without high winds
Slight	A10 (Ely Road) exact location not known	13.04.2016	Wet/damp	2	Fine without high winds
Slight	A10 (Ely Road) Waterbeach	12.12.2017	Frost/ice	1	Fine without high winds
Slight	A10 (Ely Road) at the junction with Denny End Road	05.01.2018	Dry	2	Fine without high winds
Slight	A10 (Ely Road) junction with Denny End Road	31.08.2019	Dry	2	Fine without high winds
Slight	A10 (Ely Road)	22.10.2019	Dry	3	Fine without high winds

Source: CCC

3.1.131 PIC data provided for the year 2021 is provisional. Additionally, contributory factors have not been included in the data which limits the extent to which it is possible to determine if the road layout is causing road safety concerns.

Milton

3.1.132 The settlement of Milton is located north of the A14. It is connected to junction 33 of the A14 (the Milton Interchange) via Cambridge Road. The parish of Milton covers some of the Cambridge Science Park to the south of the A14.

Walking in Milton

3.1.133 No PRoW currently exists either within or starting from Milton.

3.1.134 Pedestrians looking to access the nearest PRoW, Footpath 162/1 along the River Cam, will need to walk approximately 1.3km along Fern Road from the centre of Milton. This narrow lane features no footways along much of its length and requires pedestrians to cross over an Automatic Half Barrier (AHB) level crossing.

3.1.135 Within the existing road network of Milton, footways run along both sides of Cambridge Road/High Street through the centre of the village. There are three pedestrian crossing facilities on this road (one raised table zebra crossing, one zebra crossing, and one traffic island). Coupled with the 30mph speed limit and some traffic calming measures within the village, this provides a mostly pedestrian friendly environment on the main route through Milton. Most side roads and residential streets within Milton also feature footways on both sides of the road.

3.1.136 The A10 has no pedestrian facilities, aside from a pedestrian footbridge linking separate sides of Butt Lane. This provides a pedestrian route between Milton and the Milton Road Park-and-Ride.

3.1.137 Appendix A, Figure A.26 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the PRoW network in and around the vicinity of Milton.

Cycling in Milton

3.1.138 Within Milton, Cambridge Road/High Street features both on-road advisory cycle lanes and a shared pedestrian and cycleway on the eastern side of the road. The shared pedestrian and cycleway runs north to south from the junction of Ely Road and North Lodge Park to the southern edge of Milton. It then crosses over the A14 via the Jane Coston Cycle Bridge, providing a connection between Milton and Chesterton and connecting Cambridge Road with Cowley Road. This provides the most direct cycling route into Cambridge city centre.

3.1.139 Within Milton itself, there is limited cycle parking, aside from two cycle racks outside the shops adjacent to Edmund Close.

3.1.140 Local cycle routes are also available via off-road paths through Milton Country Park, and along Coles Road and Fen Road. The Fen Road cycle route provides a connection to National Cycle Route (NCR) 11 along the River Cam. This scenic route is largely used for leisure purposes. It is not generally used for commuting, as it skirts around the rural fringe and does not provide a direct route to Cambridge city centre. Consequently, this route is largely traffic free.

3.1.141 The proposed Waterbeach Greenway will pass through Milton. This will include a western spur from Waterbeach to the north side of Milton and an eastern spur to

the river and Haling Way. The route will continue along an existing path through Milton Country Park to the Jane Coston Bridge across the A14. A new, more direct route to Cambridge North railway station will involve the construction of an underpass under the A14. In both cases, the route will end at Cambridge North, providing a direct link to the Chisholm Trail (Greater Cambridge Partnership, 2021).

3.1.142 Appendix A, Figure A.29 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the cycle network in and around the vicinity of Milton.

Public transport in Milton

3.1.143 Milton is directly served by three bus routes: bus route 9 (Milton-Cambridge City Centre), bus route Citi 2 (Milton-Addenbrooke's Hospital), and bus route 604 (Milton-Impington). These services operate from five sets of bus stops in Milton (Winship Road, Barnabas Court, Edmund Close, Waggon & Horses, and College of West Anglia stops). Milton Park-and-Ride is also accessible from the centre of Milton.

3.1.144 Bus stops within Milton feature the following facilities:

- the Winship Road stops both have bus shelters and real time bus information screens;
- the Barnabas Court southbound stop has a bus shelter but there is no shelter at the northbound stop. Neither stop has real time bus information screens;
- the Edmund Close southbound stop has a bus shelter but there is no shelter at the northbound stop. Neither stop has real time bus information screens;
- the Waggon and Horses southbound has a bus shelter but there is no shelter at the northbound stop. Both stops have real time bus information screens; and
- the College of West Anglia southbound stop has a bus shelter but there is no shelter at the northbound stop. Neither stop has real time bus information screens.

3.1.145 Bus route 9 operates between Littleport in the north and Cambridge in the south and provides a half hourly service in the morning peak 06:30, and an hourly service throughout the rest of the day until 19:00. It operates from five sets of bus stops throughout Milton (Winship Road, Barnabas Court, Edmund Close, Waggon & Horses, and College of West Anglia stops) (Stagecoach, 2022).

3.1.146 Bus route Citi 2 provides a service between Milton (Winship Road, Barnabas Court, Edmund Close, Waggon & Horses, and College of West Anglia stops) and Addenbrooke's Hospital (via the centre of Cambridge) in the morning peak, and from Addenbrooke's Hospital (via the centre of Cambridge) to Milton in the evening peak, and on to Waterbeach and Landbeach. During the day, the service starts at Addenbrooke's Hospital and terminates at the Cambridge North Station. The bus service begins at 06:35 and ends at 22:45 and operates services every 20 minutes (Stagecoach, 2022).

- 3.1.147 Bus route 604 Line operates in a loop running from Milton to Impington via Butt Lane, before returning to Milton via the A14. The service is designed to serve students of Impington Village College. It therefore operates on school weekdays only, with a single outbound service at 8:30 from the Winship Road stop, and a single return service to the College of West Anglia stop via the A14. It operates from five sets of bus stops throughout Milton (Winship Road, Barnabas Court, Edmund Close, Waggon & Horses, and College of West Anglia stops), but can only be accessed from northbound bus stops (Moovit, 2022).
- 3.1.148 Milton Park-and-Ride can be accessed from the center of Milton by walking down Butt Lane and crossing a footbridge over the A10; a distance of approximately 800m. This facility offers a bus service that runs towards Drummer Street Bus Station in Cambridge. This bus service operates every 15 minutes from 06:45 to 18:00 and every 20 minutes 18:00 until 19:40 Monday to Saturday, and every 15 minutes from 08:45 until 17:45 on Sundays. A return bus service operates at the same frequencies until 20:00 Monday to Saturday, and 18:05 on Sundays (Cambridge Park & Ride, 2021). Milton Park-and-Ride also features 50 cycle parking spaces, and indoor waiting area facilities including toilets.
- 3.1.149 The nearest railway station is Cambridge North which is located approximately 2km from the centre of Milton.
- 3.1.150 Public transport services and related infrastructure are shown in Appendix A, Figure A.30 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

Local road network in Milton

- 3.1.151 Milton can be accessed from the A10 Ely Road via Ely Road (unclassified road). From the north, traffic uses a southbound only slip road, and from the south, traffic turns right at an unsignalised junction. Ely Road (unclassified road) is a single carriageway road approximately 7m in width, with a footway running alongside the east of the road until the road reaches the junction of North Lodge Park, when it becomes a shared use pedestrian and cycleway as it passes through Milton. Ely Road (unclassified road) has a 50mph speed limit until it reaches Milton, where it drops to 30mph as it passes through the village.
- 3.1.152 An unsignalised junction on the A10 approximately 750m to the south of the Ely Road junction can also be used to access Milton from the north, via Humphries Way and Landbeach Road. This junction features unsignalised pedestrian crossings and a short 130m section of shared pedestrian and cycleway. Both Humphries Way and Landbeach Road feature widths of approximately 6m. Humphries Way features footways on both sides of the carriageway, while Landbeach Road only features a footway on its western side until it reaches the junction with High Street. Both roads have a 30mph speed limit.
- 3.1.153 The A10 is wide single carriageway road with a width of approximately 10m. It bypasses Milton to the west and connects with junction 33 of the A14 (the Milton Interchange). The road features no footways and has a 50mph speed limit along the stretch of road running parallel to Milton.

3.1.154 From the south, Milton can be accessed from junction 33 of the A14 (the Milton Interchange) via Cambridge Road. Between the Milton Interchange and the roundabout junction providing access to a Tesco superstore, industrial units, and Milton Country Park, Cambridge Road is a single carriageway with width of approximately 8m and a 50mph speed limit. A shared-use pedestrian and cycleway runs along the southern side of road; however, this is heavily overgrown, and is likely no longer used, since the Jane Coston Bridge provides a safer alternative pedestrian/cycle route over the A14.

3.1.155 To the immediate north beyond the previously mentioned roundabout junction, the speed limit on Cambridge Road drops to 30mph, and the carriageway features advisory cycle lanes on both sides.

Traffic flows in Milton

3.1.156 Table 3-16 provides an overview of the junctions and the associated key movements in Milton.

Table 3-16: Surveyed junctions in Milton

Junction name	Characteristics	Method of control	Key movements
Milton Interchange (J33)	Five arm Roundabout	Signalised	A10 northbound Cambridge Road north-east A14 eastbound Milton Road southbound A14 westbound
A1309 Milton Rd/Cowley Rd	Three arm junction	Signalised	Milton Rd northbound Milton Rd southbound
Cowley Rd West/Cowley Rd East	Three arm junction	Non-signalised	Cowley Rd westbound Cowley Rd eastbound
Milton Rd/Cowley Park	Three arm junction	Signalised	Milton Rd northbound Milton Rd southbound
Milton Rd/Kings Hedges Rd/Green End Rd	Cross-junction	Signalised	Milton Rd northbound Milton Rd southbound
Green End Rd NE/Green End Rd SE	Three arm junction	Non-signalised	Green End Rd westbound Green End Rd eastbound

Source: Mott MacDonald

Collision analysis in Milton

3.1.157 The PIC study area does not include roads within Milton because no construction vehicles associated with the proposed WWTP will be permitted to use routes through the settlement.

- 3.1.158 A PIC analysis of the section of the A10 between junction 33 of the A14 (the Milton Interchange) and Ely Road has been undertaken. This includes the northbound approach to junction 33 (the Milton Interchange) as well as off-slip and on-slip roads to the A14.
- 3.1.159 In total, 36 collisions were recorded on the section of the A10 adjacent to Milton. Of these, 30 collisions were classified as slight, five were classified as serious and one was classified as fatal.
- 3.1.160 Of the five serious collisions, one collision involved a powered two-wheeler. No common patterns could be determined from these collisions.
- 3.1.161 Table 3-17 provides an overview of serious collisions which occurred on the section of the A10 adjacent to Milton.

Table 3-17: Overview of serious collisions in Milton

Location	Date and time	Road surface conditions	No. of vehicles	Weather
Milton: A10 at junction with Landbeach road	29.06.2017, 07:08	Dry	2	Fine without high winds
A10 entrance to Rectory Farm	18.03.2017, 16:06	Dry	2	Fine without high winds
Milton bypass (A10) - near Park and Ride	07.07.2021, 16:13	Dry	2	Fine without high winds
Milton bypass (A10) junction with Landbeach road	08.01.2020, 17:00	Dry	2	Fine without high winds
Milton bypass (A10) near junction with Humphries Way	20.04.2021, 17:55	Dry	2	Fine without high winds

Source: CCC

- 3.1.162 Table 3-18 provides information on the one fatal collision recorded on the section of the A10 adjacent to Milton. No vulnerable users were involved.

Table 3-18: Overview of fatal collisions in Milton

Location	Date and time	Road surface conditions	No. of vehicles	Weather
A10 (Ely Road) 100 metres south west of junction with Humphries Road	09.03.2017, 08:23	Dry	2	Fine without high winds

Source: CCC

- 3.1.163 Based on CCC's definition of a collision cluster (Cambridgeshire County Council, 2011), a single collision cluster has been identified at junction 33 (the Milton Interchange) (TIP ID 0176). The cluster comprises nine slight collisions. Table 3-19 provides an overview of the collisions making part of the cluster.

Table 3-19: Overview of collision cluster in Milton (TIP ID 0176)

Location	Date and time	Road surface conditions	No. of vehicles	Weather
Milton Road A10 roundabout A10 over A14	21/02/17, 12:52	Dry	1	Fine without high winds
A14	25/05/17, 18:13	Dry	2	Fine without high winds
Milton Road A1309 A10	05/05/16, 09:00	Dry	2	Fine without high winds
Milton Road (A1309) AT Junction with A10	13/06/21, 10:46	Dry	2	Fine without high winds
A10 Roundabout - Junction with A14	28/06/21, 16:10	Dry	2	Fine without high winds
Milton Road (A1309) NEAR Junction with A10	14/01/20, 12:25	Wet/Damp	2	Fine without high winds
Milton bypass (A10).	05/03/19, 13:00	Dry	2	Fine without high winds
A10 Junction with A14	18/10/19, 00:45	Wet/Damp	1	Raining without high winds
Under Junction 33 westbound A14	16/09/17, 16:53	Wet/Damp	3	Raining without high winds

Source: CCC

3.1.164 Of these nine collisions, two collisions involved a collision between a car and a powered two-wheeler in light and dry conditions in February 2017 and June 2021 with ‘no turn’ manoeuvres being made. A manoeuvre refers to the actions taken by a vehicle prior to it becoming involved in a collision. A ‘no turn’ manoeuvre means that a vehicle did not carry out any turning action such as changing lanes and turning across a junction (DfT, 2021).

3.1.165 PIC data provided for the year 2021 is provisional. Additionally, contributory factors have not been included in the data which limits the extent to which it is possible to determine if the road layout is causing road safety concerns.

Chesterton

3.1.166 The settlement of Chesterton is located to the south of the A14 and includes both Green End Road and Fen Road, which form part of the construction route required to access land to the east of the existing Cambridge WWTP.

Walking in Chesterton

3.1.167 Chesterton is directly served by two PRoW (Footpath 39/13 and 39/21).

3.1.168 Footpath 39/13 begins just south of the junction between Fen Road and Fallowfield, and heads northeast following the northern bank of the River Cam. It continues north until it becomes Footpath 162/1, which follows the River Cam north to Waterbeach, including connections with Footpath 85/6 at Baits Bite Lock.

- 3.1.169 Footpath 39/21 begins on Water Street and heads south over the River Cam via the Green Dragon Bridge. Just south of this bridge, it connects with Footpath 39/20 heading south to Garlic Row, and Footpath 39/22 which runs along the southern bank of the River Cam. Footpath 39/22 subsequently connects with Riverside to the south, and Footpath 39/17 to the north.
- 3.1.170 Green End Road features footways on both sides of the road, five pedestrian crossings (three signalised crossings, two zebra crossings, and one unsignalised crossing with a raised table), traffic calming measures (speed bumps), and a 20mph speed limit. This provides a mostly pedestrian-friendly environment.
- 3.1.171 Water Lane features footways on both sides of the road, two unsignalised pedestrian crossings with tactile paving, traffic calming measures (speed bumps), and a 30mph speed limit. This provides a mostly pedestrian-friendly environment.
- 3.1.172 Fen Road features footways on both sides of the road from Water Lane until the junction with Cheney Way. This section of Fen Road also features an unsignalised pedestrian crossing with tactile paving, traffic calming measures, and a 30mph speed limit, making it a mostly pedestrian-friendly environment.
- 3.1.173 Beyond the junction with Cheney Way, pedestrians walking along Fen Road must use a narrow footway on the western side of the road, which is overgrown in several places. This route also requires pedestrians to cross over an Automatic Half Barrier (AHB) level crossing, with no footway present for a 75m stretch of Fen Road north of this crossing.
- 3.1.174 Appendix A, Figure A.32 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the PRoW network in and around the vicinity of Chesterton.

Cycling in Chesterton

- 3.1.175 Within Chesterton, Milton Road has advisory cycle lanes on both sides of the carriageway from the junction with the Cambridgeshire Guided Busway to the junction between Milton Road and Green End. The northbound cycle lane also features an underpass underneath the Cambridgeshire Guided Busway. This route forms part of National Cycle Route (NCR) 51.
- 3.1.176 Green End Road has segregated cycleways on both sides of the carriageway heading south from the Milton Road/Green End Road junction until the roundabout junction between Green End and Nuffield Road. These segregated cycle lanes are separated from the main carriageway by parking bays and green infrastructure and feature 'floating' bus stops. This route forms part of the NCR 51.
- 3.1.177 Beyond the roundabout junction between Green End and Nuffield Road, Green End Road has advisory cycle lanes on both sides of the carriageway, with double yellow line restrictions to prevent parking. These extend south along Green End following the junction with Scotland Road, until the roundabout junction between Green End, High Street, and Water Lane. This route forms part of the NCR 51.
- 3.1.178 Water Lane has a short 100m two-way segregated cycle lane running from the junction with Fallowfield Road to the junction with Lilley Close. At the junction with

Fallowfield Road, cyclists can leave the road to join Footpath 39/13 along the River Cam. This provides onward connections to Waterbeach via Footpath 162/1, and the Chisholm Trail southbound via the Chisholm Trail Bridge over the River Cam.

3.1.179 Within Chesterton itself, there is limited cycle parking infrastructure, aside from four cycle racks outside the Nisa Local store on Green End, and three cycle racks on Fen Road by the entrance of Footpath 93/13.

3.1.180 Appendix A, Figure A.35 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the cycle network in and around the vicinity of Chesterton.

Public Transport in Chesterton

3.1.181 Within Chesterton, Green End Road and Fen Road are served by eight bus routes: bus route Citi 2, bus route 9, bus route X9, bus route 606, the busway route B, the busway route C, the park-and-ride service, and bus route 114. These services operate from seven sets of stops along the proposed route for construction traffic (Milton Road southbound, Scarsdale Close, Sherbourne Close, Franks Lane, Ashfield Road northbound, Fallowfield, and Izaak Walton Way). The Cambridgeshire Guided Busway can also be accessed within a short distance of Fen Road, at stops located adjacent to Cambridge North station.

3.1.182 Bus stops along the construction traffic route within Chesterton feature the following facilities:

- the Milton Road southbound stop has a bus shelter with a real time bus information screen. The northbound stop features no shelter or real time bus information screens;
- the Scarsdale Close stops are floating bus stops with no bus shelters and no real time bus information screens;
- the Sherbourne Close stops are floating bus stops. The southbound stop has a bus shelter and a real time bus information screen. The northbound stop features no shelter or real time bus information screens;
- the Franks Lane southbound stop is a floating bus stop with no bus shelter. The northbound stop is a standard bus stop with no shelter. Neither bus stop has real time bus information.
- the Ashfield Road southbound stop has a bus shelter. The northbound stop has no bus shelter. Neither stop has real time bus information;
- the Fallowfield westbound stop has a bus shelter. The eastbound stop has no bus shelter. Neither stop has real time bus information;
- the Izaak Walton Way stops features no bus shelters or real time bus information screens.

3.1.183 Bus route Citi 2 provides a service from Chesterton (Milton Road southbound, Scarsdale Close, Sherbourne Close, Franks Lane, Ashfield Road northbound stops) to Addenbrooke's Hospital to the south and Waterbeach/Landbeach to the north

during the morning and evening peaks. During the day, Bus Route Citi 2 travels between Addenbrooke's Hospital in the south and Cambridge North Station in the north. The bus service begins at 06:35 and ends at 22:45 and operates services every 20 minutes (Stagecoach, 2022).

- 3.1.184 Bus route 9 operates between Littleport in the north and Cambridge Drummer Street Bus Station in the south. It provides a half hourly service in the morning peak 06:30, and an hourly service throughout the rest of the day until 19:00 (Stagecoach, 2022). It operates from the Milton Road (southbound) bus stop.
- 3.1.185 Bus route X9 operates between Littleport in the north and Cambridge Drummer Street Bus Station in the south, on the same route as bus route 9. It operates between 7:30 and 18:25, offering an hourly service during the day, and a half hourly service in the evening peak (Stagecoach, 2022). It operates Monday and Friday only and serves the Milton Road (southbound) bus stop.
- 3.1.186 Bus route 606 operates between Impington Village College to the north, and Cambridge Drummer Street bus station to the south. It caters for students at local schools. This bus service therefore runs two bus services a day; a morning service beginning at Cambridge Drummer Street bus station at 08:10, and an afternoon service beginning at Impington Village College at 15:30 (Stagecoach, 2022). It operates on school days only and serves the Scarsdale Close, Sherbourne Close, Franks Lane, Ashfield Road, and Water Lane bus stops.
- 3.1.187 The busway route B (the busway, 2022) operates between Cambridge city centre (New Square) to the south and Hinchingsbrooke Hospital in Huntingdon to the north, with a short spur to Cambridge North station. It utilises the Cambridgeshire Guided Busway between Cambridge North station and St Ives. From Monday to Saturday, it operates services every 30 minutes beginning at 04:59 and ending at 23:10. On Sundays and public holidays, it offers hourly services beginning at 06:49 and ending at 22:15 (Stagecoach, 2022). It serves the Milton Road (southbound) bus stop.
- 3.1.188 The busway route C (the busway, 2022) operates between Long Road Sixth Form College in Trumpington to the south, via Cambridge towards Huntingdon town centre to the north. It utilises the Cambridgeshire Guided Busway between Cambridge North station and St Ives. It operates eight services per day: four southbound services in the morning peak at 10–20-minute intervals between 06:33 and 07:13, and four northbound services in afternoon at 10-20-minute intervals between 15:05 and 15:45 (Stagecoach, 2022). It serves the Milton Road (southbound) bus stop, meaning that only the morning peak services can be accessed from this stop.
- 3.1.189 The closest station to Chesterton is Cambridge North, located approximately 1.4km from the centre of Chesterton. Cambridge North station can be accessed via a pedestrian footpath running from Moss Bank, which can be accessed from Fen Road.
- 3.1.190 Great Northern runs southbound services to London King's Cross via Welwyn Garden City from Platform 1, and northbound services to King's Lynn via Ely, Littleport,

Downham Market and Watlington from Platform. During peak hours, services run every 30 minutes. At all other times the services are hourly.

- 3.1.191 Greater Anglia provides southbound services to London Liverpool Street via stops including Cambridge, Bishop Stortford from Platform 1, running every 30 minutes. A southbound service to Stansted airport also departs from Platform 1, running every hour. Northbound services to Norwich and Ely operate from Platform 2. Services to Norwich depart every 30 minutes, with services to Ely departing every 20 minutes.
- 3.1.192 Cambridge North station also provides access to the busway route B from Cambridge North station stops. This forms part of the Cambridgeshire Guided Busway.
- 3.1.193 Public transport services and related infrastructure are shown in Appendix A, Figure A.36 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

Local road network in Chesterton

- 3.1.194 From the north, traffic can access Chesterton using Milton Road. Milton Road is a wide single carriageway road approximately 10m in width. It has footways on both sides of the road, and advisory cycle lanes on both sides of the carriageway. There is also a signalised pedestrian crossing. To the north, Milton Road crosses over the Cambridgeshire Guided Busway with an at grade signalised crossing. A bus lane on the northbound carriageway of Milton Road runs from this junction approximately 100m to the south.
- 3.1.195 The junction between Milton Road, Green End Road, and Kings Hedges Road is a four-way signalised crossroads junction. Each junction arm features two approach and turning lanes, with the exception of Milton Road from the north, which features three approach and turning lanes. All four junction arms feature a signalised pedestrian crossing, with tactile paving and pedestrian islands.
- 3.1.196 Green End Road is a single carriageway road. For the first 400m south from the junction with Milton Road, it has carriageway width of approximately 6m, and is flanked on both sides by green infrastructure, parking bays, segregated cycle lanes, footways, and four sets of floating bus stops. There is also a zebra crossing. There are traffic calming measures (speed bumps) and a 20mph speed limit.
- 3.1.197 For the remaining 650m stretch of Green End Road, running south from the mini-roundabout junction between Green End Road and Nuffield Road, the carriageway has a width of approximately 8m, including advisory cycle lanes on both sides of the carriageway, flanked by footways. There are also two zebra crossings, a signalised pedestrian crossing, and an unsignalised pedestrian crossing with a raised table. There are traffic calming measures (speed bumps) and a 20mph speed limit.
- 3.1.198 Water Street is a single carriageway road with a width of approximately 6m. It has footways on both sides of the road, and a short 100m two-way segregated cycle lane running from the junction with Fallowfield Road to the junction with Lilley Close. It has traffic calming measures (speed bumps) and a 30mph speed limit.
- 3.1.199 Fen Road is a single carriageway road with a width of approximately 6m. It has footways on both sides of the road from the junction with Fallowfield until the

junction with Cheney Way. From there, Fen Road crosses an Automatic Half Barrier (AHB) level crossing over the railway, with no footway present for a 75m stretch of Fen Road north of this crossing. A narrow footway runs along the north side of Fen Road beyond this point. Fen Road has a 30mph speed limit.

Traffic flows in Chesterton

3.1.200 The following junctions were surveyed in Chesterton using MCCs which included queue length analysis:

- Scotland Road / Green End Road; and
- Green End Road / High Street / Water Lane.

3.1.201 ~~Table 3-20~~ Table 3-20 provides an overview of the junctions in Chesterton.

Table 3-20: Surveyed junctions in Chesterton

Junction name	Characteristics	Method of control	Key movements
Scotland Road / Green End Road	Three arm junction	Non-signalised	Green End Road westbound Green End Road eastbound
Green End Road / High Street / Water Lane	Three arm roundabout	Non-signalised	Green End Road / High Street westbound High Street / Green End Road eastbound
A1309 Milton Rd/Cowley Road	Three arm junction	Signalised	Milton Road northbound Milton Road southbound
Cowley Road West / Cowley Road East	Three arm junction	Non-signalised	Cowley Road westbound Cowley Road eastbound
Milton Road/Cowley Park	Three arm junction	Signalised	Milton Road northbound Milton Road southbound
Milton Rd / Kings Hedges Road / Green End Road	Cross-junction	Signalised	Milton Road northbound Milton Rd southbound
Green End Road NE / Green End Road SE	Three arm junction	Non-signalised	Green End Road westbound Green End Road eastbound

Source: Mott MacDonald

Collision analysis in Chesterton

3.1.202 The PIC study area for the purpose of the assessment only covers the construction routes through Chesterton, which extends southbound along Milton Road, Green End Road, Water Lane, Water Street and to the northern extent of Fen Road. No other roads in the vicinity of Chesterton are covered within PIC analysis.

3.1.203 A total of 43 collisions were recorded within the Chesterton PIC study area. Of these 43 collisions, 33 were classified as slight and ten were classified as serious. No fatal collisions were recorded.

3.1.204 Of the 33 slight collisions, 13 collisions took place on the section of Green End Road between the Milton Road/Green End Road junction and the Green End Road roundabout. Dry road conditions were noted for ten collisions and wet/damp road conditions were noted for three collisions. This section of Green End Road (between the Milton Road/Green End Road junction and the Green End Road roundabout) features several junctions but the majority of the collisions did not involve any turning manoeuvres. The five collisions that did involve a turning manoeuvre are summarised in ~~Table 3-21~~. Table 3-21.

Table 3-21: Overview of slight collisions involving a turning manoeuvre on Green End Road

Location	Date and time	Road surface conditions	No. of vehicles	Manoeuvre
Kendal Way near junction with Green End Road	25/07/19	Dry	2	Left turn
Green End Road at junction with Scotland Road	15/02/17	Dry	2	Right turn
Green End Road at junction with Nuffield Road	25/01/17	Dry	2	Right turn
Green End Road at junction with Franks Lane.	15/06/19	Dry	2	Right turn
Green End Road at junction with Scotland Road	15/10/20	Wet/damp	2	Right turn

Source: CCC

3.1.205 The following three of these collisions involved a car and cyclist:

- Kendal Way near the junction with Green End Road;
- Green End Road junction with Nuffield Road; and
- Green End Road junction with Franks Lane.

3.1.206 One collision involved a collision between a car and a powered two-wheeler at the Green Road junction with Scotland Road.

3.1.207 Of the ten serious collisions were recorded within the Chesterton PIC study area, five collisions involved a turning manoeuvre. These collisions are summarised in Table 3-22.

Table 3-22: Overview of serious collisions involving a turning manoeuvre

Location	Date and time	Road surface conditions	No. of vehicles	Manoeuvre
Green End Road at junction with Green Park	09/07/17, 14:00	Dry	2	Left turn
Green End Road at junction with Water Lane	01/03/17, 07:55	Dry	2	Right turn
Green End Road at junction with road leading to Brown's Field Youth and Community Centre	07/09/18, 07:35	Dry	2	Right turn

Location	Date and time	Road surface conditions	No. of vehicles	Manoeuvre
Green End Road at junction with Nuffield Road	12/03/18, 18:42	Wet/damp	2	Right turn
Green End Road near junction with Milton Road (A1309)	13/04/21, 17:07	Dry	2	Right turn

Source: CCC

- 3.1.208 All collisions involving a turning manoeuvre involved a collision between a car and a cyclist. The occurrence of collisions between a car and a cyclist is explained by the lack of cycling infrastructure on Green End Road prior to late 2018/2019, which made cyclists more vulnerable to cars, especially those making turning manoeuvres. Since 2019, footpaths have been narrowed to create a partially segregated cycle lane of around 1.7m to 2m width running parallel to Green End Road.
- 3.1.209 With the exception of the Green End Road/Milton Road junction, none of the junctions where collisions involving turning manoeuvres have been recorded (Table 3-21 and Table 3-22) are signalised. The Green End Road junctions with Kendal Way, Franks Lane, and Green Park are priority T-junctions. The Green End Road junctions with Scotland Road and Nuffield Road are both unsignalised roundabouts. The Green End Road junction with the access road to the Brown's Field Youth and Community Centre is unsignalised.
- 3.1.210 No collision clusters have been identified based on CCC's definition (Cambridgeshire County Council, 2011).
- 3.1.211 PIC data provided for the year 2021 is provisional. Additionally, contributory factors have not been included in the data which limits the extent to which it is possible to determine if the road layout is causing road safety concerns.

Collision history

- 3.1.212 A detailed summary of the PIC record within the study area in the 2016-2021 period is available in Appendix D of the TA (Appendix 19.3, App Doc Ref 5.4.19.3). PIC data provided for the year 2021 is provisional.
- 3.1.213 Over the road network study area reviewed, a total 174 collisions occurred with an average 35 collisions a year between 2016 and 2021. Of these:
- 76% of the collisions are classified as slight;
 - 21% of collisions are classified as serious; and
 - 3% of collisions are classified as fatal.
- 3.1.214 Collisions were mostly concentrated on the Strategic Road Network (A14 and A10) instead of the local road network within settlements in the study area. A detailed analysis of collision clusters is included in Appendix D of the TA (Appendix 19.3, App Doc Ref 5.4.19.3). Of these collisions, 73% did not involve a vehicle manoeuvre, 25% involved a vehicle making a right turn manoeuvre, 3% involved a vehicle making a

left turn manoeuvre and 1% involved a vehicle making both a left and right turn manoeuvre. No common causes or contributory factors were identified.

3.2 Future baseline

Background traffic growth (2021 to 2038)

- 3.2.1 The TA (Appendix 19.3, App Doc Ref 5.4.19.3) supporting the assessment of traffic and transport effects assesses the future baseline (i.e. without the Proposed Development). The TA (Appendix 19.3, App Doc Ref 5.4.19.3) considers the existing baseline (which is 2021) and is informed by survey data collected for the Proposed Development.
- 3.2.2 The future year assessment is undertaken for two forecast years, this is in line with WebTAG guidance: the year of commencing operation and a second forecast year, typically 5 years after the first year of operation. In recognition of CCC TA assessment guidance, when considering the strategic network, a design year 10 years post-full operation has also been considered for all access options. Therefore, the operation year will be 2028, year 5 will be 2033 and year 10 will be 2038. Assessment years are summarised as:
- Existing (2021): refers to existing/surveyed conditions to understand prevailing conditions (as per surveys undertaken and CCC counts);
 - Future baseline (existing plus committed development): refers to the peak construction year (2026). This is a combination of the 2021 existing baseline (factored to 2026), plus cumulative schemes which are forecast to be built by 2026;
 - Future baseline (existing plus committed development): refers to the decommissioning year (2028). This is a combination of the 2021 existing baseline (factored to 2028) plus cumulative schemes which are forecast to be built by 2028;
 - Future baseline 2033 (existing plus committed development): refers to the operation year five years after opening of the Proposed Development (2033). This is a combination of the 2021 existing baseline (factored to 2033) plus cumulative schemes which are forecast to be built by 2033; and
 - Future baseline 2038 (existing plus committed development): refers to the operation year ten years after opening of the Proposed Development. This takes account of the changes which are expected to arise because of the Proposed Development in the future design year of 2038. The Proposed Development is considered in context of both the net change from the existing baseline scenario and future baseline scenario to account for the changes associated with the cumulative schemes.
- 3.2.3 A TEMPro growth factor has been used to determine the growth of baseline traffic from a 2021 baseline (built using traffic survey data collected in December 2021 and May 2022) to the construction peak year (2026), the opening year (2028) and 10

years after opening (2038). The TEMPro growth factor used also encapsulates and accounts for traffic, both during construction and operation, of committed developments in the area. This has been agreed with CCC and documented in Technical Note TEMPro Growth Factors in Appendix K of the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

- 3.2.4 It has been agreed with CCC that a singular factor is able to account for future trip generation including trips from committed developments in 'Committed Development List' (Chapter 22: Cumulative Effects, App Doc Ref 5.2.22). As such, no further information on trip generation has been taken from the Transport Assessments of the committed developments in the area. Transport Assessments have been used for reference, and this includes the use of the Waterbeach New Town Transport Assessment and the Waterbeach Station Relocation Transport Assessment. Effects of the potential construction overlap with the Proposed Development and the Waterbeach New Town or Station redevelopment are covered in Cumulative Effects, section 4.5.
- 3.2.5 Key developments as agreed with CCC have been accounted for in terms of cumulative demand on the transport network include (these have been reviewed for further schemes and proposals that have come forward):
- Waterbeach New Town, including the relocation of the Waterbeach Station;
 - Marleigh Development;
 - Land north of Cherry Hinton; and
 - Cambridge Eastern Access Scheme (CEAS).
- 3.2.6 Improvements or alterations associated with either CCC's Local Cycling and Walking Infrastructure Plan (Greater Cambridge Partnership, 2021) and GCP's, this includes plans for the CEAS and Greater Cambridge Greenways project (Greater Cambridge Partnership, 2021), have been considered as part of any future baseline to be considered with the assessment for traffic and transport.

Impacts of climate change on future baseline

- 3.2.7 The likely ranges of change in climatic parameters including precipitation, temperature, wind speed, humidity and frequency of extreme weather are not considered to materially affect the future baseline described above for traffic and transport.

4 Assessment of Effects

4.1.1 The section presents the assessment of effects and sets out a preliminary assessment that takes into account primary and tertiary mitigation in determining effects and then considers secondary mitigation and the assessment of residual effects.

Reasonable worst-case scenario test

4.1.2 Peak traffic, where a combination of temporary activity is likely to increase the typical traffic movements, is tested as part of the Reasonable Worst-Case Scenario (RWC) scenario.

Construction Phase

4.1.3 For the assessment of construction and to represent the RWC scenario, a number of assumptions have been made:

- the hourly construction flows (based on the daily maximum flows over an 8-hour working day) for each of the individual elements of the scheme (the proposed WWTP, the outfall and FE pipeline, the waste water transfer tunnel, and the Waterbeach pipeline) have been determined and added together on the worst case assumption that they occur at the same time;
- for the Waterbeach pipeline, the construction flows do not correspond to the absolute peak of vehicle movements owing to the sequencing of the construction programme. This has been set up such that the eight week peak construction activities, and the associated construction vehicle movements, cannot occur at the same time as the construction of the proposed WWTP (including permanent access and landscape masterplan) and the waste water transfer tunnel;
- the hourly construction flows as identified in the first assumption have been added to the network peak hours (08:00-09:00 and 17:00-18:00) even though the CTMP (App Doc Ref 5.4.19.7) includes general restrictions on construction deliveries between 08:00-09:00, 15:00-16:00 and 17:00-18:00;
- no reduction in the worst case scenario construction peak hour(s) flow has been made to account for the application of the CTMP and CoCP which seeks to restrict construction vehicle movements to before and after the peak hours;
- the construction of structures (i.e., proposed WWTP (including permanent access and landscape masterplan), waste water transfer tunnel, Waterbeach pipeline) of the Proposed Development occur simultaneously;
- worker mobilisation has been modelled to take place in the peak hours; and
- short term intermittent activities would be required in the peak hours as part of the construction of the Proposed Development.

- 4.1.4 Owing to the sequencing of construction activities in practice, the construction of individual elements of the Proposed Development is unlikely to occur at the same time. Therefore, the results of the RWC scenario should be viewed as the worst-case assumptions for traffic movements.
- 4.1.5 While the RWC scenario considers that all construction work streams occur simultaneously, for the purpose of this assessment, each road link affected by the construction of the Proposed Development is assessed against the total peak hour vehicle flows required during the construction (2026) and decommissioning (2028) phases. This has been done in order to provide a deeper level of detail and clarity about the construction activities required for the Proposed Development.
- 4.1.6 Table 4-1 summarises the effects during the construction phase of the Proposed Development with primary, secondary and tertiary mitigation as set out in this section and shows the RWC scenario assessment and the mitigated impacts of the scheme proposals.

Table 4-1: Summary of effects for the construction phase during the RWC scenario with mitigation

Effect		Waste water transfer tunnel	Treated effluent pipeline to outfall	Proposed WWTP	Waterbeach Pipeline	Existing Cambridge WWTP
Severance	Mitigated RWC (primary, tertiary)	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant
	Mitigated RWC (with secondary mitigation)	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant
Pedestrian Delay	Mitigated RWC (primary, tertiary)	Slight: Not Significant	Major: Significant at PRoW 85/6 and 85/8	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant
	Mitigated RWC (with secondary mitigation)	Neutral: Not Significant	Major: Significant at PRoW 85/6 (residual)	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant
Driver Delay	Mitigated RWC (primary, tertiary)	Neutral: Not Significant	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant
	Mitigated RWC (with secondary mitigation)	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant
Fear and Intimidation	Mitigated RWC (primary, tertiary)	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant
	Mitigated RWC (with secondary mitigation)	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant
Accidents and safety	Mitigated RWC (primary, tertiary)	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant
	Mitigated RWC (with secondary mitigation)	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant
Hazardous loads	Mitigated RWC (primary, tertiary)	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant	Slight: Not Significant
	Mitigated RWC (with secondary mitigation)	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant	Neutral: Not Significant

Source: Mott MacDonald

Decommissioning Phase

- 4.1.7 There are 20 unique activities required to decommission the existing Cambridge WWTP. For the assessment of decommissioning of the existing Cambridge WWTP and to represent the RWC scenario, it is assumed that all decommissioning activities occur at the same time, which is unlikely to happen in practice.
- 4.1.8 The assessment of vehicle movements for decommissioning the existing Cambridge WWTP did not identify significant effects on severance, pedestrian delay, driver delay, fear and intimidation, accidents and road safety, and hazardous loads. The decommissioning of the existing Cambridge WWTP is therefore unlikely to generate significant effects.
- 4.1.9 Table 4-2 summarises the effects during the decommissioning of the existing Cambridge WWTP. This assessment did not identify significant effects on severance, pedestrian delay, driver delay, fear and intimidation, accidents and road safety, and hazardous loads. The decommissioning of the existing Cambridge WWTP is therefore unlikely to generate significant effects.

Table 4-2: Summary of effects for the decommissioning of the existing Cambridge WWTP during the RWC scenario

Effect	Scenario	Existing Cambridge WWTP
Severance	Mitigated RWC	Slight – Neutral
Pedestrian Delay	Mitigated RWC	Slight – Neutral
Driver Delay	Mitigated RWC	Slight – Neutral
Fear and Intimidation	Mitigated RWC	Slight – Neutral
Accidents and safety	Mitigated RWC	Slight – Neutral
Hazardous loads	Mitigated RWC	Slight – Neutral

Source: Mott MacDonald

Operation Phase

- 4.1.10 For the assessment of operation of the Proposed Development and to represent the RWC scenario, it is assumed that the office staff, operational staff and Discovery Center visitors all arrive or depart in the peak hours. The daily peak traffic has therefore been determined based on all parking spaces within the proposed WWTP being occupied in the peak hours.
- 4.1.11 In operation, the reasonable worst-case scenario test did not find significant effects on severance, pedestrian delay, fear and intimidation, accidents and road safety, and hazardous loads. A cumulative significant effect on driver delay has been identified.
- 4.1.12 Table 4-3 summarises the effects during the operation phase of the Proposed Development as set out in this section and shows the assessment and the mitigated impacts of the Proposed Development.

Table 4-3: Summary of effects for the operation phase of the Proposed Development during the RWC scenario

Effect		Proposed WWTP	Waterbeach Pipeline	Existing Cambridge WWTP
Severance	Mitigated RWC (primary, tertiary)	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Neutral	Slight – Neutral	Slight – Neutral
Pedestrian Delay	Mitigated RWC (primary, tertiary)	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Neutral	Slight – Neutral	Slight – Neutral
Driver Delay	Mitigated RWC (primary, tertiary)	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Neutral	Slight – Neutral	Slight – Neutral
Fear and Intimidation	Mitigated RWC (primary, tertiary)	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Minor	Slight – Neutral	Slight – Neutral
Accidents and safety	Mitigated RWC (primary, tertiary)	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Minor	Slight – Neutral	Slight – Neutral
Hazardous loads	Mitigated RWC (primary, tertiary)	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Neutral	Slight – Neutral	Slight – Neutral

Source: Mott MacDonald

4.2 Construction phase

- 4.2.1 The potential environmental impacts relating to traffic and transport from the construction phase of the Proposed Development have been assessed using the maximum design envelope (Table 2-12). These are the assumptions (maximum parameters) for the purposes of the traffic and transport assessment against which each impact has been assessed.
- 4.2.2 An assessment of the likely significant effects has been completed to take account of relevant primary and tertiary mitigation measures. Following the preliminary assessment any further mitigation measures (secondary mitigation) are identified and described. The assessment of likely significant effects is then carried out taking into account the identified secondary mitigation measures to identify the ‘residual’ environmental effects on traffic and transport.

4.2.3 The following list identifies construction activities that would result in impacts to the study area. This includes the use of the existing local roads and the SRN for construction vehicle access.

4.2.4 Construction traffic movements will be required for:

- the movement of materials and construction equipment to the Proposed Development;
- the movement of the construction workforce to and from the Proposed Development;
- the movement of excavated material from the area of land required for the construction of the waste water ~~waste water~~ transfer tunnel, the Waterbeach pipeline and the final effluent pipeline to the area of land required for the proposed WWTP and landscaping;
- the movement of waste from the Proposed Development construction locations; and
- the movement of some materials to construction areas that are classed as dangerous loads or that are classed as abnormal loads as defined in [Transporting abnormal loads](#) (DfT, 2022) – abnormal loads will be required for horizontal directional drilling rigs, access platforms, process tanks, and pipe bridges.

4.2.5 Construction activities will interact with existing transport infrastructure (such as existing roads, footpaths, and PRow) due to:

- the temporary use of land to install structures such as new pipelines, waste water transfer tunnel and for temporary compound areas;
- the temporary use of land for haul routes;
- open cut excavation crossing Horningsea Road to install final effluent pipeline; and
- the use of existing level crossings as part of the construction route (see figures for Waterbeach and Chesterton, available in Appendix A of the TA in Appendix 19.3 (App Doc Ref 5.4.19.3)).

4.2.6 Certain construction activities will require a temporary increase in construction vehicle movements. Examples of this could be:

- imported aggregate for project infrastructure and temporary working platforms;
- completion of large concrete pours to bases of process units;
- arrival of precast concrete units for tank walls; and
- delivery of asphalt to roads.

Project wide

4.2.7 This section considers potential effects related to project wide activities.

Combined Construction Peak

4.2.8 During the combined construction peak in Construction Year 3 (assumed to be 2026), a daily peak of ~~629~~627 vehicle movements would be required on Horningsea Road and junction 34 of the A14 to access and egress the construction works via the permanent access to the proposed WWTP. This assumes that the construction of the proposed WWTP (including permanent access and landscape masterplan), the waste water transfer tunnel and the Waterbeach pipeline traffic would all occur simultaneously.

4.2.9 This peak in total daily vehicle movements is comprised of construction vehicle movements from the following elements of the Proposed Development:

- ~~494~~492 daily total vehicle movements for the proposed main WWTP (including permanent access and landscape masterplan):
 - 280 HGV movements; and
 - ~~214~~212 car/LGV movements for workforce and deliveries.
- 67 daily total vehicle movements for the Transfer tunnel and shafts:
 - 40 HGV movements; and
 - 27 car/LGV movements for workforce and deliveries
- 68 daily total vehicle movements for the Waterbeach pipeline:
 - 40 HGV movements; and
 - 28 car/LGV movements for workforce and deliveries.

4.2.10 For the Waterbeach pipeline, typical construction vehicle numbers have been added on to the road network instead of the peak construction vehicle numbers, as stated within the assumptions of the RWC scenario. This has been done because the sequencing of the construction programme has been set up such that the eight week peak construction activities, and the associated construction vehicle movements, cannot occur at the same time as the construction of the proposed WWTP (including permanent access and landscape masterplan) and the waste water transfer tunnel.

4.2.11 This level of construction traffic has only been considered for the assessment of junction 34 and junction 33 of the A14 because these are the only parts of the road network that would potentially accommodate simultaneous traffic flows for all elements of the Proposed Development (i.e., proposed WWTP including permanent access and landscape masterplan, the waste water transfer tunnel and the typical operation phase of the Waterbeach pipeline).

4.2.12 Table 4-4 summarises the total construction flow used in the assessment of the Combined Construction Peak (RWC scenario).

Table 4-4: Two-way daily construction vehicle movements in the Combined Construction Peak (RWC scenario)

Structure of the Proposed Development	Total daily construction vehicle movements (HGVs and cars)
Proposed WWTP (including permanent access and landscape masterplan)	492
Waste water transfer tunnel and shafts	67
Waterbeach pipeline	68
Total	627

Note: The combined construction peak traffic flows are used for the assessment of construction effects on receptors at junction [33 and 34](#) of the A14

Source: Mott MacDonald

4.2.13 Table 4-5 summarises the two-way traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) during the 2026 Future Baseline and the 2026 Construction Peak (RWC scenario) on the road links relevant to the Combined Construction Peak.

Table 4-5: Combined Construction Peak: Two-way peak hour traffic flows in the 2026 Future Baseline and the 2026 Construction Peak (vehicles)

Road link	Future Baseline		Construction Peak	
	AM Peak	PM Peak	AM Peak	PM Peak
B1047 Horningsea Rd Bridge (NB & SB), J34	979 (10)	888 (2)	1003 (34)	1005 (26)
A14 on-slip (WB), J34,	497 (2)	665 (0)	521 (26)	782 (24)
A14 off-slip (EB), J34	604 (7)	480 (2)	721 (31)	504 (26)
A10 Milton Rd (NB & SB), J33	2215 (149)	2060 (68)	2241 (162)	2086 (80)
Cambridge Rd (NB & SB), J33	946 (25)	1197 (11)	946 (25)	1197 (11)
A14 East Slips (EB & WB), J33	1607 (41)	1447 (16)	1642 (53)	1482 (28)
A1309 Milton Rd (NB & SB), J33	2723 (168)	2305 (44)	2761 (149)	2343 (62)
A14 West Slips (EB & WB), J33	2237 (168)	1911 (63)	2294 (195)	1968 (89)
A14 mainline between J33 and J34 (EB & WB)	5874 (561)	6329 (320)	6024 (613)	6479 (372)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald¹

4.2.14 The absolute change and percentage change in traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) between the 2026 Future Baseline scenario and the 2026 Construction Peak (RWC scenario) is shown in Table 4-6.

¹ Refer to Table 9-4 and Table 9-6 in TA Part 1 (Appendix 19.3, App Doc Ref 5.4.19.3) and pages 7, 8, 29 and 30 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5)

Table 4-6: Combined Construction Peak: Absolute and percentage change in two-way peak hour traffic flows between the 2026 Future Baseline and the 2026 Construction Peak (vehicles)

Road Link	Absolute change		Percentage change	
	AM Peak	PM Peak	AM Peak	PM Peak
B1047 Horningsea Rd Bridge (NB & SB), J34	+24 (+24)	+117 (+24)	+2% (+240%)	+13% (+1200%)
A14 on-slip (WB), J34	+24 (+24)	+117 (+24)	+5% (+1200%)	+18% (+0%)
A14 off-slip (EB), J34	+117 (+24)	+24 (+24)	+19% (+343%)	+5% (+1200%)
A10 Milton Rd (NB & SB), J33	+26 (+13)	+26 (+12)	+1% (+9%)	+1% (+18%)
Cambridge Rd (NB & SB), J33	0 (0)	0 (0)	0% (0%)	0% (0%)
A14 East Slips (EB & WB), J33	+35 (+12)	+35 (+12)	+2% (+29%)	+2% (+75%)
A1309 Milton Rd (NB & SB), J33	+38 (+18)	+38 (+18)	+1% (+14%)	+2% (+41%)
A14 West Slips (EB & WB), J33	+57 (+27)	+57 (+26)	+3% (+16%)	+3% (+41%)
A14 mainline between J33 and J34 (EB & WB)	+150 (+52)	+150 (+52)	+3% (+9%)	+2% (+16%)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald²

4.2.15 The IEMA Guidelines for the Environmental Assessment of Road Traffic (GEART) (IEMA, 1993) recommend two rules are applied when assessing the impacts on highway links. IEMA Rule 1 recommends that highway links where traffic flows increase by 30% or more should be considered in the assessment. For highway links where traffic flows increase by than 30%, IEMA Rule 2 is applied. IEMA Rule 2 recommends that any other sensitive areas (e.g. accident black spots, conservation areas, hospitals, links with high pedestrian flows, etc.) where traffic flows have increased by 10% or more should be considered in the assessment.

4.2.16 In this instance, based on the predicted traffic flows associated with the Combined Construction Peak, no road links would experience a change in total traffic flows greater than 30% (IEMA Rule 1). However, HGV flows would increase by more than 30% on the following roads, which are identified for further assessment:

- B1047 Horningsea Road Bridge at junction 34;
- A14 on-slip at junction 34;
- A14 off-slip at junction 34;
- A14 East Slips (EB & WB) at junction 33
- A1309 Milton Road NB & SB) at junction 33; and
- A14 East Slips (EB & WB) at junction 33.

² Refer to Table 9-36 in TA Part 1 (Appendix 19.3, App Doc Ref 5.4.19.3) and pages 27 and 28 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5)

Temporary impact on severance

Magnitude of impact

4.2.17 The magnitude of impact of severance on links relevant to the construction of the waste water transfer tunnel ~~would be negligible as is~~ shown in ~~Table 4-7:~~ Table 4-7.

Table 4-7: Combined Construction Peak: Assessment of severance during the 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact – total vehicles	Magnitude of impact – HGVs
B1047 Horningsea Rd Bridge, J34	Negligible	Major
A14 on-slip, J34	Negligible	Major
A14 off-slip, J34	Negligible	Major
A10 Milton Road, J33	Negligible	Negligible
Cambridge Road, J33	Negligible	Negligible
A14 East, J33	Negligible	Minor
A1309 Milton Road, J33	Negligible	Minor
A14 West, J33	Negligible	Minor

Source: Mott MacDonald

Sensitivity of receptor

4.2.18 The sensitivity of receptors on all road links relevant to the Combined Construction Peak is summarised in ~~Table 4-8~~ Table 4-8.

Table 4-8: Combined Construction Peak: Assessment of severance during 2026 Construction Peak (RWC scenario) – sensitivity of receptor

Road link name	Sensitivity of receptor – total traffic and HGVs
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	Low
A14 off-slip, J34	Low
A10 Milton Road, J33	Low
Cambridge Road, J33	Low
A14 East, J33	Low
A1309 Milton Road, J33	Low
A14 West, J33	Low

Source: Mott MacDonald

Significance of effect

4.2.19 The significance of effect on severance for road links relevant to the Combined Construction Peak is summarised in Table 4-9.

Table 4-9: Combined Construction Peak: Assessment of severance during 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect – total traffic	Significance of effect – HGVs
B1047 Horningsea Rd Bridge, J34	Slight – not significant	Major – significant
A14 on-slip, J34	Neutral – not significant	Slight – not significant
A14 off-slip, J34	Neutral – not significant	Slight – not significant
A10 Milton Road, J33	Neutral – not significant	Neutral – not significant
Cambridge Road, J33	Neutral – not significant	Neutral – not significant
A14 East, J33	Neutral – not significant	Neutral – not significant
A1309 Milton Road, J33	Neutral – not significant	Neutral – not significant
A14 West, J33	Neutral – not significant	Neutral – not significant

Source: Mott MacDonald

4.2.20 The assessment indicates that there would be a slight/neutral effect on severance due to increases in total traffic and HGV traffic flows on most of the assessed road links, which is **not significant**.

4.2.21 The assessment indicates that there would be a major effect on severance due to increases in HGV flows of over 30% on the B1047 Horningsea Road bridge, which is significant. However, it is noted that:

- the construction peak only lasts 4 months and generates a relatively small number of HGV movements;
- the construction HGV movements would be limited to the A14 on and off-slips and the B1047 Horningsea Road Bridge only, which have no active frontage;
- background HGV flows at junction 34 of the A14 are very low, so even small absolute increases in HGV flows would trigger a significant effect;
- there are segregated facilities for pedestrians and cyclists alongside the carriageway and controlled crossing facilities across the A14 slip roads;
- the junction benefits from good visibility, traffic signal control and street lighting.

4.2.22 For the above reasons, it is considered that the effect on severance due to increases in HGV flows should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.23 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements. Specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
 - Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
 - Section 6.3 (Adherence to Designated Routes) and section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through Fen Ditton and Horningsea.

4.2.24 Through the application of these measures, any impact on severance that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

4.2.25 There will be short term intermittent occurrences of construction vehicle movements required for time critical activities (e.g., concrete pours). For time critical activities related to the construction of the transfer tunnel these are expected to be associated with the construction of the intermediate shafts 4 and 5 and expected to occur in Construction Year 3 (assumed to be 2026). These activities are, however, unlikely to generate a significant effect.

4.2.26 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

4.2.27 With the exception of a few instances of time critical activities (assessed in the ‘Time critical activities’ section), there are no residual significant effects on severance.

Temporary impact of construction on fear and intimidation

4.2.28 Pedestrians and cyclists may be affected by fear and intimidation owing to the volume of traffic and the percentage of HGVs within the traffic. Furthermore, fear and intimidation is also influenced by how well protected the users may feel dependent on factors such as pavement widths.

4.2.29 In the absence of clear thresholds, a change in traffic flow 30%, 60% and 90% correspond to a minor, moderate, and major magnitude of impact, respectively. A change of less than 30% means the impact magnitude can be considered negligible and would not require a detailed assessment. The percentage change in traffic flow for road links relevant to the Combined Construction Peak is available in Table 4-6.

Magnitude of impact

4.2.30 The magnitude of impact on fear and intimidation for all road links relevant to the Combined Construction Peak is summarised in Table 4-10. While the A14 has a lack of pedestrian infrastructure and low volume of pedestrians along the link, the A14 on-slip and off-slip are assessed as they intersect with the shared use path on the western side of Horningsea Road, used frequently by pedestrians and cyclists.

4.2.31 The programme has been designed to sequence construction of the proposed WWTP access road construction at the start of the programme so that it can be used in construction to reduce the duration of use of Horningsea Road and Low Fen Drove Way in construction.

Table 4-10: Combined Peak Construction: Assessment of fear and intimidation during the 2026 Construction Peak (RWC Scenario) – magnitude of impact

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
B1047 Horningsea Rd Bridge, J34	Negligible	Major
A14 on-slip, J34	Negligible	Major
A14 off-slip, J34	Negligible	Major
A10 Milton Road, J33	Negligible	Negligible
Cambridge Road, J33	Negligible	Negligible
A14 East, J33	Negligible	Minor
A1309 Milton Road, J33	Negligible	Minor
A14 West, J33	Negligible	Minor

Source: Mott MacDonald

Sensitivity of receptor

4.2.32 The sensitivity of receptors on all road links relevant to the Combined Construction Peak is summarised in Table 4-11.

Table 4-11: Combined Construction Peak: Assessment of fear and intimidation during the 2026 Construction Peak (RWC Scenario) – sensitivity of receptor

Road link name	Sensitivity of receptor – total traffic and HGVs
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	Low
A14 off-slip, J34	Low
A10 Milton Road, J33	Medium
Cambridge Road, J33	Medium
A14 East, J33	Low
A1309 Milton Road, J33	Medium
A14 West, J33	Low

Source: Mott MacDonald

Significance of effect

4.2.33 The significance of effect on fear and intimidation for all road links relevant to the Combined Construction Peak is summarised in Table 4-12.

Table 4-12: Combined Construction Peak: Assessment of fear and intimidation during the 2026 Construction Peak (RWC Scenario) – significance of effect

Road link name	Significance of effect – total traffic	Significance of effect – HGVs
B1047 Horningsea Rd Bridge, J34	Slight – not significant	Major significant
A14 on-slip, J4	Neutral - not significant	Slight - not significant
A14 off-slip, J34	Neutral - not significant	Slight - not significant
A10 Milton Road, J33	Neutral - not significant	Neutral - not significant
Cambridge Road, J33	Neutral - not significant	Neutral - not significant
A14 East, J33	Neutral - not significant	Neutral - not significant
A1309 Milton Road, J33	Neutral - not significant	Slight - not significant
A14 West, J33	Neutral - not significant	Neutral - not significant

Source: Mott MacDonald

4.2.34 The assessment indicates that there would be a slight/neutral effect on fear and intimidation due to increases in total traffic and HGV traffic flows on most of the assessed road links, which is **not significant**.

4.2.35 The assessment indicates that there would be a major effect on fear and intimidation due to increases in HGV flows of over 30% on the B1047 Horningsea Road bridge, which is significant. However, for the reasons set out in paragraph 4.2.21, it is considered that the effect on fear and intimidation due to increases in HGV flows should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.36 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements.

Specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
 - Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
 - Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through the Fen Ditton and Horningsea.

4.2.37 Through these measures, any effects on fear and intimidation that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

4.2.38 There will be short term intermittent occurrences of construction vehicle movements required for time critical activities (e.g., concrete pours). For time critical activities related to the construction of the transfer tunnel these are expected to be associated with the construction of the intermediate shafts 4 and 5 and expected to occur in Construction Year 3 (assumed to be 2026). These activities are, however, unlikely to generate a significant effect.

4.2.39 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

4.2.40 With the exception of a few instances of time critical activities (assessed in the 'Time critical activities' section), there are no residual significant effects on fear and intimidation.

Temporary impact of construction on accidents and road safety

4.2.41 As per IEMA guidance, changes in traffic flow of 30%, 60% and 90% correspond to a minor, moderate, and major magnitude of impact on accidents and road safety, respectively. A change of less than 30% means the impact magnitude can be considered negligible and would not require a detailed assessment.

4.2.42 A summary of PIC history can be found in section 3.1 (Collision history).

Magnitude of impact

4.2.43 The magnitude of impact on accidents and road safety for all road links relevant to the Combined Construction Peak is summarised in Table 4-13.

Table 4-13: Combined Construction Peak: Assessment: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
B1047 Horningsea Rd Bridge, J34	Negligible	Major
A14 on-slip, J34	Negligible	Major
A14 off-slip, J34	Negligible	Major
A10 Milton Road, J33	Negligible	Negligible
Cambridge Road, J33	Negligible	Negligible
A14 East, J33	Negligible	Minor
A1309 Milton Road, J33	Negligible	Minor
A14 West, J33	Negligible	Minor

Source: Mott MacDonald

Sensitivity of receptor

4.2.44 The sensitivity of receptors is expected to vary between road links and is set out in Table 4-14

Table 4-14: Combined Construction Peak: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

Road link name	Sensitivity of receptors – total traffic and HGVs
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	High
A14 off-slip, J34	High
A10 Milton Road, J33	High
Cambridge Road, J33	High
A14 East, J33	High
A1309 Milton Road, J33	High
A14 West, J33	High

Source: Mott MacDonald

Significance of effect

4.2.45 The significance of effect on accidents and road safety on all road links relevant to the Combined Construction Peak, is set out in Table 4-15.

Table 4-15: Combined Construction Peak: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect – total traffic	Significance of effect – HGVs
B1047 Horningsea Rd Bridge, J34	Slight – not significant	Major – significant
A14 on-slip, J34	Slight – not significant	Major – significant
A14 off-slip, J34	Slight – not significant	Major – significant
A10 Milton Road, J33	Slight – not significant	Slight – not significant
Cambridge Road, J33	Slight – not significant	Slight – not significant
A14 East, J33	Slight – not significant	Moderate – significant
A1309 Milton Road, J33	Slight – not significant	Moderate – significant
A14 West, J33	Slight – not significant	Moderate – significant

Source: Mott MacDonald

4.2.46 The assessment indicates that there would be a slight/neutral effect on accidents and road safety due to increases in total traffic on junction 33 and junction 34 of the A14, which is **not significant**.

4.2.47 The assessment indicates that there would be a major effect on accidents and road safety due to increases in HGV flows of over 30% on junction 34 of the A14, which is significant. However, for the reasons set out in paragraph 4.2.21, it is considered that the effect on accidents and road safety due to increases in HGV flows should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

4.2.48 There would be a moderate effect on accidents and road safety due to increases in HGV flows of over 30% on junction 33 of the A14, which is significant. However, absolute numbers of HGVs are relatively low and the impacts would be short-lived,

only occurring during the first and last 8 weeks of construction activity on the Waterbeach pipeline. For these reasons, it is considered that the effect on accidents and road safety due to increases in HGV flows at junction 33 of the A14 should be reduced from a moderate effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.49 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle. Specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
 - Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads
 - Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works
- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through Fen Ditton and Horningsea measures.

- 4.2.50 Through these measures, any effects on accidents and road safety that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.
- 4.2.51 There will be short term intermittent occurrences of construction vehicle movements required for time critical activities (e.g., concrete pours). For time critical activities related to the construction of the transfer tunnel these are expected to be associated with the construction of the intermediate shafts 4 and 5 and expected to occur in Construction Year 3 (assumed to be 2026). These activities are, however, unlikely to generate a significant effect.
- 4.2.52 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

- 4.2.53 With the exception of a few instances of time critical activities (assessed in the 'Time critical activities' section), there are no residual significant effects on accidents and road safety.

Hazardous Loads

Temporary impact of hazardous loads

- 4.2.54 In the absence of IEMA thresholds for hazardous loads, where hazardous load movements account for 30%, 60% and 90% of total construction movements, this correspond to a minor, moderate, and major magnitude of impact, respectively. A change of less than 30% means the impact magnitude can be considered negligible and would not require a detailed assessment.
- 4.2.55 If the number of hazardous load movements is expected to be significant, a risk or catastrophe analysis will be required to illustrate the potential for an accident to happen and the effect associated with this accident.

Magnitude of impact

- 4.2.56 It is estimated that the Proposed Development could generate up to 2,280m³ of hazardous waste throughout the entire duration of the construction programme (based on Chapter 15: Material resources and waste (App Doc Ref 5.2.15)). With an assumed average load capacity of 15m³ per HGV, this equates to 152 loaded HGVs or 304 HGV movements (allowing for empty vehicle movements) across the entire construction phase. This equates to approximately one HGV a week for the duration of the construction programme.
- 4.2.57 Given the low number of HGVs required, the number of HGVs delivering hazardous loads is **not significant** and the magnitude of impact is considered to be negligible. A detailed environmental assessment of the effect based on IEMA guidance on hazardous loads is not required for the construction phase.

4.2.58 In relation to movements of any hazardous loads entities responsible for transporting the load would be required to follow the regulations for notifying authorities.

4.2.59 The magnitude of impact is therefore negligible.

Sensitivity of receptor

4.2.60 The sensitivity of receptors is expected to vary on road links and is summarised below in Table 4-16.

Table 4-16: Project wide: Assessment of hazardous loads during construction – sensitivity of receptors

Road link name	Sensitivity of receptors
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	High
A14 off-slip, J34	High
A1309 Milton Road	High
Cowley Road	Low
A14 mainline between J33 and J34	High

Source: Mott MacDonald

Significance of effect

4.2.61 The effect of construction traffic carrying hazardous loads on all road links relevant to the construction of the waste water transfer tunnel and shafts is summarised in Table 4-17.

Table 4-17: Project wide: Assessment of hazardous loads during construction – significance of effect

Road link name	Significance of effect
B1047 Horningsea Rd Bridge, J34	Slight – not significant
A14 on-slip, J34	Slight – not significant
A14 off-slip, J34	Slight – not significant
A1309 Milton Road	Slight – not significant
Cowley Road	Slight – not significant
A14 mainline between J33 and J34	Slight – not significant

Source: Mott MacDonald

Secondary mitigation or enhancement

4.2.62 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) include measures that would further mitigate the potential non-significant effects associated with construction vehicle movements. Specifically:

- CTMP measures:

- Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
 - Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
 - Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through the Fen Ditton and Horningsea.

4.2.63 Through this restriction, any effects on the deliveries of hazardous loads that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

Residual effect

4.2.64 There are no residual significant effects on the deliveries of hazardous loads.

Proposed WWTP

4.2.65 This section sets out the assessment of effects in relation to the construction of the proposed WWTP including the landscaping proposals, final effluent pipeline, outfall, waste water transfer tunnel and the permanent access from Horningsea Road.

4.2.66 For the routes described in Section 3 (Baseline Environment), each element of the construction works for the proposed WWTP (specifically the waste water transfer tunnel and shafts; the treated effluent pipeline and outfall; and the permanent access from Horningsea Road) has been assessed in relation likely significant effects on receptors.

4.2.67 The primary and tertiary mitigation included in this assessment refers to all measures inherent to the design at Horningsea Road and junction 34 (see Table 2-14).

Construction of waste water transfer tunnel and shafts

4.2.68 The following roads, which form part of the proposed construction routes, will be used for the construction of the waste water transfer tunnel and shafts:

- B1047 Horningsea Road Bridge (the section from south of the existing junction 34 with the A14 to north of Fen Ditton settlement);
- A14 off-slip and on-slip at junction 34;
- A14 off-slip and on-slip at junction 33 (the Milton Interchange);
- A14 mainline between junction 33 and junction 34;
- A1309 Milton Road (section from Milton Interchange to Cowley Road junction); and
- Cowley Road.

4.2.69 Construction of the waste water transfer tunnel and shafts is estimated to require a peak daily two-way traffic flow of 4540 HGV movements and 27 workforce vehicle movements on B1047 Horningsea Road. These movements would travel between the land required for the construction of the proposed WWTP and waste water transfer tunnel (indicative access points COA3, CA6, CA2/CA3 on Horningsea Road) and/or Cowley Road sites (indicative access point COA1/existing Cambridge WWTP access). The 27 workforce vehicle movements include 7 vehicle movements that would be required for engineer, supervision, or visits/audit movements over the course of the day.

4.2.70 These 67 daily construction vehicle movements required for the construction of the waste water transfer tunnel are split as follows:

- 47 total daily two-way construction vehicle movements required:
 - 5 HGV movements per hour across an 8-hour working day; and
 - 1 car/LGV movement per hour across an 8-hour working day for supervisor / deliveries across the day
- 2720 total daily two-way vehicle movements for worker mobilisation:
 - 10 car/LGV movements at 07:00 to 08:00; and

- 10 car/LGV movements at 18:00 to 19:00.

Waste water transfer tunnel, and shafts: Construction Year 3 (2026) Construction Peak (RWC scenario)

4.2.71 Table 4-18 summarises the two-way traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) during the 2026 Future Baseline and the 2026 Construction Peak (RWC scenario) on the road links relevant to the construction of the waste water transfer tunnel and shafts.

Table 4-18: Waste water transfer tunnel and shafts: Two-way peak hour traffic flows in the 2026 Future Baseline and the 2026 Construction Peak (vehicles)

Road link	Future Baseline		Construction Peak	
	AM Peak	PM Peak	AM Peak	PM Peak
B1047 Horningsea Rd Bridge (NB & SB), J34	979 (10)	888 (2)	982 (13)	896 (5)
A14 on-slip (WB), J34	497 (2)	665 (0)	500 (5)	673 (3)
A14 off-slip (EB), J34	604 (7)	480 (2)	612 (10)	483 (5)
A10 Milton Rd (NB & SB), J33	2215 (149)	2060 (68)	2215 (149)	2060 (68)
Cambridge Rd (NB & SB), J33	946 (25)	1197 (11)	946 (25)	1197 (11)
A14 East Slips (EB & WB), J33	1607 (41)	1447 (16)	1610 (41)	1450 (16)
A1309 Milton Rd (NB & SB), J33	2723 (168)	2305 (44)	2735 (137)	2317 (50)
A14 West Slips (EB & WB), J33	2237 (168)	1911 (63)	2248 (174)	1922 (69)
A14 mainline between J33 and J34 (EB & WB)	5874 (561)	6329 (320)	5887 (567)	6342 (326)
Cowley Rd (between Milton Rd and St John's Innovation Park)	699 (77)	559 (30)	710 (83)	570 (36)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald³

4.2.72 The absolute change and percentage change in traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) between the 2026 Future Baseline and the 2026 Construction Peak scenario is shown in Table 4-19.

Table 4-19: Waste water transfer tunnel and shafts: Absolute and percentage change in two-way peak hour traffic flows between the 2026 Future Baseline and the 2026 Construction Peak (vehicles)

Road Link	Absolute change		Percentage change	
	AM Peak	PM Peak	AM Peak	PM Peak
B1047 Horningsea Rd Bridge (NB & SB), J34	3 (3)	8 (3)	+0% (+30%)	+1% (+150%)
A14 on-slip (WB), J34	3 (3)	8 (3)	+1% (+150%)	+1% (+0%)
A14 off-slip (EB), J34	8 (3)	3 (3)	+1% (+43%)	+1% (+150%)
A10 Milton Rd (NB & SB), J33	0 (0)	0 (0)	0% (0%)	0% (0%)
Cambridge Rd (NB & SB), J33	0 (0)	0 (0)	0% (0%)	0% (0%)
A14 East Slips (EB & WB), J33	3 (0)	3 (0)	+0% (+0%)	+0% (+0%)

³ Refer to pages 7, 8, 76 and 77 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

	Absolute change		Percentage change	
A1309 Milton Rd (NB & SB), J33	12 (6)	12 (6)	+0% (+5%)	+1% (+14%)
A14 West Slips (EB & WB), J33	11 (6)	11 (6)	+0% (+4%)	+1% (+10%)
A14 mainline between J33 and J34 (EB & WB)	13 (6)	13 (6)	+0% (+1%)	+0% (+2%)
Cowley Road (between Milton Rd and St John's Innovation Park)	11 (6)	11 (6)	+2% (+8%)	+2% (+20%)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald⁴

4.2.73 Applying IEMA Rule 1, based on the predicted traffic flows associated with construction of the waste water transfer tunnel and shafts, no road links would experience a change in traffic flows greater than 30% (IEMA Rule 1). However, HGV flows would increase by more than 30% on the following roads, which are identified for further assessment:

- B1047 Horningsea Road Bridge at junction 34;
- A14 on-slip at junction 34; and
- A14 off-slip at junction 34.

Temporary impact on severance

Magnitude of impact

4.2.74 The magnitude of impact of severance on links relevant to the construction of the waste water transfer tunnel would be negligible as shown in Table 4-20.

Table 4-20: Waste water transfer tunnel and shafts: Assessment of severance during the 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact – total vehicles	Magnitude of impact – HGVs
B1047 Horningsea Road bridge, J34	Negligible	Major
A14 on-slip, J34	Negligible	Major
A14 off-slip, J34	Negligible	Major

Source: Mott MacDonald

Sensitivity of receptor

4.2.75 The sensitivity of receptors on all road links relevant to the waste water transfer tunnel is summarised in Table 4-21.

Table 4-21: Waste water transfer tunnel and shafts: Assessment of severance during 2026 Construction Peak (RWC scenario) – sensitivity of receptor

Road link name	Sensitivity of receptor – total traffic and HGVs
B1047 Horningsea Rd Bridge, J34	High

⁴ Refer to pages 72 and 73 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

Road link name	Sensitivity of receptor – total traffic and HGVs
A14 on-slip, J34	Low
A14 off-slip, J34	Low

Source: Mott MacDonald

Significance of effect

4.2.76 The significance of effect on severance for road links relevant to the construction of the waste water transfer tunnel is summarised in Table 4-22.

Table 4-22: Waste water transfer tunnel and shafts: Assessment of severance during 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect – total traffic	Significance of effect – HGVs
B1047 Horningsea Rd Bridge, J34	Slight – not significant	Major – significant
A14 on-slip, J34	Neutral – not significant	Slight – not significant
A14 off-slip, J34	Neutral – not significant	Slight – not significant

Source: Mott MacDonald

4.2.77 The assessment indicates that there would be a slight/neutral effect on severance due to increases in total traffic and HGV traffic flows on most sections of junction 34, which is **not significant**.

4.2.78 The assessment indicates that there would be a major effect on severance due to increases in HGV flows of over 30% on the B1047 Horningsea Road bridge, which is significant. However, it is noted that:

- the construction peak only lasts 4 months and generates a relatively small number of HGV movements;
- the construction HGV movements would be limited to the A14 on and off-slips and the B1047 Horningsea Road bridge only, which have no active frontage;
- background HGV flows at junction 34 of the A14 are very low, so even small absolute increases in HGV flows would trigger a significant effect;
- there are segregated facilities for pedestrians and cyclists alongside the carriageway and controlled crossing facilities across the A14 slip roads;
- the junction benefits from good visibility, traffic signal control and street lighting.

4.2.79 For the above reasons, it is considered that the effect on severance due to increases in HGV flows should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.80 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements, specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
 - Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
 - Section 6.3 (Adherence to Designated Routes) and section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through Fen Ditton and Horningsea.

4.2.81 Through the application of these measures, any impact on severance that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

4.2.82 There will be short term intermittent occurrences of construction vehicle movements required for time critical activities (e.g., concrete pours). For time critical activities related to the construction of the transfer tunnel these are expected to be associated with the construction of the intermediate shafts 4 and 5 and expected to occur in Construction Year 3 (assumed to be 2026). These activities are, however, unlikely to generate a significant effect.

4.2.83 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

4.2.84 With the exception of a few instances of time critical activities (assessed in the ‘Time critical activities’ section), there are no residual significant effects on severance.

Temporary impact on pedestrian delay

4.2.85 Construction activities related to the construction of the transfer tunnel will interact with existing transport infrastructure (Horningsea Road, A14, and footpaths) due to:

- use of construction access routes to transport equipment to and from the land required for the construction of the transfer tunnel including shaft 4 and 5;
- use of construction access route to transfer excavated material from shaft 5 to the land required for the proposed WWTP; and
- crossing over the shared pedestrian and cycle pathway to the west of Horningsea Road (via construction access point CA2/CA3).

4.2.86 Road links with footways are assessed differently to PRoW given the difference in the types of users.

Magnitude of impact

4.2.87 The magnitude of impact on road links with footways is outlined in Table 4-23. While the A14 has a lack of pedestrian infrastructure and low volume of pedestrians along the link, the A14 on-slip and off-slip are assessed as they intersect with the shared use path on the western side of Horningsea Road, used frequently by pedestrians and cyclists.

Table 4-23: Waste water transfer tunnel and shafts: Assessment of pedestrian delay on roads with footways during the 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact
B1047 Horningsea Rd Bridge, J34	Negligible
A14 on-slip, J34	Negligible
A14 off-slip, J34	Negligible

Source: Mott MacDonald

4.2.88 The ProW on the east and west bank of the River Cam are avoided by trenchless construction techniques applied in this location in relation to the transfer tunnel and the southern section of the Waterbeach pipeline.

Sensitivity of receptor

4.2.89 The sensitivity of receptors on all road links relevant to the construction of the waste water transfer tunnel and shafts is summarised in Table 4-24.

Table 4-24: Waste water transfer tunnel and shafts: Assessment of pedestrian delay on roads with footways during the 2026 Construction Peak (RWC scenario) – sensitivity of receptor

Road link name	Sensitivity of receptor
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	Low
A14 off-slip, J34	Low

Source: Mott MacDonald

Significance of effect

4.2.90 The significance of effect on pedestrian delay for road links with footways relevant to the construction of the waste water transfer tunnel and shafts is summarised in Table 4-25.

Table 4-25: Waste water transfer tunnel and shafts: Assessment of pedestrian delay on roads with footways during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect
B1047 Horningsea Rd Bridge, J34	Slight – not significant
A14 on-slip, J34	Neutral – not significant
A14 off-slip, J34	Neutral – not significant

Source: Mott MacDonald

Secondary mitigation or enhancement

4.2.91 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements. Specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00,

15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;

- Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
- Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through Fen Ditton and Horningsea.

4.2.92 Through these measures, any effects on pedestrian delay that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

Residual effect

4.2.93 With the exception of a few instances of time critical activities (assessed in the 'Time critical activities' section), there are no residual significant effects on pedestrian delay.

Temporary impact on driver delay

4.2.94 The IEMA Guidelines for the Environmental Assessment of Road Traffic (GEART) (IEMA, 1993) indicates that the junction modelling contained in the TA (Appendix 19.3, App Doc Ref 5.4.19.3) should be used to determine the average delay per vehicle. It notes that delays are only considered significant when the road network in the vicinity of the Proposed Development is already operating at or close to capacity (i.e., where a Degree of Saturation over 90% has been observed).

4.2.95 The only junction on the construction route for the waste water transfer tunnel and shafts where a potential capacity issue has been identified on the road network in

the 2026 Future Baseline, is at the Milton Road/Green End Road/King Hedges Road junction in the AM peak hour.

4.2.96 Table 4-26 provides a summary of the change in average driver delay (in seconds per PCU) in the peak hours at the Milton Road/Green End Road/King Hedges Road junction between the 2026 Future Baseline and the 2026 Construction Peak (RWC scenario). The driver delay is taken from the junction modelling contained in the TA (Appendix 19.3, App Doc Ref 5.4.19.3). The assessments considered how the Proposed Development traffic would impact the operation of the highway network during the AM and PM peak hours (08:00-09:00 and 17:00-18:00). The full junction capacity assessment results are provided in the ‘Junction Capacity Reports’ (Appendix 19.6, App Doc Ref 5.4.19.6).

Table 4-26: Waste water transfer tunnel and shafts: Comparison of average driver delay (seconds per PCU) between the 2026 Future Baseline and the 2026 Construction Peak (RWC scenario)

Link	AM peak				PM peak			
	Future Baseline	Constr. Peak	Change	%	Future Baseline	Constr. Peak	Change	%
Milton Road (N) (nearside) Left Ahead	21.8	22.8	+1.0	+5%	21.7	22.8	+1.1	+5%
Milton Road (N) (offside) Right	88.7	88.7	0.0	0%	66.8	66.8	0.0	0%
Green End Road	73.7	70.1	-3.6	-5%	54.5	58.0	+3.5	+6%
Milton Road (S)	51.8	60.0	+8.2	+16%	35.2	37.2	+2.0	+6%
King Hedges Road	73.7	73.7	0.0	0%	56.6	58.6	0.0	0%

Source: p.166, 169, 172 & 175 in Junction Capacity Reports (Appendix 19.6 App Doc Ref 5.4.19.6)

4.2.97 The increase in delay occurs during the three-month construction peak in 2026 (September to November 2026) in the RWC scenario, where construction vehicles associated with multiple structures (i.e., the proposed WWTP and the Waterbeach pipeline) have been modelled to travel along the roads at the same time. As the construction of each structure is phased, a lower volume of construction traffic and hence a lower level of driver delay is expected in practice.

4.2.98 Changes in average driver delay (in seconds per PCU) of 30%, 60% and 90% correspond to a minor, moderate, and major magnitude of impact on driver delay, respectively. A change of less than 30% means the impact magnitude can be considered negligible and would not require a detailed assessment.

4.2.99 At the Milton Road/Green End Road/King Hedges Road junction, driver delay increases by a maximum of 16% in the AM peak and 6% in the PM peak hour. Consequently, there are no road links that require a detailed assessment of driver delay.

Further Secondary mitigation or enhancement

- 4.2.100 Although no effects have been identified as significant, the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1), as described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development) would provide mitigation measures if required.
- 4.2.101 Section 4.2 (Local routeing and site plant vehicle routeing) of the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) includes a requirement that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays. Therefore, no construction vehicles will travel along the construction route in the AM and PM peak for standard construction activities.
- 4.2.102 Through this restriction, any effects on driver delay that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.
- 4.2.103 There will be short term intermittent occurrences of construction vehicle movements required for time critical activities (e.g., concrete pours). For time critical activities related to the construction of the transfer tunnel these are expected to be associated with the construction of the intermediate shafts 4 and 5 and expected to occur in Construction Year 3 (assumed to be 2026)2026. These activities are, however, unlikely to generate a significant effect and are **not significant**.
- 4.2.104 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

- 4.2.105 With the exception of a few instances of time critical activities (assessed in the 'Time critical activities' section), there are no residual significant effects on driver delay.

Temporary impact of construction on fear and intimidation

- 4.2.106 Pedestrians and cyclists may be affected by fear and intimidation owing to the volume of traffic and the percentage of HGVs within the traffic. Furthermore, fear and intimidation is also influenced by how well protected the users may feel dependent on factors such as pavement widths.
- 4.2.107 In the absence of clear thresholds, a change in traffic flow 30%, 60% and 90% correspond to a minor, moderate, and major magnitude of impact, respectively. A change of less than 30% means the impact magnitude can be considered negligible and would not require a detailed assessment.
- 4.2.108 The percentage change in traffic flow for road links relevant to the waste water transfer tunnel and shafts is available in Table 4-19.

Magnitude of impact

- 4.2.109 The magnitude of impact on fear and intimidation for all road links relevant to the construction of the waste water transfer tunnel and shafts is summarised in Table 4-27. While the A14 has a lack of pedestrian infrastructure and low volume of pedestrians along the link, the A14 on-slip and off-slip are assessed as they intersect with the shared use path on the western side of Horningsea Road, used frequently by pedestrians and cyclists.
- 4.2.110 The programme has been designed to sequence construction of the proposed WWTP access road construction at the start of the programme so that it can be used in construction to reduce the duration of use of Horningsea Road and Low Fen Drove Way in construction.

Table 4-27: Waste water transfer tunnel and shafts: Assessment of fear and intimidation during the 2026 Construction Peak (RWC Scenario) – magnitude of impact

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
B1047 Horningsea Road bridge	Negligible	Major
A14 on-slip junction 34	Negligible	Major
A14 off-slip junction 34	Negligible	Major

Source: Mott MacDonald

Sensitivity of receptor

- 4.2.111 The sensitivity of receptors on all road links relevant to the construction of the waste water transfer tunnel and shafts is summarised in Table 4-28.

Table 4-28: Waste water transfer tunnel and shafts: Assessment of fear and intimidation during the 2026 Construction Peak (RWC Scenario) – sensitivity of receptor

Road link name	Sensitivity of receptor – total traffic and HGVs
B1047 Horningsea Rd Bridge	High
A14 on-slip junction 34	Low
A14 off-slip junction 34	Low

Source: Mott MacDonald

Significance of effect

4.2.112 The significance of effect on fear and intimidation for all road links relevant to the construction of the waste water transfer tunnel and shafts is summarised in Table 4-29.

Table 4-29: Waste water transfer tunnel and shafts: Assessment of fear and intimidation during the 2026 Construction Peak (RWC Scenario) – significance of effect

Road link name	Significance of effect – total traffic	Significance of effect – HGVs
B1047 Horningsea Rd Bridge	Slight – not significant	Major – significant
A14 on-slip junction 34	Neutral – not significant	Slight – not significant
A14 off-slip junction 34	Neutral – not significant	Slight – not significant

Source: Mott MacDonald

4.2.113 The assessment indicates that there would be a slight/neutral effect on fear and intimidation due to increases in total traffic and HGV traffic flows on most sections of junction 34, which is **not significant**.

4.2.114 The assessment indicates that there would be a major effect on severance due to increases in HGV flows of over 30%, which is significant. However, for the reasons set out in paragraph 4.2.78, it is considered that the effect on fear and intimidation due to increases in HGV flows should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.115 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements. Specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes

will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;

- Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
- Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through the Fen Ditton and Horningsea.

4.2.116 Through these measures, any effects on fear and intimidation that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

4.2.117 There will be short term intermittent occurrences of construction vehicle movements required for time critical activities (e.g., concrete pours). For time critical activities related to the construction of the transfer tunnel these are expected to be associated with the construction of the intermediate shafts 4 and 5 and expected to occur in Construction Year 3 (assumed to be 2026). These activities are, however, unlikely to generate a significant effect.

4.2.118 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

4.2.119 With the exception of a few instances of time critical activities (assessed in the 'Time critical activities' section), there are no residual significant effects on fear and intimidation.

Temporary impact of construction on accidents and road safety

4.2.120 As per IEMA guidance, changes in traffic flow of 30%, 60% and 90% correspond to a minor, moderate, and major magnitude of impact on accidents and road safety, respectively. A change of less than 30% means the impact magnitude can be considered negligible and would not require a detailed assessment.

4.2.121 A summary of PIC history can be found in section 3.1 (Collision history).

Magnitude of impact

4.2.122 The magnitude of impact on accidents and road safety for all road links relevant to the construction of the waste water transfer tunnel and shafts is summarised in Table 4-30.

Table 4-30: Waste water transfer tunnel and shafts: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
B1047 Horningsea Rd Bridge	Negligible	Major
A14 on-slip junction 34	Negligible	Major
A14 off-slip junction 34	Negligible	Major

Source: Mott MacDonald

Sensitivity of receptor

4.2.123 The sensitivity of receptors is expected to vary between road links and is set out in Table 4-31.

Table 4-31: Waste water transfer tunnel and shafts: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

Road link name	Sensitivity of receptors – total traffic and HGVs
B1047 Horningsea Rd Bridge	High
A14 on-slip junction 34	High
A14 off-slip junction 34	High

Source: Mott MacDonald

Significance of effect

4.2.124 The significance of effect on accidents and road safety on all road links relevant to the construction of the waste water transfer tunnel, is set out in Table 4-32

Table 4-32: Waste water transfer tunnel and shafts: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect – total traffic	Significance of effect – HGVs
B1047 Horningsea Rd Bridge	Slight – not significant	Major – significant
A14 on-slip junction 34	Slight – not significant	Major – significant
A14 off-slip junction 34	Slight – not significant	Major – significant

Source: Mott MacDonald

4.2.125 The assessment indicates that there would be a slight/neutral effect on accidents and road safety due to increases in total traffic flows on all of the assessed road links, which is **not significant**.

4.2.126 The assessment indicates that there would be a major effect on severance due to increases in HGV flows of over 30% on the B1047 Horningsea Road bridge and the A14 on-slip and off-slip at junction 34 of the A14, which is significant. However, for the reasons set out in paragraph 4.2.78, it is considered that the effect on accidents and road safety due to increases in HGV flows should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.127 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle. Specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
 - Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads
 - Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works

- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through Fen Ditton and Horningsea measures.

4.2.128 Through these measures, any effects on accidents and road safety that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

4.2.129 There will be short term intermittent occurrences of construction vehicle movements required for time critical activities (e.g., concrete pours). For time critical activities related to the construction of the transfer tunnel these are expected to be associated with the construction of the intermediate shafts 4 and 5 and expected to occur in Construction Year 3 (assumed to be 2026). These activities are, however, unlikely to generate a significant effect.

4.2.130 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

4.2.131 With the exception of a few instances of time critical activities (assessed in the 'Time critical activities' section), there are no residual significant effects on accidents and road safety.

Construction of the proposed WWTP (including permanent access and works related to the landscape masterplan)

4.2.132 Construction work will take place between 7am to 6pm Monday to Friday and 8am to 4pm Saturday.

4.2.133 The following roads will be used for the construction of the proposed WWTP:

- B1047 Horningsea Road at junction 34;
- A14 off-slip and on-slip at junction 34;
- A14 off-slip and on-slip at junction 33 (the Milton Interchange);
- A14 mainline between junction 33 and junction 34; and
- Low Fen Drove Way.

4.2.134 Construction of the proposed WWTP is expected to require 494 daily two-way HGV and LGV movements on indicative access point CA6 for the duration of the construction programme relevant to the proposed WWTP.

4.2.135 Construction of the new permanent access is expected to require 142 daily two-way HGV and LGV movements on Low Fen Drove Way for the duration of the construction programme relevant to construction of the new permanent access.

4.2.136 While the assessment of links relevant to the main proposed WWTP is based on the 494 daily two-way vehicle movements, the assessment of the new access via Low Fen Drove Way has been based on the 142 daily vehicle movements. This is due to the construction works for the new permanent access beginning and ending prior to the proposed WWTP works. As such, it is considered that the 142 daily movements on Low Fen Drove Way will occur prior to the 494 daily movements required for the proposed WWTP.

4.2.137 The daily total 494 vehicle movements are split as follows:

- 280 total daily two-way construction vehicle movements:
 - 35 HGV movements per hour over an assumed 8-hour day; and
 - 8 car/LGV movements per hour over an assumed 8-hour day.
- 150 total daily two-way vehicle movements required for worker mobilisation:
 - 75 car/LGV movements at 06:00 to 07:00; and
 - 75 car/LGV movements at 18:00 to 19:00.

Time critical activities

4.2.138 Although Section 4.2 of the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) includes a requirement to avoid vehicle movements in the peak hour there will be exceptions associated with vehicle movements required for short-term intermittent time critical activities (e.g., concrete pours) in the peak hours in Construction Year 3 (assumed to be 2026).

4.2.139 In the case of the construction of the proposed WWTP, these vehicle movements would be concentrated around junction 34 of the A14 and would travel along the Strategic Road Network via:

- B1047 Horningsea Road;
- Junction 34 of the A14;
- Junction 33 of the A14 (the Milton Interchange); and
- The A14 mainline between Junction 33 and Junction 34.

4.2.140 These time critical activities and the associated expected maximum number of vehicle movements are provided in Table 4-33.

Table 4-33: Short term intermittent activities: Temporary volumes of vehicle movements

Activity	Vehicle movements per day	No. of vehicles per day
Movement of imported stone for site infrastructure and temporary working platforms within the proposed WWTP	60	30

Activity	Vehicle movements per day	No. of vehicles per day
Large concrete pours to bases of process units within the proposed WWTP	133	67
Delivery of precast concrete units for tanks walls within the proposed WWTP	40	20
Delivery of asphalt for road surfacing within the proposed WWTP	30	15
Total	263	132

Source: Anglian Water Services

4.2.141 While these four short-term intermittent construction activities would not occur simultaneously, to provide an assessment consistent with IEMA guidance the total number of vehicles per day has been added to the road network.

4.2.142 Table 4-34: summarises two-way traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) during the 2026 Future Baseline and in 2026 with the addition of the flows required for short term intermittent construction activities on the road links relevant to the construction of the proposed WWTP.

Table 4-34: Short term intermittent activities: Two-way peak hour traffic flows in the 2026 Future Baseline and in 2026 with short-term intermittent activities (vehicles)

Road link name	Future Baseline		With short term intermittent activities	
	AM Peak	PM Peak	AM Peak	PM Peak
B1047 Horningsea Rd Bridge (NB & SB), J34	979 (10)	888 (2)	996 (27)	905 (19)
A14 on-slip (WB), J34	497 (2)	665 (0)	514 (19)	682 (17)
A14 off-slip (EB), J34	604 (7)	480 (2)	621 (24)	497 (19)
A10 Milton Road (NB & SB), J33	2215 (149)	2060 (68)	2232 (166)	2077 (85)
Cambridge Road (NB & SB), J33	946 (25)	1197 (11)	963 (42)	1214 (28)
A14 East Slips (EB & WB), J33	1607 (41)	1447 (16)	1624 (58)	1464 (33)
A1309 Milton Rd (NB & SB), J33	2723 (131)	2305 (44)	2740 (148)	2322 (61)
A14 West Slips (EB & WB), J33	2237 (168)	1911 (63)	2254 (185)	1928 (80)
A14 mainline between J33 and J34 (EB & WB)	5874 (561)	6329 (320)	5908 (595)	6363 (354)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald

4.2.143 Table 4-35 provides a summary of the absolute and percentage change in peak hour traffic flows resulting from these short-term intermittent activities.

Table 4-35: Short term intermittent activities: Absolute and percentage change in two-way peak hour traffic flows between the 2026 Future Baseline and in 2026 with short-term intermittent activities (vehicles)

Road link name	Absolute change		Percentage change	
	AM Peak	PM Peak	AM Peak	PM Peak
B1047 Horningsea Rd Bridge (NB & SB), J34	+17 (+17)	+17 (+17)	+2% (+170%)	+2% (+850%)
A14 on-slip (WB), J34	+17 (+17)	+17 (+17)	+3% (+850%)	+3% (+0%)
A14 off-slip junction 34 (EB)	+17 (+17)	+17 (+17)	+3% (+243%)	+4% (+850%)
Milton Interchange, A10 Milton Road (NB & SB)	+17 (+17)	+17 (+17)	+1% (+11%)	+1% (+25%)
Milton Interchange, Cambridge Road (NB & SB)	+17 (+17)	+17 (+17)	+2% (+68%)	+1% (+155%)
Milton Interchange, A14 East Slips (EB & WB)	+17 (+17)	+17 (+17)	+1% (+41%)	+1% (+106%)
Milton Interchange, A1309 Milton Rd (NB & SB)	+17 (+17)	+17 (+17)	+1% (+13%)	+1% (+39%)
Milton Interchange, A14 West Slips (EB & WB)	+17 (+17)	+17 (+17)	+1% (+10%)	+1% (+27%)
A14 mainline between J33 and J34 (EB & WB)	+34 (+34)	+34 (+34)	+1% (+6%)	+1% (+11%)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald

4.2.144 Applying IEMA Rule 1 there are no road links where traffic flows will increase by more than 30%. HGV traffic flows will increase by more than 30% on a number of the roads, however, considering these short-term intermittent activities would be of very short duration and would generate a relatively small number of additional HGV movements, any effects would be slight and **not significant**.

Proposed WWTP and permanent access: Construction Year 3 (2026) Construction Peak (RWC scenario)

4.2.145 Table 4-36 summarises the two-way traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) during the 2026 Future Baseline and the 2026 Construction Peak (RWC scenario) on the road links relevant to the construction of the proposed WWTP.

Table 4-36: Proposed WWTP, landscape areas and the permanent access: Two-way peak hour traffic flows in the 2026 Future Baseline and the 2026 Construction Peak (vehicles)

Road link name	Future Baseline		Construction Peak	
	AM Peak	PM Peak	AM Peak	PM Peak
B1047 Horningsea Rd Bridge (NB & SB), J34	979 (10)	888 (2)	997 (28)	989 (20)
A14 on-slip (WB), J34	497 (2)	665 (0)	515 (20)	766 (18)
A14 off-slip (EB), J34	604 (7)	480 (2)	705 (25)	498 (20)
A14 mainline between J33 and J34 (EB & WB)	5874 (561)	6329 (320)	5993 (597)	6448 (356)
Low Fen Drove Way (EB & WB)	1 (1)	0 (0)	17 (17)	17 (17)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald⁵

4.2.146 The absolute change and percentage change in traffic flows between the 2026 Future Baseline and the 2026 Construction Peak (RWC scenario) is shown in Table 4-37.

Table 4-37: Proposed WWTP, landscape areas and the permanent access: Absolute and percentage change in two-way peak hour traffic flows between the 2026 Future Baseline and the 2026 Construction Peak (vehicles)

Road link name	Absolute change		Percentage change	
	AM Peak	PM Peak	AM Peak	PM Peak
B1047 Horningsea Rd Bridge (NB & SB), J34	+18 (+18)	+101 (+18)	+2% (+180%)	+11% (+900%)
A14 on-slip (WB), J34	+18 (+18)	+101 (+18)	+4% (+900%)	+15% (0%)
A14 off-slip (EB), J34	+101 (+18)	+18 (+18)	+17% (+257%)	+4% (+900%)
A14 mainline between J33 and J34 (EB & WB)	+119 (+36)	+119 (+36)	+2% (+6%)	+2% (+11%)
Low Fen Drove Way	+17 (+17)	+17 (+17)	+1700% (+1700%)	+1700% (+1700%)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald⁶

4.2.147 Applying IEMA Rule 1, Low Fen Drove Way would experience a change in total traffic flows greater than 30%. In addition, HGV flows would increase by more than 30% on the following roads, which are identified for further assessment:

- B1047 Horningsea Road at junction 34;
- A14 on-slip at junction 34;
- A14 off-slip at junction 34; and
- Low Fen Drove Way.

4.2.148 The high percentage change in total traffic flows on Low Fen Drove Way is due to the road being a quiet countryside lane with low traffic flows, which means that the addition of even comparatively small volumes of construction traffic would cause a very large percentage change.

Temporary impact on severance

Magnitude of impact

4.2.149 The magnitude of impact on severance for all road links relevant to the construction of the proposed WWTP is summarised in Table 4-38.

⁵ Refer to pages 7, 8, 67 and 68 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

⁶ Refer to pages 63 and 64 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

Table 4-38: Proposed WWTP, landscape area and the permanent access: Assessment of severance during 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
B1047 Horningsea Rd Bridge, J34	Negligible	Major
A14 on-slip J34	Negligible	Major
A14 off-slip J34	Negligible	Major
Low Fen Drove Way	Major	Major

Source: Mott MacDonald

4.2.150 The two-way traffic flows on Low Fen Drove Way in the 2026 construction scenario are forecast to increase by over 100% in the AM and PM peak hours compared to the 2026 Future Baseline, resulting in a major magnitude of impact without mitigation. However, traffic flows on Low Fen Drove Way are very low as it is not a commuter route and is more likely to be used for farm activities. Therefore, the addition of the comparatively low level of construction traffic associated with the proposed WWTP shown in Table 4-37 amplifies the percentage change, creates an artificially high impact.

Sensitivity of receptors

4.2.151 The sensitivity of receptors on all road links relevant to the proposed WWTP and the new permanent access is summarised in Table 4-39.

Table 4-39: Proposed WWTP, landscape area and the permanent access: Assessment of severance during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

Road link name	Sensitivity of receptors – total traffic and HGVs
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	Low
A14 off-slip, J34	Low
Low Fen Drove Way	Low

Source: Mott MacDonald

Significance of effect

4.2.152 The significance of effect on severance for road links relevant to the construction of the proposed WWTP and the permanent access is summarised in Table 4-40.

Table 4-40: Proposed WWTP, landscape area and the new permanent access: Assessment of severance during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect	Significance of effect – HGVs
B1047 Horningsea Rd Bridge, J34	Slight – not significant	Major - significant
A14 on-slip J34	Neutral – not significant	Slight – not significant
A14 off-slip J34	Neutral – not significant	Slight – not significant
Low Fen Drove Way	Slight – not significant	Slight – not significant

Source: Mott MacDonald

- 4.2.153 The assessment indicates that there would be a slight/neutral effect on severance due to increases in total traffic flows on all of the assessed sections of road, which is **not significant**.
- 4.2.154 The assessment indicates that there would be a major effect on severance due to increases in HGV flows of over 30% on the B1047 Horningsea Road bridge at junction 34 of the A14, which is significant. However, it is noted that:
- the construction peak only lasts 4 months and generates a relatively small number of HGV movements;
 - the construction HGV movements would be limited to the A14 on and off-slips and the B1047 Horningsea Road Bridge only, which have no active frontage;
 - background HGV flows on junction 34 of the A14 are very low, so even small absolute increases in HGV flows would trigger a significant effect;
 - there are segregated facilities for pedestrians and cyclists alongside the carriageway and controlled crossing facilities across the A14 slip roads;
 - the junction benefits from good visibility, traffic signal control and street lighting.
- 4.2.155 For the above reasons, it is considered that the effect on severance due to increases in HGV flows on the B1047 Horningsea Road bridge should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

- 4.2.156 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements. Specifically:
- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and

15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;

- Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
- Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through the Fen Ditton and Horningsea.

4.2.157 There will be short term intermittent occurrences of construction vehicle movements within the peak hours required for time critical activities (see Table 4-33). During these activities there could be very short term slight to neutral severance effects that are **not significant**.

4.2.158 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

4.2.159 There are no residual significant effects on severance.

Temporary impact on pedestrian delay

4.2.160 Construction activities will interact with existing transport infrastructure (such as existing roads, footpaths and ProW) due to:

- temporary use of land to install structures such as new pipelines, waste water transfer tunnel and for temporary compound areas;
- temporary use of land for haul routes; and
- open cut excavation crossing Horningsea Road to install final effluent pipeline.

4.2.161 Road links with footways are assessed differently to PRoW given the difference in the types of users.

4.2.162 The construction of the proposed WWTP and the new permanent access would cross two existing ProW, as summarised in Table 4-41.

Table 4-41: Proposed WWTP, landscape area and new permanent access: Assessment of pedestrian delay during the 2026 Construction Peak (RWC scenario) – summary of construction impact on ProW

ProW ID	Description	Summary
85/14 & 130/17	Byway located on Low Fen Drove Way	Temporarily disrupted during the construction of the temporary access road from Low Fen Drove Way.

Source: Mott MacDonald

Magnitude of impact

4.2.163 The magnitude of impact on pedestrian delay on roads with footways is summarised in Table 4-42. While the A14 has a lack of pedestrian infrastructure and low volume of pedestrians along the link, the A14 on-slip and off-slip are assessed as they intersect with the shared use path on the western side of Horningsea Road, used frequently by pedestrians and cyclists.

Table 4-42: Proposed WWTP, landscape area and the new permanent access: Assessment of pedestrian delay on roads with footways during the 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact
B1047 Horningsea Rd Bridge	Negligible
A14 on-slip junction 34	Negligible
A14 off-slip junction 34	Negligible
Low Fen Drove Way	Major

Source: Mott MacDonald

4.2.164 Although not directly affected, access to PRoW 85/14 and 130/17 may be affected during the period when Low Fen Drove Way is used in construction, in particular whilst the permanent access road is being used.

4.2.165 For PRoW taking into account mitigation measures (Section 2.8), an assumed average waiting time of 2 minutes at a controlled gated access corresponds to an added journey length of 170 metres (based on an average walking speed of 1.42 metres per second (Mohler, 2007)).

4.2.166 The magnitude of impact on PRoW 85/14 and PRoW 130/17 has been determined to be minor.

Sensitivity of receptor

4.2.167 The sensitivity of receptors on all road links relevant to the proposed WWTP and the new permanent access is summarised in Table 4-43.

Table 4-43: Proposed WWTP, landscape area and the new permanent access: Assessment of pedestrian delay on roads with footways during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

Road link name	Sensitivity of receptors
B1047 Horningsea Rd Bridge	High
A14 on-slip junction 34	Low
A14 off-slip junction 34	Low
Low Fen Drove Way	Low

Source: Mott MacDonald

4.2.168 The sensitivity of receptors on PRow relevant to the construction of the proposed WWTP is in Table 4-44.

Table 4-44: Proposed WWTP, landscape area and the new permanent access: Assessment of pedestrian delay on PRow during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

PRow reference	Sensitivity of receptors
85/14	Medium
130/17	Medium

Source: Mott MacDonald

Significance of effect

4.2.169 During the construction phase, it is anticipated that there would be temporary effects, which are slight and **not significant**, on pedestrian delay on relevant road links with footways. This is summarised below in Table 4-45.

Table 4-45: Proposed WWTP, landscape area and the new permanent access: Assessment of pedestrian delay on roads with footways during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect
B1047 Horningsea Rd Bridge	Slight – not significant
A14 on-slip junction 34	Neutral – not significant
A14 off-slip junction 34	Neutral – not significant
Low Fen Drove Way	Slight – not significant

Source: Mott MacDonald

4.2.170 The significance of effect on pedestrian delay on PRow intersected by the proposed WWTP construction corridor is summarised in Table 4-46.

Table 4-46: Proposed WWTP, landscape area and the new permanent access: Assessment of pedestrian delay on PRow during the 2026 Construction Peak (RWC scenario) – significance of effect

PRow reference	Significance of effect
85/14	Slight – not significant
130/17	Slight – not significant

Source: Mott MacDonald

Secondary mitigation or enhancement

4.2.171 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements, specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
 - Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
 - Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures:
 - measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through the Fen Ditton and Horningsea;
 - a requirement for all PRoW to be restored to the same condition as before the works took place or to a standard which is acceptable to the Local Highway Authority; and

- a requirement for the use of safety gates to be put in place and users allowed to safely cross the construction working area.

- 4.2.172 Through these measures, any impact on pedestrian delay that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.
- 4.2.173 There will be short term intermittent occurrences of construction vehicle movements within the peak hours required for time critical activities (see Table 4-33). During these activities there could be very short-term slight pedestrian delay effects that are **not significant**.
- 4.2.174 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

- 4.2.175 There are no residual significant effects on pedestrian delay.

Temporary impact on driver delay

- 4.2.176 The IEMA Guidelines for the Environmental Assessment of Road Traffic (GEART) (IEMA, 1993) indicates that the junction modelling contained in the TA (Appendix 19.3, App Doc Ref 5.4.19.3) should be used to determine the average delay per vehicle. It notes that delays are only considered significant when the road network in the vicinity of the Proposed Development is already operating at or close to capacity (i.e., where a Degree of Saturation over 90% has been observed).
- 4.2.177 There are no junctions on the construction route for the proposed WWTP where a potential capacity issue has been identified on the road network in the 2026 Future Baseline. Consequently, there are no road links that require a detailed assessment of driver delay.

Secondary mitigation or enhancement

- 4.2.178 Although no effects have been identified as significant, the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1), as described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development). The CTMP and CoCP (section 2.8 Mitigation measures adopted as part of the Proposed Development) would mitigate the potential effects associated with construction vehicle movements if required.
- 4.2.179 Section 4.2 (Local routeing and site plant vehicle routeing) of the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific

restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays.

- 4.2.180 If effects arise, these would be fully mitigated through implementation of the measures within the CTMP and CoCP which has committed to only allowing construction vehicle movements outside the AM and PM peak hours. Therefore, no construction vehicles will travel along the construction route in the AM and PM peak and the effect is slight and **not significant**.
- 4.2.181 Through this restriction, any effects on driver delay that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.
- 4.2.182 There will be short term intermittent occurrences of construction vehicle movements within the peak hours required for time critical activities (see Table 4-33). During these activities, there could be very short term (e.g. vehicle movements occurring over 2-3 days) major to moderate effects on driver delay that are **not significant**.
- 4.2.183 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

- 4.2.184 There are no residual significant effects on driver delay.

Temporary impact on fear and intimidation

- 4.2.185 In the absence of clear thresholds, a change of traffic flows of 30%, 60% and 90% corresponds to a minor, moderate, and major magnitude of impact, respectively. A change of less than 30% means the impact magnitude can be considered negligible and would not require a detailed assessment.
- 4.2.186 The percentage change in traffic flows on the road links relevant to the proposed WWTP and the new permanent access is provided in Table 4-37.

Magnitude of impact

- 4.2.187 The magnitude of impact on fear and intimidation for all road links relevant to the construction of the proposed WWTP is summarised in Table 4-47. While the A14 has a lack of pedestrian infrastructure and low volume of pedestrians along the link, the

A14 on-slip and off-slip are assessed as they intersect with the shared use path on the western side of Horningsea Road, used frequently by pedestrians and cyclists.

Table 4-47: Proposed WWTP and the permanent access: Assessment of fear and intimidation during 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
B1047 Horningsea Rd Bridge, J34	Negligible	Major
A14 on-slip, J34	Negligible	Major
A14 off-slip, J34	Negligible	Major
Low Fen Drove Way	Major	Major

Source: Mott MacDonald

4.2.188 The two-way traffic flows on Low Fen Drove Way in the 2026 construction scenario is noted to increase by over 100% in the AM and PM peak hours compared to the 2026 Future Baseline, resulting in a major magnitude of impact without mitigation. However, traffic flows on Low Fen Drove Way are very low as it is not a commuter route and is more likely to be used for farm activities. Therefore, the addition of the comparatively low level of construction traffic associated with the proposed WWTP shown in Table 4-37 amplifies the percentage change, creating an artificially high impact.

Sensitivity of receptor

4.2.189 The sensitivity of receptors on all road links relevant to the proposed WWTP and the new permanent access is summarised in Table 4-48.

Table 4-48: Proposed WWTP and the new permanent access: Assessment of fear and intimidation during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

Road link name	Sensitivity of receptors – total traffic and HGVs
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	Low
A14 off-slip, J34	Low
Low Fen Drove Way	Low

Source: Mott MacDonald

Significance of effect

4.2.190 During the construction phase, it is anticipated that there would be some temporary effects on fear and intimidation on relevant road links. These are summarised in Table 4-49.

Table 4-49: Proposed WWTP and the new permanent access: Assessment of fear and intimidation during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect	Significance of effect – HGVs
B1047 Horningsea Rd Bridge, J34	Slight – not significant	Major - significant

Road link name	Significance of effect	Significance of effect – HGVs
Low Fen Drove Way	Slight – not significant	Slight – not significant
A14 on-slip J34	Neutral – not significant	Slight – not significant
A14 off-slip J34	Neutral – not significant	Slight – not significant

Source: Mott MacDonald

4.2.191 The assessment indicates that there would be a slight/neutral effect on fear and intimidation due to increases in total traffic flows on all of the assessed road links, which is **not significant**.

4.2.192 The assessment indicates that there would be a major effect on fear and intimidation due to increases in HGV flows of over 30% on the B1047 Horningsea Road bridge, which is significant. However, for the reasons set out in paragraph 4.2.154, it is considered that the effect on fear and intimidation due to increases in HGV flows on the B1047 Horningsea Road bridge should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.193 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements. Specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;

- Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
 - Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through the Fen Ditton and Horningsea.

4.2.194 There will be short term intermittent occurrences of construction vehicle movements within the peak hours required for time critical activities (see Table 4-33). During these activities there could be very short term (e.g., vehicle movements occurring over 2-3 days) slight and neutral effects on fear and intimidation that are **not significant**.

4.2.195 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

4.2.196 There are no residual significant effects on fear and intimidation.

Temporary impact on accidents and road safety

4.2.197 A summary of PIC history can be found in Section 3.1 (Collision history).

Magnitude of impact

4.2.198 The magnitude of impact for all road links relevant to the construction of the proposed WWTP and the permanent access has been determined and is shown in Table 4-50.

Table 4-50: Proposed WWTP and the new permanent access: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact	Magnitude of impact – HGVS
B1047 Horningsea Rd Bridge, J34	Negligible	Major
Low Fen Drove Way	Major	Major
A14 on-slip, J34	Negligible	Major
A14 off-slip, J34	Negligible	Major

Source: Mott MacDonald

Sensitivity of receptor

4.2.199 The sensitivity of receptors on all road links relevant to the proposed WWTP and the permanent access is summarised in Table 4-51.

Table 4-51: Proposed WWTP and the permanent access: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

Road link name	Sensitivity of receptors – total traffic and HGVs
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	High
A14 off-slip, J34	High
Low Fen Drove Way	Low

Source: Mott MacDonald

Significance of effect

4.2.200 During the construction phase, it is anticipated that there would be temporary effects on accidents and road safety of on relevant road links which are **not significant**. This is summarised in Table 4-52.

Table 4-52: Proposed WWTP and the permanent access: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect– total traffic	Significance of effect – HGVs
B1047 Horningsea Rd Bridge, J34	Slight – not significant	Major – significant
A14 on-slip	Slight – not significant	Major – significant
A14 off-slip	Slight – not significant	Major – significant
Low Fen Drove Way	Slight – not significant	Slight – not significant

Source: Mott MacDonald

4.2.201 The assessment indicates that there would be a slight/neutral effect on accidents and road safety due to increases in total traffic flows on all of the assessed road links, which is **not significant**.

4.2.202 The assessment indicates that there would be a major effect on accidents and safety due to increases in HGV flows of over 30% on the B1047 Horningsea Road bridge and the A14 on-slip and off-slip at junction 34 of the A4, which is significant. However, for the reasons set out in paragraph 4.2.154, it is considered that the effect on accidents and road safety due to increases in HGV flows should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.203 As described in Section 2.8.2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements. Specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak

hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;

- Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
- Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through the Fen Ditton and Horningsea.

4.2.204 Through these measures, any effects on accidents and road safety that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

4.2.205 There will be short term intermittent occurrences of construction vehicle movements within the peak hours required for time critical activities (see Table 4-33). During these activities there could be very short term (e.g., vehicle movements occurring over 2-3 days) slight effects on accidents and road safety that are **not significant**.

4.2.206 Through a requirement of the Community Liaison Plan instances of time critical works would be communicated the local community and stakeholders in advance of the works taking place including provision of information on durations, particularly where these will involve works outside of the core working hours.

Residual effect

4.2.207 There are no residual significant effects on accidents and road safety.

Construction of treated effluent pipeline to outfall

- 4.2.208 The construction of the treated effluent pipeline is expected to take approximately nine months and is scheduled to commence in Construction Year 3 (assumed to be 2026). The site access point to the construction corridor is located south of Low Fen Drove Way.
- 4.2.209 The assessment of the significance of effect on severance, driver delay, fear and intimidation, accidents and road safety, and hazardous loads is carried out in the ‘Construction of the proposed WWTP (including permanent access and works related to the landscape masterplan)’ earlier in this section and includes any potential effects on the treated effluent pipeline and outfall, with the exception of pedestrian delay, which is assessed in this section.
- 4.2.210 The construction of the outfall and treated effluent pipeline will have an impact on PRow in the vicinity of the works corridor. A list of relevant PRow is provided in Table 4-53:
- 4.2.211 Construction activities will interact with existing transport infrastructure (such as existing roads, footpaths, and PRow) due to:
- temporary use of land to install structures such as new pipelines, waste water transfer tunnel, and for temporary compound areas;
 - temporary use of land for haul routes; and
 - open cut excavation crossing Horningsea Road to install final effluent pipeline.
- 4.2.212 Road links used for the delivery of materials and construction of the outfall and treated effluent pipeline overlap with the construction of the proposed WWTP. No additional road links are therefore used for the construction of the outfall and treated effluent pipeline. Therefore, construction flows for the outfall and treated effluent pipeline are counted and assessed with the construction flows for the proposed WWTP.

Temporary impact of construction on pedestrian delay

- 4.2.213 Table 4-53: outlines the PRow that will require diversion during various phases of the construction programme for the outfall and treated effluent pipeline.

Table 4-53: Outfall and treated effluent pipeline: summary of PRow temporarily disrupted by construction

PRoW ID	Description	Summary
85/6	Located on the east bank of the River Cam, south of the A14 (passing under the A14 bridge). Connected to the northern extent of Green End.	Users are temporarily diverted north of the bridge along 85/8 due to the construction of new pipelines and outfall affecting 85/6.
85/8	Located north of the A14 and runs parallel to the A14, and to the immediate south of Biggin Abbey.	Disrupted due to the construction of the treated effluent pipeline and part of the temporary diversion from 85/6.

PRoW ID	Description	Summary
Horningsea Road	Section located between A14 off-slip to junction with Biggin Land	Disrupted by use to transfer diverted users of the footpath 85/6 and 85/8

Source: Mott MacDonald

4.2.214 Based on IEMA guidance and professional judgement, PRoW have been assessed based on added journey length. Standard road links with footways have been assessed using changes in traffic flow in the 2026 Construction Peak (RWC scenario). This has been determined to be the most appropriate method to assess the significance of effect of pedestrian delay owing to the different types of users on PRoW and roads.

4.2.215 The assessment of the temporary impacts on pedestrian delay is therefore split between the assessment of PRoW (for the treated effluent pipeline and outfall) and roads with footways (for the proposed WWTP).

Magnitude of impact

4.2.216 The PRoW in the vicinity of locations that are directly crossed by the construction corridor, and the assessment of the magnitude of impact on pedestrian delay, are assessed separately from roads with footways. PRoW attract a different category of users, who are more likely to go on walks in the area recreationally and more often. Additionally, PRoW users are less likely to be delayed owing to the relatively low level of interaction between PRoW users and road traffic (with the exception of byways).

4.2.217 For PRoW 85/6, there would be a short term diversion of up to 11 months during construction of the outfall. During this period, users of PRoW 85/6 would need to travel a total of 770m to return to back to PRoW 85/6 at Baits Bite Lock.

4.2.218 During the diversion of PRoW 85/6 there would be a period where use of the PRoW 85/8 as part of the temporary diversion would cease due to the construction corridor related to the open cut construction of the treated effluent pipeline. This would require a longer diversion to the footway/cycleway along the western side of the carriageway on Horningsea Road to join PRoW 130/1, meaning users of PRoW 85/6 would need to travel a total 1,010m to return to back to PRoW 85/6 at Baits Bite Lock. It is not intended to close PRoW 85/8, and safety gates would be provided for users to continue making use of the path.

4.2.219 Users of PRoW 85/8 would also be affected when PRoW 85/8 ceases due to the open cut construction of the treated effluent pipeline. During this period, users of PRoW 85/8 would be temporarily diverted to use the footway on the western side of Horningsea Road and a temporary diversion parallel to the A14 to rejoin Footpath 85/8. As a result, users of PRoW 85/8 would need to travel 760m to return back to PRoW 85/6. To mitigate this change in journey length, it is intended to install safety gates at locations where PRoW 85/8 is intersected by the construction corridor to allow users to cross the corridor and continue to make use of the footpath.

4.2.220 The magnitude of impact on pedestrian delay on PRoW is set out in Table 4-54.

Table 4-54: Treated effluent pipeline: pedestrian delay - magnitude of impact on PRoW

PRoW reference	Potential added journey length (metres)	Magnitude of impact
85/6	Users of PRoW 85/6 would be diverted a total 770m using PRoW 85/8 and then temporary diversion route to re-join PRoW 85/6	Major
	During works to cross PROW 85/8 with the treated effluent pipeline users moving along PRoW 85/8 would continue on a temporary diversion to footway/cycleway to the west of Horningsea Road before joining a further section of temporary PRoW diversion to re-join PRoW 85/6 requiring a journey length of more than 500m, or a total journey length of 1,010m.	Major
85/8	Users of PRoW 85/8 moving north to join the PRoW 130/1 from PRoW 85/8 would have an increased journey of 760m via Horningsea Road	Major
	Users moving south from PRoW 85/8 from PRoW 130/1 to join PRoW 85/6 would walk have an increased journey of 760m via Horningsea Road	Major

Source: Mott MacDonald

Sensitivity of receptor

4.2.221 The sensitivity of receptors on all road links relevant to the treated effluent pipeline and outfall is summarised in Table 4-55.

Table 4-55: Treated effluent pipeline and outfall: pedestrian delay - sensitivity of receptors on PRoW

PRoW reference	Sensitivity of receptors
85/6	Medium
85/8	Medium

Source: Mott MacDonald

Significance of effect

4.2.222 It is anticipated that during construction there would be a significant effect on pedestrian delay of variable significance on PRoW. This is summarised in Table 4-56.

Table 4-56: Treated effluent pipeline and outfall: pedestrian delay – significance of effect on PRoW

PRoW reference	Potential added journey length (metres)	Magnitude of impact
85/6	Users of PRoW 85/6 would be diverted a total 770m using PRoW 85/8 and then along a temporary diversion route to re-join PRoW 85/6	Major
	During works to cross PRoW 85/8 with the treated effluent pipeline users moving along PRoW 85/8 would continue on a temporary diversion to the footway/cycleway to the west of Horningsea Road before joining a further section of temporary PRoW diversion to re-join PRoW 85/6 requiring a journey length of more than 500m, or a total journey length of 1,010m	Major
85/8	Users moving north to join PRoW 130/1 from PRoW 85/8 would have an increased journey of 760m via Horningsea Road	Major

PRoW reference	Potential added journey length (metres)	Magnitude of impact
	Users moving south from PRoW 85/8 from PRoW 130/1 to join PRoW 85/6 would walk have an increased journey of 760m via Horningsea Road	Major

Source: Mott MacDonald

4.2.223 A major significant effect on pedestrian delay has been determined on PRoW 85/6 owing to the diversion required as a result of construction activities.

Secondary mitigation or enhancement

4.2.224 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements.

4.2.225 Additional measures secured by the CTMP and CoCP would include:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays. This would reduce interface with construction vehicle movements and users of the footway during the morning and afternoon peaks;
 - Section 4.2 (Local routeing and site plant vehicle routeing) recognises the potential conflict of site access points CA2/CA3 which will cross the existing footway / cycleway on the west side of Horningsea Road which may require marshalling during peak hours and/or traffic

management measures to provide a safe crossing point for site traffic and pedestrians and cyclists;

- Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads;
 - Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which requires that the existing footway / cycleway to the west of the Horningsea Road carriageway will be maintained at all times with suitable barriers separating the footway from the works which would reduce impact to users temporarily diverted onto the footway/cycleway; and
 - Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) requires that speed restrictions to Horningsea Road will be put in place for the duration of the works in accordance with the Temporary Traffic Regulation Order set out in Article 16 of the DCO (the detail of which will be subject to agreement with Cambridgeshire County Council and any other relevant stakeholders).
- CoCP Part A measures:
 - a requirement for the use of safety gates to be put in place and users allowed to safely cross the construction working area which would allow users diverted on to PRoW 85/8 to cross over the works to construct the treated effluent pipeline and join the temporary diversion back to PRoW 85/6; and
 - a requirement for all PRoW to be restored to the same condition as before the works took place or to a standard which is acceptable to the Local Highway Authority which returns the paths to the same or better condition, so journey quality is unaffected once the works have been completed.

4.2.226 For PRoW, an assumed average waiting time of 2 minutes at a controlled gated access corresponds to an added journey length of 170 metres (based on an average walking speed of 1.42 metres per second (Mohler, 2007)).

4.2.227 PRoW 85/6 would be diverted along PRoW 85/8 in part, which is intersected by the pipeline works corridor and would therefore require a gate access. This diversion would increase the journey by 610m (from 160m without diversion to 770m with diversion onto 85/8) with a further 170m (equivalent to the distance a user on a PRoW would have covered in two minutes) added as a result of the gated access on PRoW 85/8. Therefore, the added journey length from the diversion of PRoW 85/6 onto PRoW 85/8, including the waiting time at the access gates, is 780m or a total journey length of 940m.

4.2.228 Users of PRoW 85/8 would no longer be affected by the open cut construction of the treated effluent pipeline through use of the gate system for crossing the works area.

The 170m (equivalent to the distance a user on a PRow would have covered in two minutes) is added as a result of the gated access on PRow 85/8. This is summarised in Table 4-57 which presents the distances of the journeys without and with the measures contained in the CoCP Part A (App Doc Ref 5.4.2.1).

Table 4-57: Treated effluent pipeline: pedestrian delay - magnitude of impact on PRow with diversion and application of additional measures

PRow / road link reference	Potential added journey length (metres) diversions only	Potential added journey length (metres) diversions and additional measures	Magnitude of impact
85/6	Users would be diverted a total 770m using PRow 85/8 and then along a temporary diversion route to re-join PRow 85/6	No change	Major
85/6	During works to cross ProW 85/8 with the treated effluent pipeline users moving along 85/8 would continue on a temporary diversion to footway/cycleway to the west of Horningsea Road before joining a further section of temporary PRow diversion to re-join PRow 85/6 requiring a journey length of more than 500m, or a total journey length of 1,010m.	Diversion along Horningsea Road no longer needed with gate in place however the equivalent total journey length accounting for wait time is 940m, or an added journey length of 780m.	Major
85/8	Users moving north to join PRow 130/1 via PRow 130/2 would have a total journey length of 760m	No longer needed with gate in place however the total journey length accounting for wait time would increase by 170m	Minor
	Users moving south via PRow 130/1 and 130/2 to join PRow 85/8 would have a total journey length of 760m		Minor

Source: Mott MacDonald

Residual effect

- 4.2.229 There is short-term moderate effect on PRow 85/8 during the installation of the crossing.
- 4.2.230 There is a residual major significant effect on pedestrian delay to users of PRow 85/6 which is temporary.

Waterbeach pipeline

- 4.2.231 This section sets out the assessment of effects in relation to the Waterbeach pipeline, which consists of a transfer section running from the north near Waterbeach to Low Fen Drove Way, a section crossing the area of land required for the construction of the proposed WWTP, and a section south of the A14 which connects to the area of land where the existing Cambridge WWTP is located.

4.2.232 The sequencing of the construction programme is such that the Waterbeach pipeline peak construction activities and the associated construction vehicle movements, would not occur at the same time as the construction of the proposed main WWTP (including permanent access and landscape masterplan) and the waste water transfer tunnel. However, typical daily construction flows for the Waterbeach pipeline have been included in the reasonable worst-case scenario so that an allowance is made for a potential delay to the Waterbeach programme.

4.2.233 The following links in or in the vicinity of Waterbeach have been considered for the assessment of the significance of effects relevant to the construction of the Waterbeach pipeline:

- A10 Ely Road;
- Denny End Road;
- Bannold Road;
- Bannold Drove;
- Burgess's Drove;
- Car Dyke Road;
- Station Road;
- Clayhithe Road; and
- Long Drove.

4.2.234 Milton Road, Cowley Road, and junction 34 of the A14 have not been included in the assessment of Waterbeach pipeline, as they have previously been assessed in Section 4.2 (Construction phase) under the heading 'Proposed WWTP' as part of the RWC scenario, which assumes that construction of the waste water transfer tunnel, the proposed WWTP, and the Waterbeach pipeline have been considered to occur simultaneously.

4.2.235 For the road links included in the assessment of Waterbeach pipeline, the typical construction vehicles movements are expected to be:

- 68 total daily two-way vehicle movements:
 - 5 HGV movements per hour across an 8-hour working day; and
 - 28 car/LGV movements for worker mobilisation.

4.2.236 Outside of Waterbeach, for the section of the Waterbeach pipeline south of the A14 which connects to the area of land where the existing Cambridge WWTP is located, the following links are considered for the assessment:

- Green End Road;
- Water Lane (includes Water Street and Fen Road);

- Cowley Road (assessed as part of Section 4.2 'Construction of the waste water transfer tunnel and shafts'); and
- Milton Road (assessed as part of section 4.2 'Construction of the waste water transfer tunnel and shafts').

4.2.237 In terms of construction vehicle movements, it is anticipated that these activities will be highest during the first 8 weeks of construction when all the equipment including the pipe sections, pipe rings, plant and machinery are delivered to site and the compound area is set up. During this period, a temporary haul road surface will also be constructed along both the access tracks and working strip as required by ground conditions. Construction vehicle movements will then peak again during the last 8 weeks when the temporary haul road, plant and machinery is removed from site and the compounds dismantled.

4.2.238 Construction vehicle movements between these periods will reduce substantially and would largely be limited to one off deliveries for specific infrastructure items (i.e., additional pipework and fittings along with travel to and from site by operatives, supervisors, and managers along with associated visitors).

4.2.239 For the construction of the Waterbeach pipeline, the following peak daily construction movements would be required:

- for road links in Waterbeach (north of the A14): 82 HGVs and 28 workforce cars and LGVs; and
- for sites on B1047 Horningsea Road and on Cowley Road (south of the A14): 90 HGVs and 28 workforce cars and LGVs.

4.2.240 The peak construction traffic will be during spring and summer in Construction Year 1 (2024) with lower levels of construction movements in Waterbeach for the duration of the construction work between Construction Year 1 and Construction Year 3 (2024-2026).

4.2.241 For the number of construction vehicle movements for the Waterbeach pipeline at Junction 34 and Horningsea Road, as stated within the assumptions of the RWC scenario, typical construction vehicle numbers have been used instead of peak vehicle numbers with the latter representing the peak total flow. This has been done because the sequencing of the construction programme has been set up such that the peak construction activities, and the associated construction vehicle movements, cannot occur at the same time as the construction of the proposed main WWTP (including permanent access and landscape masterplan) and the waste water transfer tunnel. For all other roads / links required for the construction of the Waterbeach pipeline, however, atypical traffic flows have been employed, and its effects have been assessed on the road network.

4.2.242 The following measures within the CTMP are of particular relevance to roads in Waterbeach (Burgess's Drove, Bannold Drove, Bannold Road, Clayhithe Road):

- Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which includes:

- a requirement for speed restrictions to Burgess's Drove, Bannold Drove and Bannold Road as well as Clayhithe Road will be put in place in accordance with the Temporary Traffic Regulation Order which will be set out in of the DCO;
- a requirement for Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road that construction traffic over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 during school term time; and
- a temporary parking restriction on Bannold Road junction with Denny End Road / Car Dyke Lane.

Waterbeach pipeline: Construction Year 3 (2026) Construction Peak (RWC scenario)

4.2.243 Table 4-58 summarises the two-way flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) during the 2026 Future Baseline and the 2026 Construction Peak (RWC scenario) on the road links relevant to the construction of the Waterbeach pipeline.

Table 4-58: Waterbeach pipeline: Two-way peak hour traffic flows in 2026 Future Baseline and 2026 Construction Peak (vehicles)

Road link name	Future Baseline		Construction Peak	
	AM Peak	PM Peak	AM Peak	PM Peak
Waterbeach pipeline – roads used to access work sites north of the A14				
A10 Ely Rd (NB & SB)	1352 (134)	1295 (51)	1378 (146)	1321 (63)
Denny End Rd (EB & WB)	522 (22)	554 (6)	548 (34)	580 (18)
Bannold Rd (EB & WB)	280 (11)	265 (0)	306 (23)	291 (12)
Bannold Drove (NB & SB)	4 (1)	2 (0)	30 (13)	28 (12)
Burgess's Drove (NB & SB)	4 (1)	2 (0)	30 (13)	28 (12)
Long Drove (NB & SB)	4 (1)	2 (0)	30 (13)	28 (12)
Car Dyke Rd (EB & WB)	497 (13)	485 (4)	523 (25)	511 (16)
Station Rd (includes Clayhithe Road) (NB & SB)	324 (10)	383 (5)	350 (22)	409 (17)
Waterbeach pipeline - roads used to access work sites south of the A14				
Milton Rd (NB & SB)	2723 (131)	2305 (44)	2749 (143)	2331 (56)
Green End Rd (EB & WB) ⁷	778 (37)	633 (11)	804 (49)	659 (23)
Water Lane (includes Water Street and Fen Rd) (EB & WB)	345 (13)	365 (3)	371 (25)	391 (15)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald⁸

⁷ Section of Green End Road between Milton Road and Green Park

⁸ Refer to pages 7, 8, 85, 86, 94 and 95 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

4.2.244 The absolute change and percentage change in traffic flows between the 2026 Future Baseline and the 2026 Construction Peak (RWC scenario) is shown in Table 4-59.

Table 4-59: Waterbeach pipeline: Absolute and percentage change in two-way peak hour traffic flows between 2026 Future Baseline and 2026 Construction Peak (vehicles)

Link name	Absolute change		Percentage change	
	AM Peak	PM Peak	AM Peak	PM Peak
Waterbeach pipeline – roads used to access work sites north of the A14				
A10 Ely Road (NB & SB)	+26 (+12)	+26 (+12)	+2% (+9%)	+2% (+24%)
Denny End Road (EB & WB)	+26 (+12)	+26 (+12)	+5% (+55%)	+5% (+200%)
Bannold Road (EB & WB)	+26 (+12)	+26 (+12)	+9% (+109%)	+10% (+0%)
Bannold Drove (NB & SB)	+26 (+12)	+26 (+12)	+650% (+1200%)	+1300% (+0%)
Burgess’s Drove (NB & SB)	+26 (+12)	+26 (+12)	+650% (+1200%)	+1300% (+0%)
Long Drove (NB & SB)	+26 (+12)	+26 (+12)	+650% (+1200%)	+1300% (+0%)
Car Dyke Road (EB & WB)	+26 (+12)	+26 (+12)	+5% (+92%)	+5% (+300%)
Station Road / Clayhithe Road (NB & SB)	+26 (+12)	+26 (+12)	+8% (+120%)	+7% (+240%)
Waterbeach pipeline - roads used to access work sites south of the A14				
Milton Rd (NB & SB)	26 (12)	26 (12)	+1% (+9%)	+1% (+27%)
Green End Road (EB & WB) ⁹	26 (12)	26 (12)	+3% (+32%)	+4% (+109%)
Water Lane (includes Water Street and Fen Road) (EB & WB)	26 (12)	26 (12)	+8% (+92%)	+7% (+400%)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald¹⁰

Temporary impact of construction on severance of routes

4.2.245 Applying IEMA Rule 1, the following road links which would experience a change in total traffic flows greater than 30% and are identified for further assessment:

- Bannold Drove;
- Burgess’s Drove; and
- Long Drove.

4.2.246 In addition, the following road links which would experience a change in HGV flows greater than 30% and are identified for further assessment:

- Denny End Road;

⁹ Section of Green End Road between Milton Road and Green Park

¹⁰ Refer to pages 81, 82, 90 and 91 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

- Bannold Road;
- Car Dyke Road;
- Clatylhithe Road / Station Road;
- Green End Road; and
- Water Lane.

Magnitude of impact

4.2.247 The magnitude of impact on severance for all road links relevant to the Waterbeach pipeline is summarised in Table 4-60.

Table 4-60: Waterbeach pipeline: Assessment of severance during the 2026 construction peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
Denny End Road	Negligible	Major
Bannold Road	Negligible	Major
Bannold Drove	Major	Major
Burgess's Drove	Major	Major
Long Drove	Major	Major
Car Dyke Road	Negligible	Major
Station Road / Clayhithe Road	Negligible	Major
Green End Road	Negligible	Major
Water Lane	Negligible	Major

Source: Mott MacDonald

4.2.248 A major magnitude of impact on severance is identified on Bannold Drove, Burgess's Drove, Long Drove, Car Dyke Road and Station Road/Clayhithe Road. However, this reflects that these roads are all quiet countryside lanes with very few vehicle movements, which means that the addition of even comparatively small volumes of construction vehicle movements would cause a very high percentage change.

Sensitivity of receptor

4.2.249 The sensitivity of receptors on all road links relevant to the Waterbeach pipeline is summarised in Table 4-61.

Table 4-61: Waterbeach pipeline: Assessment of severance during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

Road link name	Sensitivity of receptors – total traffic and HGVs
Denny End Road	Low
Bannold Road	Low
Bannold Drove	Low
Burgess's Drove	Low

Road link name	Sensitivity of receptors – total traffic and HGVs
Long Drove	Low
Car Dyke Road	Low
Station Road / Clayhithe Road	Low
Green End Road	Low
Water Lane	Low

Source: Mott MacDonald

Significance of effect

4.2.250 The significance of effect on severance for road links relevant to the construction of the Waterbeach pipeline is summarised in Table 4-62.

Table 4-62: Waterbeach pipeline: Assessment of severance during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect – total traffic	Significance of effect – HGVs
Denny End Road	Neutral - not significant	Slight - not significant
Bannold Road	Neutral – not significant	Slight - not significant
Bannold Drove	Slight – not significant	Slight - not significant
Burgess’s Drove	Slight – not significant	Slight - not significant
Long Drove	Slight – not significant	Slight - not significant
Car Dyke Road	Neutral - not significant	Slight - not significant
Station Road / Clayhithe Road	Neutral - not significant	Moderate- significant
Green End Road	Neutral - not significant	Slight - not significant

Source: Mott MacDonald

4.2.251 The assessment indicates that there would be a slight/neutral effect on severance due to increases in total traffic and HGV traffic flows on most of the assessed road links, which is **not significant**.

4.2.252 The assessment indicates that there would be a moderate effect on severance due to increases in HGV traffic flows on Station Road/Clayhithe Road, which is significant. However, absolute numbers of HGVs are relatively low and the impacts would be short-lived, only occurring during the first and last 8 weeks of construction activity on the Waterbeach pipeline. For these reasons, it is considered that the effect on accidents and road safety due to increases in HGV flows at junction 33 of the A14 should be reduced from a moderate effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.253 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements. Specifically:

- CTMP measures
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
 - Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
 - Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.

4.2.254 Through these measures, any impact on severance that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

Residual effect

4.2.255 There are no residual significant effects on severance.

Temporary impact of construction on pedestrian delay

4.2.256 Road links with footways are assessed differently to PRoW given the difference in the composition of users.

4.2.257 The proposed pipeline route would cross six existing PRoW, which are summarised in Table 4-63. No alternate routes / diversions using other existing PRoW have been proposed across these six PRoW due to the lack of other nearby PRoW in the area. Potential diversions would require a significant increase in journey length or a

significant detour along existing PRow. To demonstrate this, a number of examples have been provided below:

- If PRow 130/10 was to be stopped up / closed, users looking to travel via PRow 130/10 between PRow 130/11 and 130/14 would have no convenient alternative route available, and would be diverted onto PRow 130/13 along the River Cam.
- If PRow 130/8 was to be stopped / closed, users would be required to divert via PRow 130/6 (also affected by the construction corridor) and PRow 130/7.
- If PRow 130/6 was to be stopped up / closed, users looking to travel in an easterly direction towards PRow 130/7 or 85/11 would be diverted via PRow 130/8 (also affected by the construction corridor) and PRow 130/7.
- If PRow 130/16 was to be stopped / closed, users looking to travel between PRow 130/12 and PRow 130/10 would be diverted onto PRow 130/13 and 130/14 to join PRow 130/10.
- If PRow 130/12 was to be stopped up / closed, an alternative route to access the southern extent of PRow 130/13 near Clayhithe Road would be along PRow 130/16, 130/10 and 130/14.
- If PRow 247/10 was to be stopped / closed, users looking to access Lock Farm from the southern / western extent of the bridleway would be required to divert by crossing over Clayhithe Road bridge to access PRow 130/12 and 130/13 and then use Baits Bite Lock to cross the River Cam.

4.2.258 The lack of viable alternative routes owing to the lack of coverage of the PRow network in the area means that the above example alternate / diversion routes are unsuitable and would likely result in a significant effect on pedestrian delay on PRow. It is proposed that safety access gates be installed while the works are undertaken where the construction corridor intersects with these PRow. This would eliminate the need for lengthy diversions.

Table 4-63: Waterbeach pipeline: Summary of construction impact on PRow

PRoW ID	Description	Summary
130/10	Footpath located to the east of Clayhithe Road. The ProW runs through the Mulberry House Farm and connects to Northfields Farm Cottages.	Temporarily disrupted due to the construction of the Waterbeach pipeline and installation of safety access gates on PRow.
130/8	Bridleway located to the north of Gayton House. Comes off Clayhithe Road and connects to The Drove Way further east.	Temporarily disrupted due to the construction of the Waterbeach pipeline and installation of safety access gates on PRow.
130/6	Footpath located to the north of Gayton House. Comes off Clayhithe Road and connects to The Drove Way further east.	Temporarily disrupted due to the construction of the Waterbeach pipeline and installation of safety access gates on PRow.

PRoW ID	Description	Summary
130/16	Footpath located to the east of Clayhithe Road bridge. Comes off Hatridge's Lane and connects to ProW 130/10	Temporarily disrupted due to the construction of the Waterbeach pipeline and installation of safety access gates on PRoW.
130/12	Bridleway located to the west of Riverside Farm. Connects to ProW 130/13 which runs along the east bank of the River Cam.	Temporarily disrupted due to the construction of the Waterbeach pipeline and installation of safety access gates on PRoW.
247/10	Bridleway located on the north / west bank of the River Cam. The PRoW runs around the Cam Sailing Club and connects to Clayhithe Road to the west.	Temporarily disrupted due to the construction of the Waterbeach pipeline and installation of safety access gates on PRoW.

Source: Mott MacDonald

Magnitude of impact

4.2.259 The percentage change in traffic flow in the 2026 'With Development' peak scenario is summarised in Table 4-64.

Table 4-64: Waterbeach pipeline: Assessment of pedestrian delay on road links with footways during the 2026 construction peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact
Bannold Road	Negligible
Bannold Drove	Major
Burgess's Drove	Major
Long Drove	Major

Source: Mott MacDonald

4.2.260 The magnitude of impact on pedestrian delay on PRoW is provided in Table 4-65:

Table 4-65: Waterbeach pipeline: Assessment of pedestrian delay on PRoW during the 2026 construction peak (RWC scenario) – magnitude of impact

PRoW	Potential added journey length (metres)	Magnitude of impact
130/10	Over 500m	Major
130/8	Over 500m	Major
130/6	Over 500m	Major
130/16	Over 500m	Major
130/12	Over 500m	Major
247/10	Over 500m	Major

Source: Mott MacDonald

Sensitivity of receptor

4.2.261 The sensitivity of receptors on all road links with footways relevant to the Waterbeach pipeline is provided in Table 4-66.

Table 4-66: Waterbeach pipeline: Assessment of pedestrian delay on road links with footways during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

Road link name	Sensitivity of receptors
Bannold Road	Low
Bannold Drove	Low
Burgess's Drove	Low
Long Drove	Low

Source: Mott MacDonald

4.2.262 The sensitivity of receptors on PRoW relevant to the Waterbeach pipeline are provided in Table 4-67.

Table 4-67: Waterbeach pipeline: Assessment of pedestrian delay on ProW during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

PRoW	Sensitivity of receptors
130/10	Medium
130/8	Medium
130/6	Medium
130/16	Medium
130/12	Medium
247/10	Medium

Source: Mott MacDonald

Significance of effect

4.2.263 The significance of effect on pedestrian delay for road links with footways relevant to the construction of the Waterbeach pipeline is summarised in Table 4-68.

Table 4-68: Waterbeach pipeline: Assessment of pedestrian delay on road links with footways during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect
Bannold Road	Neutral – not significant
Bannold Drove	Slight – not significant
Burgess's Drove	Slight – not significant
Long Drove	Slight – not significant

Source: Mott MacDonald

4.2.264 The significance of effect on pedestrian delay on PRoW intersected by the Waterbeach pipeline construction corridor is summarised in Table 4-69.

Table 4-69: Waterbeach pipeline: Assessment of pedestrian delay on PRoW during the 2026 Construction Peak (RWC scenario) – significance of effect

PRoW	Significance of effect
130/10	Moderate – significant
130/8	Moderate – significant
130/6	Moderate – significant
130/16	Moderate – significant

PRoW	Significance of effect
130/12	Moderate – significant
247/10	Moderate – significant

Source: Mott MacDonald

Secondary mitigation or enhancement

4.2.265 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements, specifically:

- CTMP measures:
 - Section 4.2 (Local routeing and site plant vehicle routeing) which requires that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;
 - Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads; and
 - Section 6.3 (Adherence to Designated Routes) and Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) requirement to provide connectivity/access to community facilities and residential properties during works.
- CoCP measures:

- measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through the Fen Ditton and Horningsea; and
- a requirement for the use of safety gates to be put in place and users allowed to safely cross the construction working area.

4.2.266 Through these measures, any effects on pedestrian delay that would emerge during the peak hours would be minor and the effect therefore neutral and **not significant**. This is summarised in Table 4-70.

Table 4-70: Waterbeach pipeline: pedestrian delay – magnitude of impact on PRow with diversion and application of additional measures

PRoW / road link reference	Potential added journey length (metres) diversions only	Potential added journey length (metres) diversions and additional measures	Magnitude of impact
130/10	Diversion along alternative ProW requires extends journey by over 500m	Users would be required to wait at a gated crossing point for approximately 2 minutes before continuing on the ProW	Minor
130/8	Diversion along alternative ProW requires extends journey by over 500m	Users would be required to wait at a gated crossing point for approximately 2 minutes before continuing on the ProW	Minor
130/6	Diversion along alternative ProW requires extends journey by over 500m	Users would be required to wait at a gated crossing point for approximately 2 minutes before continuing on the ProW	Minor
130/16	Diversion along alternative ProW requires extends journey by over 500m	Users would be required to wait at a gated crossing point for approximately 2 minutes before continuing on the ProW	Minor
130/12	Diversion along alternative ProW requires extends journey by over 500m	Users would be required to wait at a gated crossing point for approximately 2 minutes before continuing on the ProW	Minor
247/10	Diversion along alternative ProW requires extends journey by over 500m	Users would be required to wait at a gated crossing point for approximately 2 minutes before continuing on the ProW	Minor

Source: Mott MacDonald

Residual effect

4.2.267 There are no residual significant effects on pedestrian delay.

Temporary impact of construction on driver delay

- 4.2.268 The IEMA Guidelines for the Environmental Assessment of Road Traffic (GEART) (IEMA, 1993) indicates that the junction modelling contained in the TA (Appendix 19.3, App Doc Ref 5.4.19.3) should be used to determine the average delay per vehicle. It notes that delays are only considered significant when the road network in the vicinity of the Proposed Development is already operating at or close to capacity (i.e., where a Degree of Saturation over 90% has been observed).
- 4.2.269 There are no junctions on the construction route for the proposed Waterbeach pipeline where a potential capacity issue has been identified on the road network in the 2026 Future Baseline. Consequently, there are no road links that require a detailed assessment of driver delay.

Secondary mitigation or enhancement

- 4.2.270 Although no effects have been identified as significant, the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1), as described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development) would provide mitigation if required.
- 4.2.271 Section 4.2 (Local routeing and site plant vehicle routeing) of the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) includes a requirement that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays. This measure which restricts construction vehicle movements during the peak hours would mitigate the potential effects on driver delay associated with construction vehicle movements.
- 4.2.272 The effect on driver delay would remain as slight and **not significant**.

Temporary impact of construction on fear and intimidation

- 4.2.273 Pedestrians and cyclists may be affected by fear and intimidation owing to the volume of traffic and the percentage of HGVs within the traffic. Furthermore, fear and intimidation is also influenced by how well protected these users may feel dependent on factors such as pavement widths.

4.2.274 In the absence of clear thresholds, a change in traffic flow of 30%, 60% and 90% correspond to a minor, moderate, and major magnitude of impact, respectively. A change of less than 30% means the impact magnitude can be considered negligible and would not require a detailed assessment.

Magnitude of impact

4.2.275 The magnitude of impact on fear and intimidation for all road links relevant to the Waterbeach pipeline is summarised in Table 4-71.

Table 4-71: Waterbeach pipeline: Assessment of fear and intimidation during the 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
Denny End Road	Negligible	Major
Bannold Road	Negligible	Major
Bannold Drove	Major	Major
Burgess's Drove	Major	Major
Long Drove	Major	Major
Car Dyke Road	Negligible	Major
Station Road / Clayhithe Road	Negligible	Major
Green End Road	Negligible	Major
Water Lane	Negligible	Major

Source: Mott MacDonald

Sensitivity of receptor

4.2.276 The sensitivity of receptors on all road links relevant to the Waterbeach pipeline is summarised in Table 4-72.

Table 4-72: Waterbeach pipeline: Assessment of fear and intimidation during the 2026 Construction Peak (RWC scenario) – sensitivity of receptors

Road link name	Sensitivity of receptors – total traffic and HGVs
Denny End Road	Low
Bannold Road	Low
Bannold Drove	Low
Burgess's Drove	Low
Long Drove	Low
Car Dyke Road	Low
Station Road / Clayhithe Road	Medium
Green End Road	Low
Water Lane	Low

Source: Mott MacDonald

Significance of effect

4.2.277 It is anticipated that there would be a temporary (for the duration of construction) effect on fear and intimidation of various significance on relevant road links. This is summarised below in Table 4-73.

Table 4-73: Waterbeach pipeline: Assessment of fear and intimidation during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect– total traffic	Significance of effect – HGVs
Denny End Road	Neutral – not significant	Slight – not significant
Bannold Road	Neutral – not significant	Slight – not significant
Bannold Drove	Slight – not significant	Slight – not significant
Burgess’s Drove	Slight – not significant	Slight – not significant
Long Drove	Slight – not significant	Slight – not significant
Car Dyke Road	Neutral – not significant	Slight – not significant
Station Road / Clayhithe Road	Neutral – not significant	Moderate – significant
Green End Road	Neutral – not significant	Slight – not significant
Water Lane	Neutral – not significant	Slight – not significant

Source: Mott MacDonald

4.2.278 The assessment indicates that there would be a slight/neutral effect on fear and intimidation due to increases in total traffic which is **not significant**.

4.2.279 The assessment indicates that there would be a moderate effect on fear and intimidation due to increases in HGV traffic flows on Station Road/Clayhithe Road, which is significant. However, absolute numbers of HGVs are relatively low and the impacts would be short-lived, only occurring during the first and last 8 weeks of construction activity on the Waterbeach pipeline. For these reasons, it is considered that the effect on fear and intimidation due to increases in HGV flows should be reduced from a moderate effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.280 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements.

4.2.281 The following measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) of particular relevance to roads in Waterbeach (Burgess’s Drove, Bannold Drove, Bannold Road, Station Road and Clayhithe Road):

- Section 4.2 (Local routeing and site plant vehicle routeing)
 - a requirement that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is

determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;

- Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which includes;
 - a requirement for speed restrictions to Burgess's Drove, Bannold Drove and Bannold Road as well as Clayhithe Road will be put in place in accordance with the Temporary Traffic Regulation Order set out within the DCO;
 - a requirement to avoid HGV movements through Waterbeach during school drop-off and pick-up hours throughout term time; and
 - a temporary parking restriction on Bannold Road junction with Denny End Road / Car Dyke Road.

4.2.282 Through the application of these measures, the effects on fear and intimidation that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

Residual effect

4.2.283 There are no residual significant effects on fear and intimidation.

Temporary impact of construction on accidents and road safety

4.2.284 It is anticipated that the construction of the Waterbeach pipeline will result in the increase of traffic volumes on the section of the local and Strategic Road Network in proximity to the works corridor.

4.2.285 The assessment of the effect of the construction of the Waterbeach pipeline has been based on IEMA guidance, where changes in traffic flow of 30%, 60% and 90% correspond to a minor, moderate, and major magnitude of impact on accidents and road safety, respectively. A change of less than 30% means the impact magnitude can be considered negligible and would not require a detailed assessment.

Magnitude of impact

4.2.286 The magnitude of impact on accidents and road safety for all road links relevant to the construction of the Waterbeach pipeline is summarised in Table 4-74.

Table 4-74: Waterbeach pipeline: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – magnitude of impact

Road link name	Magnitude of impact - total traffic	Magnitude of impact – HGVs
Denny End Road	Negligible	Major
Bannold Road	Negligible	Major
Bannold Drove	Major	Major
Burgess’s Drove	Major	Major
Long Drove	Major	Major
Car Dyke Road	Negligible	Major
Station Road / Clayhithe Road	Negligible	Major
Green End Road	Negligible	Major
Water Lane	Negligible	Major

Source: Mott MacDonald

Sensitivity of receptor

4.2.287 The sensitivity of receptors on all road links relevant to the Waterbeach pipeline is summarised in Table 4-75.

Table 4-75: Waterbeach Pipeline: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – sensitivity of receptor

Road link	Sensitivity of receptor – total traffic and HGVs
Denny End Road	Medium
Bannold Road	Low
Bannold Drove	Low
Burgess’s Drove	Low
Long Drove	Low
Car Dyke Road	Medium
Station Road / Clayhithe Road	Medium
Green End Road	Medium
Water Lane	Medium

Source: Mott MacDonald

Significance of effect

4.2.288 During construction it is anticipated that there would be variable temporary effect on accidents and road safety of various significance on relevant road links. These are summarised below in Table 4-76.

Table 4-76: Waterbeach pipeline: Assessment of accidents and road safety during the 2026 Construction Peak (RWC scenario) – significance of effect

Road link name	Significance of effect - total traffic	Significance of effect – HGVs
Denny End Road	Neutral – not significant	Moderate – significant
Bannold Road	Neutral – not significant	Slight – not significant
Bannold Drove	Slight – not significant	Slight – not significant
Burgess’s Drove	Slight – not significant	Slight – not significant
Long Drove	Slight – not significant	Slight – not significant
Car Dyke Road	Neutral – not significant	Moderate – significant
Station Road / Clayhithe Road	Neutral – not significant	Moderate – significant
Green End Road	Neutral – not significant	Moderate – significant
Water Lane	Neutral – not significant	Moderate – significant

Source: Mott MacDonald

- 4.2.289 The assessment indicates that there would be a slight/neutral effect on accidents and road safety due to increases in total traffic flows, which is **not significant**.
- 4.2.290 The assessment indicates that there would be a moderate effect on accidents and road safety due to increases in HGV traffic flows on Denny End Road, Car Dyke Road, Station Road/Clayhithe Road, Green End Road and Water Lane which is significant. However, absolute numbers of HGVs are relatively low and the impacts would be short-lived, only occurring during the first and last 8 weeks of construction activity on the Waterbeach pipeline. For these reasons, it is considered that the effect on accidents and safety due to increases in HGV flows should be reduced from a moderate effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

- 4.2.291 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) would further mitigate the potential effects associated with construction vehicle movements.
- 4.2.292 The following measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) are of particular relevance to roads in Waterbeach that will be used as construction access routes (Burgess’s Drove, Bannold Drove, Bannold Road, Station Clayhithe Road):
- Section 4.2 (Local routeing and site plant vehicle routeing)
 - a requirement that no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday.

Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays;

- Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which includes:
 - a requirement for speed restrictions to Burgess's Drove, Bannold Drove and Bannold Road as well as Clayhithe Road will be put in place in accordance with the Temporary Traffic Regulation Order set out within the DCO;
 - a requirement to avoid HGV movements through Waterbeach during school drop-off and pick-up hours throughout term time;
 - a temporary parking restriction on Bannold Road junction with Denny End Road / Car Dyke Lane.

4.2.293 Through the application of these measures, effects on accidents and road safety that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

Residual effect

4.2.294 There are no residual significant effects on accidents and road safety.

Existing Cambridge WWTP

4.2.295 This section sets out the assessment of effects in relation to construction activities within the footprint of the existing Cambridge WWTP. These are construction of shafts 1, 2, and 3, connection of the transfer tunnel to the existing sewer network, construction of the permanent vent and utilities diversions.

4.2.296 Owing to the sequencing of the construction programme, the traffic flows associated with the Transfer tunnel and the Waterbeach pipeline would not overlap. The construction traffic flows assessed at the existing Cambridge WWTP only account for Transfer tunnel flows as they are the higher flows and therefore represent the worst-case.

4.2.297 The following roads, part of the construction route, will be used for construction activities at the existing Cambridge WWTP:

- Cowley Road; and
- A1309 Milton Road.

4.2.298 The peak total daily two-way construction traffic movements at the existing Cambridge WWTP would be the same as the peak total daily two-way construction traffic movements associated with the construction of the waste water transfer tunnel and shafts, as set out in Section 4.2 (Construction of waste water transfer tunnel and shafts).

4.2.299 The existing Cambridge WWTP would remain operational while the transfer tunnel and shafts are being constructed. For the duration of the construction programme, the number of daily total two-way vehicle movements associated with operation of the existing Cambridge WWTP is estimated to be:

- 280 total daily two-way vehicle movements:
 - 11 HGV movements per hour across an 8-hour working day; and
 - 24 car/LGV movements per hour across an 8-hour working day.

4.2.300 These movements would travel to the existing Cambridge WWTP via Cowley Road and the A1309 Milton Road. These are existing traffic movements and are therefore already accounted for in the baseline traffic flows used in the assessment.

Existing Cambridge WWTP: 2026 Construction Peak (RWC scenario)

4.2.301 The two-way traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) during the 2026 Future Baseline and the 2026 Construction Peak (RWC scenario) for the construction works within the existing Cambridge WWTP are summarised in Table 4-77. In this context, the 2026 Construction Peak refers only to construction traffic movements associated with the existing Cambridge WWTP.

Table 4-77: Existing Cambridge WWTP: Two-way peak hour traffic flows in 2026 Future Baseline and 2026 Construction Peak (RWC scenario)

Road link name	Future Baseline		Construction Peak	
	AM Peak	PM Peak	AM Peak	PM Peak
Cowley Road (EB & WB)	699 (77)	559 (30)	710 (83)	570 (36)
A1309 Milton Road (NB & SB)	2723 (131)	2305 (44)	2735 (137)	2317 (50)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald¹¹

4.2.302 The absolute change and percentage change in traffic flows between the 2026 Future Baseline and the 2026 construction peak (RWC scenario) is shown in Table 4-78.

¹¹ Refer to pages 7, 8, 76 and 77 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

Table 4-78: Existing Cambridge WWTP: Absolute and percentage change in two-way peak hour traffic flows between 2026 Future Baseline and 2026 Construction Peak (vehicles)

Road link name	Absolute change		Percentage change	
	AM Peak	PM Peak	AM Peak	PM Peak
Cowley Road (EB & WB)	+11 (+6)	+11 (+6)	+2% (+8%)	+2% (+20%)
A1309 Milton Road (NB & SB)	+12 (+6)	+12 (+6)	0% (+5%)	+1% (+14%)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald¹²

4.2.303 Applying IEMA Rule 1, no road links which would experience a change in total traffic flows or HGV traffic flows of greater than 30% and therefore no further assessment is required.

Monitoring

4.2.304 During the construction phase, monitoring will be in accordance with section(s) 7.7 of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1). This requires the development of a CTMP, including a Construction Workers Travel Plan which will specify monitoring and reporting procedures.

4.3 Operation phase

4.3.1 The potential environmental impacts on traffic and transport from the operation of the Proposed Development indicated in the maximum design scenario outlined in Section 2.6, forms the basis of the traffic and transport assessment against which each impact has been assessed.

4.3.2 Once the proposed WWTP is operational, the existing Cambridge WWTP and existing Waterbeach WRC will stop operating. Junction 33 of the A14 (the Milton Interchange) will be used for operational traffic needing to travel east from the proposed WWTP, having access to the A14 via the westbound slip at junction 34.

4.3.3 Once operational, the proposed WWTP will be accessed from junction 34 of the A14 via the permanent access road constructed as part of the reconfigured signalised junction on the Horningsea Road. Mitigation measures adopted as part of the Proposed Development in relation to junction 34 of the A14 and Horningsea Road are detailed within section 2.8.

4.3.4 The average daily and peak hour traffic movements during operation are summarised in Table 4-79. These traffic movements reflect the RWC scenario in which it is assumed that the office staff, operational staff and Discovery Center visitors all arrive or depart in the peak hours.

¹² Refer to pages 72 and 73 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

Table 4-79: Operation phase: Daily and peak hour operational traffic movements (RWC scenario)

Vehicle type	AM peak hour			PM Peak hour			Daily total		
	Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Cars and LGV	68	20	88	20	68	88	88	88	176
HGV	6	6	12	6	6	12	73	73	146
Total	74	26	100	26	74	100	161	161	322

Source: Anglian Water Services

- 4.3.5 Though 2028 is the opening year for the Proposed Development, CCC’s Transport Assessment Guidance states that, “when considering the strategic network, the design year should be 10 years post full occupation” (Cambridgeshire County Council, 2019). The operational traffic flows outlined above have therefore been assigned to the highway network on top of future baseline traffic flows 10 years after opening of the Proposed Development (2038).
- 4.3.6 The distributional split of this traffic is based on the operational traffic split at the existing Cambridge WWTP, where 52% of traffic is from the east and 48% of traffic is from the west. Further detail is provided in ‘Appendix C Technical Note Sludge Imports’ of the TA (Appendix 19.3, App Doc Ref 5.4.19.3).
- 4.3.7 Abnormal operations associated with emergency repairs or other maintenance activities may result in short term periods where additional vehicle movements occur. These additional movements would be represent an additional 1-2% vehicle movements and would not result in a significant impact.
- 4.3.8 The assessment of potential effects on the highway network in operation is based on estimated operational traffic movements and 2021 survey data factored using a TEMPro growth factor to the future baseline year 2038.
- 4.3.9 The 2038 operation year scenario is compared to the 2038 future baseline to assess the potential effect arising from operational traffic. A 2050 scenario has also been considered and the modelling and assessment outcomes have been determined to be similar to the 2038 assessment year. Additionally, it is difficult to determine the exact accuracy of projections of background traffic growth to 2050.

Proposed WWTP

- 4.3.10 This section sets out the assessment of effects in relation to the operation and maintenance of the proposed WWTP including maintain the landscaping proposals, final effluent pipeline, outfall, waste water transfer tunnel, and access road connecting with the Horningsea Road.

Operation phase: 2038 with the proposed WWTP (RWC scenario)

- 4.3.11 Table 4-80 summarises two-way traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) during the 2038 Future Baseline and the 2038 Operation Scenario for road links used during the operation phase of the proposed WWTP.

Table 4-80: Operation phase: Two-way peak hour traffic flows in the 2038 Future Baseline and the 2038 Operation Scenario (vehicles)

Road link name	Future Baseline		Operation Scenario	
	AM Peak	PM Peak	AM Peak	PM Peak
B1047 Horningsea Rd Bridge (NB & SB), J34	1095 (12)	993 (2)	1121 (18)	1067 (8)
A14 on-slip, J34	555 (2)	743 (0)	581 (8)	817 (6)
A14 off-slip, J34	676 (8)	537 (2)	750 (14)	563 (8)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald¹³

4.3.12 The absolute change and percentage change in traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) between the 2038 Future Baseline and 2038 Operational Scenario is shown in Table 4-81. Only links immediately adjacent / relevant to the operation of the proposed WWTP, with the exception of Waterbeach flows (considered in Section 4.2) are summarised. Traffic flow diagrams for the operation phase are provided in 'Traffic flow diagrams' (Appendix 19.5 App Doc Ref 5.4.19.5).

Table 4-81: Operation phase: Absolute and percentage change in two-way peak hour traffic flows between the 2038 Future Baseline and the 2038 Operation Scenario (vehicles)

Road link name	Absolute change		Percentage change	
	AM Peak	PM Peak	AM Peak	PM Peak
B1047 Horningsea Rd Bridge (NB & SB)	+26 (+6)	+74 (+6)	+2% (+50%)	+7% (+300%)
A14 on-slip at junction 34	+26 (+6)	+74 (+6)	+5% (+300%)	+10% (*)
A14 off-slip at junction 34	+74 (+6)	+26 (+6)	+11% (+75%)	+5% (+300%)

Key: Total traffic flow (HGV flow)

* No HGVs on this movement in Future Baseline, therefore it is not possible to calculate the percentage increase.

Source: Mott MacDonald¹⁴

4.3.13 Applying IEMA Rule 1, none of the above road links would experience a change in total traffic flows greater than 30%. However, the following road links which would experience a change in HGV flows greater than 30% and are identified for further assessment:

- B1047 Horningsea Road Bridge at junction 34;
- A14 on-slip at junction 34; and
- A14 off-slip at junction 34.

¹³ Refer to Table 9-4 and 9-15 in TA Part 1 (Appendix 19.3, App Doc Ref 5.4.19.3) and pages 22, 23, 56 and 57 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

¹⁴ Refer to Table 9-15 in TA Part 1 (Appendix 19.3, App Doc Ref 5.4.19.3) and pages 54 and 55 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

Permanent impact of operation on severance

Magnitude of impact

4.3.14 The magnitude of impact of severance on links relevant to the operation phase would be negligible as shown in Table 4-82.

Table 4-82: Operation phase: Assessment of severance during the 2038 Operation Scenario – magnitude of impact

Road link name	Magnitude of impact – total vehicles	Magnitude of impact – HGVs
B1047 Horningsea Rd Bridge, J34	Negligible	Major
A14 on-slip, J34	Negligible	Major
A14 off-slip, J34	Negligible	Major

Source: Mott MacDonald

Sensitivity of receptor

4.3.15 The sensitivity of receptors on all road links relevant to the operation phase is summarised in Table 4-83.

Table 4-83: Operation phase: Assessment of severance during 2038 Operation Scenario sensitivity of receptor

Road link name	Sensitivity of receptor – total traffic and HGVs
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	Low
A14 off-slip, J34	Low

Source: Mott MacDonald

Significance of effect

4.3.16 The significance of effect on severance for road links relevant to the operation phase is summarised in Table 4-84.

Table 4-84: Operation phase: Assessment of severance during 2038 Operation Scenario – significance of effect

Road link name	Significance of effect – total traffic	Significance of effect – HGVs
B1047 Horningsea Rd Bridge, J34	Slight – not significant	Major – significant
A14 on-slip, J34	Neutral – not significant	Slight – not significant
A14 off-slip, J34	Neutral – not significant	Slight – not significant

Source: Mott MacDonald

4.3.17 The assessment indicates that there would be a slight/neutral effect on severance due to increases in total traffic and HGV traffic flows on most of the assessed road links, which is **not significant**.

4.3.18 The assessment indicates that there would be a major effect on severance due to increases in HGV flows of over 30% on the B1047 Horningsea Road bridge, which is significant. However, it is noted that:

- operation of the proposed WWTP generates a relatively small number of HGV movements;
- the HGV movements would be limited to the A14 on and off-slips and the B1047 Horningsea Road Bridge only, which have no active frontage;
- background HGV flows at junction 34 of the A14 are very low, so even small absolute increases in HGV flows would trigger a significant effect;
- there are segregated facilities for pedestrians and cyclists alongside the carriageway and controlled crossing facilities across the A14 slip roads;
- the junction benefits from good visibility, traffic signal control and street lighting.

4.3.19 For the above reasons, it is considered that the effect on severance due to increases in HGV flows should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.3.20 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the outline OLTP (Appendix 19.10, App Doc Ref 5.4.19.10) and OWTP (Appendix 19.8, App Doc Ref 5.4.19.8) would further mitigate the potential effects associated with operational vehicle movements. Specifically:

- Outline OLTP measures:
 - Section 5 (Objectives and Control Measures): Application of a peak delivery period restrictions on operational vehicles, if required, to manage impacts on the local junction. The peak hour restrictions would be 08:00-09:00 and 17:00-18:00, unless it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority;
 - Restriction of HGV travel through Horningsea and Fen Ditton. The usage of a geofencing system will monitor Anglian Water HGVs in accordance with the agreed routes to and from the WWTP; and
 - Carry out operations in accordance with the CCC voluntary Code of Conduct for Commercial Vehicle Operators;.
- Outline Workers Travel Plan
 - Section 9 (Travel Plan Measures) sets out target modal shift targets that will be agreed with CCC; and

- Measures such as car sharing, providing public transport information and access to loans and/or discounts for public and sustainable transport uses will provide the mechanisms to attain that target.

4.3.21 Through the application of these measures, any impact on severance that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

4.3.22 There may be short term intermittent occurrences of operational vehicle movements required for time critical activities. These activities are, however, unlikely to generate a significant effect.

Residual effect

4.3.23 There are no residual significant effects on severance.

Permanent impact of operation on driver delay

4.3.24 The IEMA Guidelines for the Environmental Assessment of Road Traffic (GEART) (IEMA, 1993) indicates that the junction modelling contained in the TA (Appendix 19.3, App Doc Ref 5.4.19.3) should be used to determine the average delay per vehicle. It notes that delays are only considered significant when the road network in the vicinity of the Proposed Development is already operating at or close to capacity (i.e., where a Degree of Saturation over 90% has been observed).

4.3.25 The only junction in the operational phase where a potential capacity issue has been identified on the road network in the 2038 Future Baseline, is at Junction 33 of the A14 (the Milton Interchange) in the PM peak hour.

4.3.26 -Table 4-85 provides a summary of the change in average driver delay (in seconds per PCU) in the peak hours at Junction 33 of the A14 (the Milton Interchange) between the 2038 Future Baseline and the 2038 Operation Scenario (RWC scenario). The driver delay is taken from the junction modelling contained in the TA (Appendix 19.3, App Doc Ref 5.4.19.3). The assessments considered how the Proposed Development traffic would impact the operation of the highway network during the AM and PM peak hours (08:00-09:00, 17:00-18:00). The full junction capacity assessment results are provided in the 'Junction Capacity Reports' (Appendix 19.6, App Doc Ref 5.4.19.6).

Table 4-85: Cumulative effects: Change in average driver delay (seconds per PCU) between the 2038 Future Baseline and the 2038 Operation Scenario (RWC scenario) at Junction 33 of the A14 (Milton Interchange)

Link	AM Peak				PM Peak			
	2038 future base	With Operation	Change	%	2038 future base	With Operation	Change	%
A10 Milton Rd Entry	24.2	22.4	-1.8	-7%	15.9	17.0	+1.1	+7%
A10 Milton Rd Circ	16.8	13.3	-3.5	-21%	15.7	12.4	-3.3	-21%

Link	AM Peak				PM Peak			
	2038 future base	With Operation	Change	%	2038 future base	With Operation	Change	%
Cambridge Rd Entry	8.8	10.1	+1.3	+15%	5.7	6.3	+0.6	+11%
Cambridge Rd Circ	0.2	0.2	0.0	0%	0.3	0.3	0.0	0%
A14 WB off-slip Entry	40.1	37.0	-3.1	-8%	27.4	20.7	-6.7	-24%
A14 WB off-slip Circ	10.2	8.7	-1.5	-15%	7.0	12.8	+5.8	+83%
A1309 Milton Rd Entry	24.3	24.3	0.0	0%	36.0	36.0	0.0	0%
A1309 Milton Rd Circ	14.2	15	+0.8	+6%	13.1	18.9	+5.8	+44%
A14 EB off-slip Entry	21.0	22.8	+1.8	+9%	40.1	32.2	-7.9	-20%
A14 EB off-slip Circ	10.2	15.4	+5.2	+51%	2.4	5.8	+3.4	+142%

Source: p.107, 110, 131 & 134 in Junction Capacity Reports (Appendix 19.6, App Doc Ref 5.4.19.6)

Magnitude of impact

4.3.27 The magnitude of impact on driver delay for all road links relevant to the operation phase is summarised in Table 4-86.

Table 4-86: Operation phase: Assessment of driver delay during the 2038 Operation Scenario - magnitude of impact

Junction / road link name	Magnitude of impact	
	AM peak	PM peak
A10 Milton Rd	Negligible	Negligible
Cambridge Rd	Negligible	Negligible
A14 WB off-slip, J33	Negligible	Moderate
A1309 Milton Rd, J33	Negligible	Minor
A14 EB off-slip, J33	Minor	Major

Source: Mott MacDonald

Sensitivity of receptor

4.3.28 The sensitivity of receptors on all road links relevant to the operation of the proposed WWTP is summarised in Table 4-87.

Table 4-87: Operation phase: Assessment of driver delay during the 2038 Operation Scenario – sensitivity of receptor

Sensitivity of receptor on	Sensitivity level
A10 Milton Rd	High
Cambridge Rd	High

Sensitivity of receptor on	Sensitivity level
A14 WB off-slip, J33	High
A1309 Milton Rd, J33	High
A14 EB off-slip, J33	High

Source: Mott MacDonald

Significance of effect

4.3.29 The significance of effect on driver delay is summarised in Table 4-88.

Table 4-88: Operation phase: Assessment of driver delay during the 2038 Operation Scenario – significance of effect

Junction / road link name	Significance of effect	
	AM peak	PM peak
A10 Milton Rd, J33	Slight – not significant	Slight – not significant
Cambridge Rd, J33	Slight – not significant	Slight – not significant
A14 WB off-slip, J33	Slight – not significant	Moderate – significant
A1309 Milton Rd, J33	Slight – not significant	Moderate – significant
A14 EB off-slip, J33	Moderate - significant	Major – significant

Source: Mott MacDonald

4.3.30 The assessment indicates that in the AM peak there would be a moderate significant effect on driver delay, however the junction operates within capacity and therefore should be reduced from a moderate effect, which is significant, to a slight effect, which is **not significant**.

4.3.31 The assessment indicates that there would be a moderate effect on driver delay on the A14 westbound off-slip and the A1309 Milton Road and a major effect on the A14 eastbound off-slip in the PM peak, which is significant. However, the change in average driver delay is very small (increases of 3-6 seconds per PCU on each arm) and therefore it is considered that the effect on driver delay should be reduced to a slight effect, which is **not significant**.

Permanent impact of operation on fear and intimidation

Magnitude of impact

4.3.32 The magnitude of impact on fear and intimidation for all road links relevant to the operation phase is summarised in Table 4-89. While the A14 has a lack of pedestrian infrastructure and low volume of pedestrians along the link, the A14 on-slip and off-slip are assessed as they intersect with the shared use path on the western side of Horningsea Road, used frequently by pedestrians and cyclists.

Table 4-89: Operation phase: Assessment of fear and intimidation during the 2038 Operation Scenario – magnitude of impact

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
B1047 Horningsea Rd Bridge, J34	Negligible	Major
A14 on-slip, J34	Negligible	Major

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
A14 off-slip, J34	Negligible	Major

Source: Mott MacDonald

Sensitivity of receptor

4.3.33 The sensitivity of receptors on all road links relevant to the operation phase is summarised in Table 4-90.

Table 4-90: Operation phase: Assessment of fear and intimidation during the 2038 Operation Scenario – sensitivity of receptor

Road link name	Sensitivity of receptor – total traffic and HGVs
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	Low
A14 off-slip, J34	Low

Source: Mott MacDonald

Significance of effect

4.3.34 The significance of effect on fear and intimidation for all road links relevant to the operation phase is summarised in Table 4-91.

Table 4-91: Operation phase: Assessment of fear and intimidation during the 2038 Operation Scenario – significance of effect

Road link name	Significance of effect – total traffic	Significance of effect – HGVs
B1047 Horningsea Rd Bridge, J34	Slight – not significant	Major significant
A14 on-slip, J4	Neutral - not significant	Slight - not significant
A14 off-slip, J34	Neutral - not significant	Slight - not significant

Source: Mott MacDonald

4.3.35 The assessment indicates that there would be a slight/neutral effect on fear and intimidation due to increases in total traffic and HGV traffic flows on most of the assessed road links, which is **not significant**.

4.3.36 The assessment indicates that there would be a major effect on fear and intimidation due to increases in HGV flows of over 30% on the B1047 Horningsea Road bridge, which is significant. However, for the reasons set out in paragraph 4.3.18, it is considered that the effect on fear and intimidation due to increases in HGV flows should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.3.37 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the outline OLTP (Appendix 19.10, App Doc Ref 5.4.19.10) and OWTP (Appendix 19.8, App Doc Ref 5.4.19.8) would

further mitigate the potential effects associated with operational vehicle movements. Specifically:

- Outline OLTP measures:
 - Section 5 (Objectives and Control Measures): Application of a peak delivery period restrictions of operational vehicles, if required, to manage impacts on the local junction. The peak hour restrictions would be 08:00-09:00 and 17:00-18:00, unless it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority;
 - Restriction of HGV travel through Horningsea and Fen Ditton. The usage of a geofencing system will monitor Anglian Water HGVs in accordance with the agreed routes to and from the WWTP; and
 - Carry out operations in accordance with the CCC voluntary Code of Conduct for Commercial Vehicle Operators.
- Outline Workers Travel Plan
 - Section 9 (Travel Plan Measures) sets out target modal shift targets that will be agreed with CCC; and
 - Measures such as car sharing, providing public transport information and access to loans and/or discounts for public and sustainable transport uses will provide the mechanisms to attain that target.

4.3.38 Through these measures, any effects on fear and intimidation that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

4.3.39 There may be short term intermittent occurrences of operational vehicle movements required for time critical activities. These activities are, however, unlikely to generate a significant effect.

Residual effect

4.3.40 There are no residual significant effects on fear and intimidation.

4.3.41 A residual benefit would be observed owing to the following enhancement measures are included within the design:

- pedestrian island crossing on Horningsea Road;
 - This would improve the ability for pedestrians to cross Horningsea Road safely by providing a refuge and improves connections to other walking routes in close proximity such as PRow. This results in a residual benefit by improving the existing environment, which would decrease the effects of severance and fear and intimidation and would improve road safety.

- new footway section on the east side of Horningsea Road, south of the junction with Low Fen Drove Way;
 - The provision of a new section of footway on Horningsea Road between the main proposed WWTP and Low Fen Drove Way would improve walking and cycling connectivity and provide a safer walking and cycling environment. This results in a residual benefit by improving the existing environment, which would decrease the effects of severance and fear and intimidation and would improve road safety.
- speed control of the Horningsea Road between Fen Ditton and Horningsea;
 - Lowering traffic speeds would result in a safer and more welcoming environment for NMUs. Lower speeds would also potentially reduce the volume of accidents on the road. A residual benefit would be observed as a result of decreasing the effects of fear and intimidation and would improve road safety.
- extension of the shared pedestrian / cycle path to the west of Horningsea Road.
 - This would provide an uninterrupted connection between the A14 off-slip and Biggins Lane to the greater walking and cycling network in proximity of the area and create a safer and more welcoming environment for NMUs. This results in a residual benefit by improving the existing environment, which would decrease the effects of severance and fear and intimidation and would improve road safety.

4.3.42 The above mitigation measures would reduce the likelihood of severance and fear and intimidation to pedestrians and cyclists through provision of the wider footpath, speed restriction and additional safe crossing point between Horningsea Road and Low Fen Drove Way.

Permanent impact of operation on accidents and road safety

Magnitude of impact

4.3.43 The magnitude of impact on accidents and road safety for all road links relevant to the operation phase is summarised in Table 4-92.

Table 4-92: Operation phase: Assessment of accidents and road safety during the 2028 Operation Scenario – magnitude of impact

Road link name	Magnitude of impact – total traffic	Magnitude of impact – HGVs
B1047 Horningsea Rd Bridge, J34	Negligible	Major
A14 on-slip, J34	Negligible	Major
A14 off-slip, J34	Negligible	Major

Source: Mott MacDonald

Sensitivity of receptor

4.3.44 The sensitivity of receptors is expected to vary between road links and is set out in Table 4-93.

Table 4-93: Operation phase: Assessment of accidents and road safety during the 2038 Operation Scenario) – sensitivity of receptors

Road link name	Sensitivity of receptors – total traffic and HGVs
B1047 Horningsea Rd Bridge, J34	High
A14 on-slip, J34	High
A14 off-slip, J34	High

Source: Mott MacDonald

Significance of effect

4.3.45 The significance of effect on accidents and road safety on all road links relevant to the operation phase, is set out in Table 4-94.

Table 4-94: Operation phase: Assessment of accidents and road safety during the 2038 Operation Scenario) – significance of effect

Road link name	Significance of effect – total traffic	Significance of effect – HGVs
B1047 Horningsea Rd Bridge, J34	Slight – not significant	Major – significant
A14 on-slip, J34	Slight – not significant	Major – significant
A14 off-slip, J34	Slight – not significant	Major – significant

Source: Mott MacDonald

4.3.46 The assessment indicates that there would be a slight/neutral effect on accidents and road safety due to increases in total traffic flows on all of the assessed road links, which is **not significant**.

4.3.47 The assessment indicates that there would be a major effect on accidents and road safety due to increases in HGV flows of over 30%, which is significant. However, for the reasons set out in paragraph 4.3.18, it is considered that the effect on accidents and road safety due to increases in HGV flows should be reduced from a major effect, which is significant, to a slight effect, which is **not significant**.

Secondary mitigation or enhancement

4.3.48 As described in Section 2.8 (Mitigation measures adopted as part of the Proposed Development), the application of measures within the outline OLTP (Appendix 19.10, App Doc Ref 5.4.19.10) and OWTP (Appendix 19.8, App Doc Ref 5.4.19.8) would further mitigate the potential effects associated with operational vehicle movements. Specifically:

- Outline OLTP measures:
 - Section 5 (Objectives and Control Measures): Application of a peak delivery period restrictions of operational vehicles, if required, to manage impacts on the local junction. The peak hour restrictions

would be 08:00-09:00 and 17:00-18:00, unless it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority;

- Restriction of HGV travel through Horningsea and Fen Ditton. The usage of a geofencing system will monitor Anglian Water HGVs in accordance with the agreed routes to and from the WWTP; and
 - Carry out operations in accordance with the CCC voluntary Code of Conduct for Commercial Vehicle Operators.
- Outline Workers Travel Plan
 - Section 9 (Travel Plan Measures) sets out target modal shift targets that will be agreed with CCC; and
 - Measures such as car sharing, providing public transport information and access to loans and/or discounts for public and sustainable transport uses will provide the mechanisms to attain that target.

4.3.49 Through these measures, any effects on accidents and road safety that would emerge during the peak hours would be negligible and the effect therefore neutral and **not significant**.

4.3.50 There may be short term intermittent occurrences of operational vehicle movements required for time critical activities. These activities are, however, unlikely to generate a significant effect.

Residual effect

4.3.51 There are no residual significant effects on accidents and road safety.

Operation and maintenance of the outfall / ditch habitat

4.3.52 Operation and maintenance of the outfall/ditch habitat would require 1-2 vans visiting the outfall, sections of the treated effluent pipeline or the created ditch habitat on a very infrequent basis (up to 1 visit per year). This would equate to less than 1% traffic change and therefore the magnitude of impact would be negligible. The effect is therefore determined to be of neutral or slight significance, and therefore **not significant**.

4.3.53 Consequently, the anticipated level and composition of operational traffic related to operation and maintenance of the outfall and ditch habitat would not have a significant effect on severance, pedestrian delay, driver delay, fear and intimidation, accidents and road safety and hazardous loads.

Operation and maintenance of transfer tunnel

4.3.54 Operation and maintenance of the transfer tunnel would require 1-2 vans visiting the transfer tunnel and shafts on a very infrequent basis (up to 1 visit per year). This would equate to less than 1% traffic change and therefore the magnitude of impact

would be negligible. The effect is therefore determined to be of neutral or slight significance, and therefore **not significant**.

- 4.3.55 Consequently, the anticipated level and composition of operational traffic related to operation and maintenance of the transfer tunnel would not have a significant effect on severance, pedestrian delay, driver delay, fear and intimidation, accidents and road safety and hazardous loads.

Abnormal operations – pipeline or outfall repair

- 4.3.56 Abnormal operations refer to emergency operational activities such as to address instances where a leak has occurred.
- 4.3.57 Occasionally, repairs to the transfer pipelines may be required. These activities are not likely to occur frequently, and in each instance, would be expected to last up to a week and require few vehicle movements (i.e., the use of two vans and one excavator).
- 4.3.58 On this basis that vehicle movements required for abnormal operations represent a small total percentage change in traffic (less than 1%), it is unlikely that they would have a significant effect on the surrounding road and PRow network owing to the low volume of traffic and their irregular frequency.

Waterbeach pipeline

- 4.3.59 This section sets out the assessment of effects in relation to the operation and maintenance of the Waterbeach pipeline which consists of a transfer section running from the north near Waterbeach to Low Fen Drove Way, a section crossing the area of land required for the construction of the proposed WWTP, a section south of the A14 which connects to the area of land where the existing Cambridge WWTP is located.

Normal operations / maintenance

- 4.3.60 Operation and maintenance of the Waterbeach pipeline would be expected to require 1-2 vans visiting sections of the pipeline on an infrequent basis. This would equate to less than 1% traffic change and therefore the magnitude of impact would be negligible. The effect is determined to be of neutral or slight significance, and therefore **not significant**.
- 4.3.61 Consequently, the anticipated level and composition of operational traffic are not likely to have an effect on severance, pedestrian delay, driver delay, fear and intimidation, accidents and road safety and hazardous loads.

Abnormal operations – pipe repair

- 4.3.62 Abnormal operations for the Waterbeach pipeline refer to emergency operational activities such as to address instances where a leak has occurred.
- 4.3.63 Occasionally, repairs to the transfer pipelines may be required. These activities are not likely to occur frequently, and in each instance, would be expected to last up to a

week and require few vehicle movements (i.e. the use of two vans and one excavator).

4.3.64 On the basis that vehicle movements required for abnormal operations represent a small total percentage change in traffic (less than 1%), it is unlikely that abnormal operations would have a significant effect on the surrounding road and PRow network owing to the low volume of traffic and their irregular frequency.

Monitoring

4.3.65 During the operation phase, CCC will require the monitoring of the Operational Workers Travel Plan (OWTP) for a 5-year period.

4.3.66 In addition, monitoring of the AWS Net Zero Strategy to 2030 (Anglian Water, 2021) will be a requirement of the Proposed Development. The Net Zero Strategy to 2030 commits the Proposed Development to:

- continue to engage with the AWS EV small fleet supplier;
- continue to engage with the AWS supply chain to closely monitor and encourage changes in EV technologies and ranges in larger vans;
- prioritise small vehicles that spend most of their time at larger AWS sites with EV charging infrastructure; and
- continue to assess the opportunities for installing EV charge point in larger AWS sites powered from renewable energy.

4.4 Decommissioning the existing Cambridge WWTP

4.4.1 This section sets out the assessment of effects in relation to activities completed to surrender the environmental permit at the existing Cambridge WWTP, referred to as decommissioning.

4.4.2 Decommissioning activities will be limited to the existing Cambridge WWTP and are expected to take place at the end of the construction phase in Construction Year 4 (between June 2027 to December 2027). The 2028 Future Baseline (derived by applying TEMPro growth factor to the 2021 baseline) scenario is compared to the 2028 Decommissioning Scenario to assess the potential effects arising from decommissioning of the existing Cambridge WWTP.

4.4.3 For the duration of the decommissioning phase, decommissioning traffic flows will be accessing and egressing the existing Cambridge WWTP site (access point COA1 Cowley Road) on a daily basis.

4.4.4 Decommissioning activities will require 150 daily two-way vehicle movements. Table 4-95 provides a summary of the peak daily total two-way traffic flows, assuming that all decommissioning activities occur at the same time, which is unlikely to happen in practice. Traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) are also provided assuming an 8-hour working day.

Table 4-95: Decommissioning phase: Two-way daily and peak hour vehicle movements in 2028 Decommissioning Scenario (RWC scenario)

	Daily vehicle movements	AM Peak*	PM Peak*
LGV	64	8	8
HGV	86	11	11

*Values have been rounded

Source: Anglian Water Services.

4.4.5 There are 20 unique activities required to decommission the existing Cambridge WWTP. The number of required staff and vehicles associated with these activities is available in Section 7 of the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

4.4.6 Table 4-96 summarises the two-way traffic flows in the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) during the 2028 Future Baseline and the 2028 Decommissioning Scenario (RWC scenario) on the road links relevant to the decommissioning of the existing Cambridge WWTP.

Table 4-96: Decommissioning phase: Two-way peak hour traffic flows in the 2028 Future Baseline and the 2028 Decommissioning Peak (vehicles)

Link	Future Baseline		Decommissioning Scenario	
	AM Peak	PM Peak	AM Peak	PM Peak
Cowley Rd (between Milton Road and St John's Innovation Park) (EB & WB)	715 (78)	569 (31)	735 (90)	589 (42)
A1309 Milton Road (NB & SB)	2782 (132)	2353 (45)	2802 (144)	2373 (57)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald¹⁵

4.4.7 The absolute and percentage change in traffic flows between the 2028 Future Baseline and the 2028 Decommissioning Scenario (RWC scenario) is shown in Table 4-97. Traffic flow diagrams for the decommissioning phase are available in 'Traffic Flow Diagrams' (Appendix 19.5, App Doc Ref 5.4.19.5).

Table 4-97: Decommissioning phase: Absolute and percentage change in two-way peak hour traffic flows in the 2028 Future Baseline and the 2028 Decommissioning Scenario (vehicles)

Link name	Absolute change		Percentage change	
	AM Peak	PM Peak	AM Peak	PM Peak
Cowley Rd (between Milton Road and St John's Innovation Park) (EB & WB)	+20 (+12)	+20 (+11)	+3% (+15%)	+4% (+35%)
A1309 Milton Rd (NB & SB)	+20 (+12)	+20 (+12)	+1% (+9%)	+1% (+27%)

Key: Total traffic flow (HGV flow)

Source: Mott MacDonald¹⁶

¹⁵ Refer to Table 9-50 and 9-55 in TA Part 1 (Appendix 19.3, App Doc Ref 5.4.19.3) and pages 12, 13, 38 and 39 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

¹⁶ Refer to Table 9-55 in TA Part 1 (Appendix 19.3, App Doc Ref 5.4.19.3) and pages 36 and 37 in Traffic Flow Diagrams (Appendix 19.5, App Doc Ref 5.4.19.5).

- 4.4.8 Applying IEMA Rule 1, none of the above road links would experience a change in total traffic flows of greater than 30%. However, Cowley Road would experience an increase in HGV flows of over 30% and requires further assessment.

Temporary impact of decommissioning on severance, fear and intimidation, and accidents and road safety

- 4.4.9 The magnitude of impact on Cowley Road is minor and the receptors on Cowley Road have low sensitivity, therefore the impact on severance, fear and intimidation, and accidents and road safety would be neutral, which is **not significant**.

4.5 Cumulative effects

- 4.5.1 Cumulative effects are those arising from impacts of the Proposed Development in combination with impacts of other proposed or consented development projects that are not yet built or operational. An assessment of cumulative effects of traffic and transport has been completed and is reported in Chapter 22: Cumulative Effects Assessment (App Doc Ref 5.2.22).

Construction phase

- 4.5.2 The construction of Waterbeach New Town East has the potential to overlap with the construction of the Proposed Development and may cause cumulative effects along the A10, Denny End Road and Bannold Road.
- 4.5.3 The construction of Waterbeach Station Relocation has the potential to overlap with the construction of the Proposed Development and the Waterbeach New Town East. However, due to the lack of readily available construction traffic information for the Waterbeach Station Relocation, it is not possible to determine whether the cumulative effect of the simultaneous construction of the three developments would result in a significant cumulative effect.
- 4.5.4 Should construction of developments happen simultaneously, each developer would need to agree their Construction Traffic Management Plan with the relevant highway and local planning authority.

Mitigation or enhancement

- 4.5.5 The contractors' forum group specified in the CTMP (App Doc Ref 5.4.19.7) and stakeholder liaison through the Community Liaison Plan (App Doc Ref 7.8) would assist with mitigation development/approval. This would be the mitigation measure to be implemented to manage the potential cumulative effects arising from the construction should construction of developments happen simultaneously. All stakeholders would be part of that group and one of its functions would be to manage impacts on the area, that includes managing how project construction is scheduled and the safe movements of users of the highway. Through regular liaison meetings with planning and highway authorities and the developer of the Waterbeach New Town East (WNTE) or Waterbeach Station Relocation sites, cumulative traffic effects will be identified and mitigation agreed to avoid those cumulative impacts on the local area.

- 4.5.6 There are measures in place in the CTMP to be able to identify if there are likely to be a cumulative effect and the DCO order limits and plans have identified locations where it would occur and how to deal with it. These mitigation measures would be expected to combine with the measures required as part of other developments to manage traffic demand.

Residual Effect

- 4.5.7 Overall, it is considered that any cumulative impacts of the Proposed Development in combination with other proposed or consented developments can be mitigated through the CTMP and are **not significant**.

Operation phase

- 4.5.8 A 2021 baseline was built based on traffic surveys carried out in December 2021, with another set of surveys carried out in May 2022 to confirm the robustness of the 2021 surveys. TEMPro growth factors were then determined, based on the 2021 baseline, for the future baseline years 2026, 2028 and 2038. Construction flows have then been added to the relevant baseline years to determine the 2026 Construction Peak, 2028 Decommissioning Peak, and 2038 Operational scenarios.
- 4.5.9 Effects arising from committed developments in proximity to the study area have been accounted for in the TEMPro Growth Factors used. These include:
- Waterbeach New Town East, including the relocation of the Waterbeach Station;
 - Marleigh Development;
 - Land north of Cherry Hinton;
 - Cambridge Eastern Access Scheme; and
 - NECAAP, with reference to Policy 22, trip budget.
- 4.5.10 Changes to the highway network also need to be considered. In particular, the A10 dualling scheme between Cambridge and Ely could potentially lead to cumulative effects. This is however not a committed highway scheme (Cambridgeshire & Peterborough Combined Authority, 2022) and is still pursuing funding. Should the A10 improvements become committed development, the assessment of potential cumulative traffic and transport effects would be reconsidered.
- 4.5.11 An agreement was reached with CCC on the viability of using TEMPro Growth Factors to account for committed developments within the study area. A technical note explaining this is available in Appendix K 'TEMPro Growth Factors technical note of the TA (Appendix 19.3, App Doc Ref 5.4.19.3).
- 4.5.12 The use of TEMPro growth factors during operation covers a 17-year period from the 2021 Baseline to the 2038 Future Baseline. Over that 17-year period, background traffic growth increases to the extent where the effects on the 2038 Future Baseline junction models should be treated as indicative. The assessment on the effects of operation on driver delay should be viewed as indicative only due to the sensitivity

of the model. Therefore, to better represent the effects coming from the modest increase in operational traffic in 2038, the overall operational vehicle volume percentage will be used to assess the junction instead.

4.5.13 The cumulative effect of the main proposed WWTP in operation is assessed in Section 4.3. This assessment includes allowance for background traffic growth associated with proposed and consented developments in the surrounding area.

Further mitigation or enhancement

4.5.14 Further mitigation in relation to projected future growth and subsequent changes to traffic volumes as a result of committed developments would be managed through the policy objectives for the local planning and highway authorities as outlined within Section 1.3 with reference to the 'decide and provide' approach. This requires new developments to clearly set out what mode shares will need to be achieved and how it will be monitored. This has been set out in full within the Operational Workers Travel Plan (Appendix 19.8, App Doc Ref 5.4.19.8). The Proposed Development would however not maintain the responsibility to manage potential future background traffic growth.

4.5.15 Whilst the assessment does not identify any significant effects during operation, an outline Operational Logistics Traffic Plan (OLTP) (App Doc Ref 5.4.19.10) has been prepared. This can be used to clearly manage operational traffic should it be required. Measures secured through the OLTP (App Doc Ref 5.4.19.10) would also form part of further mitigation. If required, measures could include (but are not limited to):

- Restrictions on peak hour travel;
- A requirement to adhere to work hours; and
- A requirement for deliveries to be limited to out of peak hours.

Residual effect

4.5.16 The contribution of the Proposed Development to future vehicle movements would be mitigated through the application of Operational Workers Travel Plan (Appendix 19.8, App Doc Ref 5.4.19.8), which commits operational staff to reducing the volume of single occupancy vehicle trips. This will reduce peak time travel by staff by encouraging remote working, single occupancy car use and change of mode of transport to other active and sustainable modes. The overall effect of the operation cumulative impacts is therefore **not significant** and residual effects have been determined to be **not significant**.

4.6 Inter-related effects

4.6.1 Inter-relationships are the impacts and associated effects of different aspects of the construction and operation of the Proposed Development and the decommissioning of the existing Cambridge WWTP on the same receptor. The assessment of inter-

related effects has been completed and is reported in Chapter 22: Cumulative Effects Assessment (App Doc Ref 5.2.22).

- 4.6.2 The assessment of traffic and transport effects is closely linked to effects on community and social outcomes, air quality, and noise and vibration. The TA (Appendix 19.3, App Doc Ref 5.4.19.3), as well as this chapter, has informed the assessment of community and social outcomes, air quality, and noise and vibration effects.
- 4.6.3 The assessments of air quality and noise in Chapter 7: Air Quality (App Doc Ref 5.2.7) and Chapter 17: Noise and Vibration (App Doc Ref 5.2.17), respectively, have been based on data consistent with the flows considered within this chapter and TA (Appendix 19.3, App Doc Ref 5.4.19.3). For the air quality and noise assessments, AADT and AAWT flows have been determined based on 24-hour ATC survey results at locations within the study area.
- 4.6.4 The assessment of hazardous loads within this chapter has been based on data considered within Chapter 16: Material Resources and Waste (App Doc Ref 5.2.16).
- 4.6.5 The mitigation measures adopted as part of the Proposed Development described in Section 2.8 have been considered within the air quality and noise assessments. The CWTP (Appendix 19.9, App Doc Ref 5.4.19.9) and the OWTP (Appendix 19.8, App Doc Ref 5.4.19.8) are both requirements and will provide mitigation measures to further encourage modal shift, which would in turn minimise air quality and noise and vibration effects.

5 Conclusion and Summary

5.1.1 This assessment of the traffic and transport effects relating to the Proposed Development, and their significance, has been thoroughly carried out based on the information available. The approach to assessment has applied IEMA guidance and national and local policy.

5.1.2 The daily peak traffic flow for each element of the Proposed Development during construction, decommissioning and operation (including maintenance) has been identified and is the basis of for the maximum design envelope as detailed in Table 2-12.

Construction phase

5.1.3 The residual effects of the Proposed Development on severance, pedestrian delay, driver delay, fear and intimidation, accidents and road safety, and hazardous and abnormal loads during construction have been determined to vary from neutral to slight and are **not significant** with secondary mitigation secured through the CTMP and CoCP Part A and B (App Doc Ref 5.4.2.1 & 5.4.2.2).

5.1.4 During construction there will be controls on vehicle movements so that no construction traffic will be permitted to travel through the settlements of Horningsea or Fen Ditton.

5.1.5 Primary and tertiary mitigation measures are detailed in Table 2-14, and described in the ES Chapter 2: Project Description (App Doc Ref 5.2.2) and include pedestrian and cycling improvements on Horningsea Road and changes to some Waterbeach junctions.

5.1.6 These measures will avoid impacts / reduce the magnitude of impacts so that the effect of severance, fear and intimidation, accidents and road safety, and hazardous and abnormal loads would be neutral to slight and are **not significant**. Potential impacts arising from the construction phase would be localised and short term, and reversible.

5.1.7 The restriction on peak hour travel would not apply in the case of short-term intermittent activities (e.g., concrete pours). The effect of these activities has been assessed and no significant effects would be neutral or slight and are **not significant**.

5.1.8 With primary and tertiary mitigation measures for PRoW (diversion of PRoW), an effect on pedestrian delay of major significance would occur at PRoW 85/6 and 85/8. With the inclusion of secondary mitigation measures (implementation of safety gates as per CoCP Section 7.7 Part A) the effect on pedestrian delay on PRoW 85/8 would be reduced to an effect of minor significance. However, a residual temporary major significant effect would remain at PRoW 85/6.

5.1.9 During construction there will be a requirement for mitigation measures to be implemented through the application of management plans as specified by the CoCP Part A (Appendix 2., App Doc Ref 5.4.2.1). In addition to the requirements of the CoCP there will also be a requirement to follow the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) and Construction Workers Travel Plan (Appendix 19.9, App Doc Ref

5.4.19.9) to avoid significant adverse effects. These measures are detailed in Table 5-1.

5.1.10 Throughout construction, traffic management measures will be communicated in advance to the local community in accordance with and approved Community Liaison Plan to accord with the Community Liaison Plan (App Doc Ref 7.8). The CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) requires that a Community Liaison Officer is appointed. They will act as a conduit through which traffic and transport matters can be raised by the community, residents, and business owners.

Decommissioning the existing Cambridge WWTP

5.1.11 The potential impacts as a result of decommissioning the existing Cambridge WWTP for the purpose of surrendering the existing environmental permit would be low as traffic movements required are not large enough in volume to result in a significant effect. The effect is therefore slight and **not significant**.

Operation phase

5.1.12 The effects of the Proposed Development on severance, pedestrian delay, fear and intimidation, accidents and road safety, and hazardous and abnormal loads during operation are **not significant**.

5.1.13 In operation, improvements to Horningsea Road including the wider footpath, speed restriction and additional safe crossing point between Horningsea Road and Low Fen Drove Way are expected to result in a reduction in the likelihood of fear and intimidation to pedestrians and cyclists. However, the effect would remain slight and **not significant**.

Summary

5.1.14 A summary of potential environmental effects, mitigation and monitoring is provided in Table 5-1 sets out how mitigation would be secured.

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Secondary /additional mitigation measures	Residual effect significance	Proposed monitoring
Construction traffic leads to temporary delay to users of PRoW due to gated controlled access on ProW intersected by works corridor and construction activities	Temporary diversion of the ProW 85/6 at the outfall works area using 85/8 and a temporary path to re-join the ProW 85/6 upstream of the outfall works area	Minor	Medium	Slight – not significant	<p>Requirement within section 3 Community & Stakeholder Engagement of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of changes to access because of PRoW realignment or diversion.</p> <p>Implementation of section 7.7 of the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) Part A (Traffic and Transport) which includes measures PRoW in particular:</p> <ul style="list-style-type: none"> the requirement to maintain access through the use of safety gates to allow safely cross the construction working area. the requirement to divert PRoW where no safe option exists to continue its use the requirement to restore PRoW to the same condition as before the works took place 	Slight – not significant	Through application of CLP and ongoing community liaison
Construction traffic leads to temporary adverse effect on fear and intimidation for pedestrians and cyclists travelling along Horningsea Road	N/A	Negligible	High	Slight – not significant	<p>Implementation of the CTMP in particular:</p> <ul style="list-style-type: none"> Section 4.2 which recognises the potential conflict of site access point CA2/CA3 which will cross the existing footway / cycleway on the west side of Horningsea Road which may require marshalling during peak hours and/or traffic management measures to provide a safe crossing point for site traffic and pedestrians and cyclists Section 6.9 (Facilitate safe movement of users of the highway (including NMUs))which refers to site access points COA3, CA6, CA2/CA3 which indicates the majority of the highway works can be carried out under TM that maintains vehicular access on Horningsea Road, under temporary signal control. And requires that the existing footway / cycleway to the west of the Horningsea Road carriageway will be maintained at all times with suitable barriers separating the footway from the works. Section 6.9 (Facilitate safe movement of users of the highway (including NMUs))which requires that speed restrictions to Horningsea Road will be put in place for the duration of the works in accordance with the Temporary Traffic Regulation Order set out in Article 16 of the DCO (the detail of which will be subject to agreement with Cambridgeshire County Council and any other relevant stakeholders) <p>Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following:</p> <ul style="list-style-type: none"> Documented pre-commencement meetings with the site management team as a contractual requirement; ANPR cameras along Horningsea Road; Active traffic management; and FORS and CLOCS accreditation 	Slight – not significant	Section 7.2 of the CTMP
Construction traffic leads to temporary increase in	N/A	Low	Low	Slight – not significant	<p>Implementation of the CTMP in particular:</p> <ul style="list-style-type: none"> Section 6.3 Adherence to Designated Routes 	Neutral – not significant	Section 7.2 of the CTMP

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Secondary /additional mitigation measures	Residual effect significance	Proposed monitoring
accidents and road safety / worsening of road user safety on Horningsea Road and A14 on and off-slip					<ul style="list-style-type: none"> Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads. As a minimum this will include internal haul road speed limits, warning (hazard signs), potential vehicle or pedestrian Section 4.2 which recognises the potential conflict of site access point CA2/CA3 which will cross the existing footway / cycleway on the west side of Horningsea Road which may require marshalling during peak hours and/or traffic management measures to provide a safe crossing point for site traffic and pedestrians and cyclists Section 6.9 (Facilitate safe movement of users of the highway (including NMUs))which refers to site access point COA3, CA6, CA2/CA3 which indicates the majority of the highway works can be carried out under TM that maintains vehicular access on Horningsea Road, under temporary signal control. And requires that the existing footway / cycleway to the west of the Horningsea Road carriageway will be maintained at all times with suitable barriers separating the footway from the works. Section 6.9 (Facilitate safe movement of users of the highway (including NMUs))which requires that speed restrictions to Horningsea Road will be put in place for the duration of the works in accordance with the Temporary Traffic Regulation Order set out in Article 16 of the DCO (the detail of which will be subject to agreement with Cambridgeshire County Council and any other relevant stakeholders) <p>Implementation of the CTMP in particular Section 7.2 (Monitoring Strategy) which requires the Principal Contractor(s) to manage and operate a ‘near miss’ reporting system to ensure any accidents or near misses are recorded and investigated appropriately. Where relevant, accidents and near misses will be reported to relevant highways stakeholders by the CLO.</p> <p>Requirement within the CTMP for Principal Contractor(s) and sub-contractor vehicles arriving at the Proposed Development to comply with sufficient safety measures and requirements relating to the following schemes:</p> <ul style="list-style-type: none"> Fleet Operator Recognition Scheme (FORS) – Requires fleet operators to demonstrate that they are achieving exemplary levels of best practice in safety, efficiency and environmental protection; and Construction Logistics & Community Safety (CLOCS) – Is a set of road safety requirements to be adopted during the construction period by the supply chain 		Through application of CLP and ongoing community liaison
Construction of the outfall leads to temporary adverse impacts to users of cycling routes, public rights of way, footways	<p>PRoW mitigation for 85/8 measure in the form of controlled gated access as set out in section 7.7 of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1)</p> <p>Diversion of Fen Ditton footpath (85/6) during construction of the outfall along PRoW 85/8 in part and then connecting</p>	<p>Minor</p> <p>Major</p>	<p>Medium</p> <p>Medium</p>	<p>Slight – not significant</p> <p>Major – significant</p>		<p>Slight – not significant</p> <p>Temporary Major - significant</p>	

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Secondary /additional mitigation measures	Residual effect significance	Proposed monitoring
Construction traffic leads to temporary adverse impacts to users of cycling routes, public rights of way, footways, and roads accessing certain locations for pedestrians and cyclists travelling along Long Drove, Bannold Drove, Burgess's Drove.	back to 85/6 downstream of the outfall works Implementation of Construction Worker Travel Plan to encourage construction workers to use more sustainable travel modes, to reduce single occupancy vehicle trips and will investigate the potential for flexible working patterns to facilitate travel outside of the peak periods.	Major	Low	Slight – not significant	<p>Implementation of section 7.7 Traffic and Transport, of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which includes measures for temporary traffic control</p> <p>Implementation of the CTMP in particular:</p> <ul style="list-style-type: none"> Section 6.3 Adherence to Designated Routes Section 6.9 Facilitate safe movement of users of the highway which requires maintaining the existing footway / cycleway to the west of the Horningsea Road carriageway at all times with suitable barriers separating the footway from the works Section 6.9 avoid HGV movements through Waterbeach during school drop-off and pick-up hours throughout term time Section 6.9 requirement to provide connectivity/access to community facilities and residential properties during works <p>Implementation of the CTMP Section 6.9 requirement for speed restrictions to Burgess's Drove, Bannold Drove and Bannold Road as well as Clayhithe Road will be put in place in accordance with the Temporary Traffic Regulation Order (TRO) set out in Article 16 of the DCO</p> <p>Implementation of the CTMP section 6.9 (Facilitate safe movement of users of the highway (including NMUs) which requires junction widening at:</p> <ul style="list-style-type: none"> Bannold Road / Bannold Drove Bannold Road / Burgess's Drove Burgess's Drove <p>Implementation of the CTMP section 6.9 (Facilitate safe movement of users of the highway (including NMUs) which requires temporary traffic management measures for vehicle passing at:</p> <ul style="list-style-type: none"> Denny End Road Bannold Road Bannold Drove Clayhithe Bridge Long Drove Cambridge Road Chapel Street Station Road <p>Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following:</p> <ul style="list-style-type: none"> Documented pre-commencement meetings with the site management team as a contractual requirement; Active traffic management; and FORS and CLOCS accreditation 	Slight – not significant	<p>Through application of CLP and ongoing community liaison</p> <p>As defined in approved CTMP</p>
	Management of potential temporary impacts from connections to the road network impacts through the requirement to design connections from temporary works areas in accordance with local highways standards						

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Secondary /additional mitigation measures	Residual effect significance	Proposed monitoring
Construction traffic leads to temporary adverse impacts on driver delay at the A10/Car Dyke Road junction, and A10 / Denny End Road in the AM and PM peak.	Implementation of Construction Worker Travel Plan to encourage construction workers to use more sustainable travel modes, to reduce single occupancy vehicle trips and will investigate the potential for flexible working patterns to facilitate travel outside of the peak periods.	Negligible	High	Slight – not significant	<p>Implementation of section 7.7 Traffic and Transport of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which includes measures for temporary traffic control.</p> <p>Implementation of the CTMP in particular:</p> <ul style="list-style-type: none"> Section 6.3 Adherence to Designated Routes Section 6.5 of the CTMP (Deliveries) which requires the management of deliveries via a scheduling system with deliveries scheduled so that they do not coincide with peak hours, especially during the AM and PM peak hours to minimise the possibility of adding to congestion on the road network section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours 	Neutral – not significant	Through application of CLP and ongoing community liaison
None	None				<p>Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following:</p> <ul style="list-style-type: none"> Documented pre-commencement meetings with the site management team as a contractual requirement; Active traffic management; and FORS and CLOCS accreditation 		Section 7.2 of the CTMP
Construction traffic leads to temporary adverse impacts on driver delay at the A10 approach of the Milton Interchange in the PM peak	None	Negligible	High	Slight – not significant	<p>Implementation of section 6.5 of the CTMP (Deliveries) which requires the management of deliveries via a scheduling system with deliveries scheduled so that they do not coincide with peak hours, especially during the AM and PM peak hours to minimise the possibility of adding to congestion on the road network</p> <p>Implementation of section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours</p>	Neutral – not significant	Section 7.2 of the CTMP
Construction traffic leads to temporary adverse effect on pedestrians travelling along / crossing roads that are part of the construction route (that do not meet the criteria in IEMA rule 2)	<p>Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction.</p> <p>Appropriate design of temporary connections from works areas to the road network</p>	Negligible	Low	Slight – not significant	<p>Requirement within section 3, Community & Stakeholder Engagement, of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) () to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of changes to access.</p> <p>Implementation of section 7.7 Traffic and Transport of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) (which includes measures for temporary traffic control</p> <p>Implementation of the CTMP in particular:</p> <ul style="list-style-type: none"> Section 6.3 Adherence to Designated Routes Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads. As a minimum this will include internal haul road speed limits, warning (hazard signs), potential vehicle or pedestrian crossing points and distances to destinations. <p>Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following:</p>	Neutral – not significant	Through application of CLP and ongoing community liaison

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Secondary /additional mitigation measures	Residual effect significance	Proposed monitoring
	Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction to minimise use of Horningsea Road to access Low Fen Drove Way				<ul style="list-style-type: none"> Documented pre-commencement meetings with the site management team as a contractual requirement; Active traffic management; and FORS and CLOCS accreditation <p>Requirement within section 3, Community & Stakeholder Engagement, of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of traffic management activities and management of safety concerns raised by the community, residents and businesses.</p>		
Construction traffic leads to temporary effect on fear and intimidation for pedestrians and cyclists travelling along Long Drove, Burgess's Road.	None	Major	Low	Slight - not significant	<p>Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which:</p> <ul style="list-style-type: none"> requires connectivity/access to community facilities and residential properties to be maintained during works. At the level crossings on Bannold Road and Station Road in Waterbeach, construction traffic, where necessary, should have restricted working hours, speed restrictions and the use of banks persons requires connectivity/access to community facilities and residential properties to be maintained during works. At the level crossings on Bannold Road and Station Road in Waterbeach, construction traffic, where necessary, should have restricted working hours, speed restrictions and the use of banks persons <p>Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which includes a commitment to avoid HGV movements through Waterbeach during school drop-off and pick-up hours throughout term time and to adequately reinstate any areas of footpath affected by the works and to maintain the existing alignment/gradient as much as is practicable</p> <p>Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which requires that speed restrictions Speed restrictions to Burgess's Drove, Bannold Drove and Bannold Road as well as Clayhithe Road to be put in place for the duration of the works in accordance with the Temporary Traffic Regulation Order set out in Article 16 of the DCO (the detail of which will be subject to agreement with Cambridgeshire County Council and any other relevant stakeholders</p> <p>Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following:</p> <ul style="list-style-type: none"> Documented pre-commencement meetings with the site management team as a contractual requirement; Active traffic management; and FORS and CLOCS accreditation 	Neutral – not significant	Through application of CLP and ongoing community liaison
					Requirement within section 3, Community & Stakeholder Engagement, of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period		Through application of CLP and ongoing

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Secondary /additional mitigation measures	Residual effect significance	Proposed monitoring
Construction traffic leads to temporary effect on fear and intimidation for pedestrians and cyclists travelling along roads that are part of the construction route (that don't meet Rule 2)	None	Negligible	Low	Slight – not significant	<p>including communication of traffic management activities and management of safety concerns raised by the community, residents and businesses.</p> <p>Implementation of section 7.7,Traffic and Transport, of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which includes measures for temporary traffic control</p> <p>Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following:</p> <ul style="list-style-type: none"> • Documented pre-commencement meetings with the site management team as a contractual requirement; • Active traffic management; and • FORS and CLOCS accreditation <p>Section 4.2 of the CTMP which recognises the footpath/cycleway along Cowley Road is a potential conflict area which may require diversion and traffic management measures (subject to agreement with the LHA) for pedestrians and other NMUs.</p> <p>Requirement within section 3 Community & Stakeholder Engagement of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of traffic management activities and management of safety concerns raised by the community, residents and businesses.</p>	Neutral – not significant	<p>community liaison</p> <p>Through application of CLP and ongoing community liaison</p>
Construction traffic leads to temporary increase in accidents and road safety / worsening of road user safety on Long Drove, Bannold Drove, Burgess's Drove, Fen Road	None	Major	Low	Slight – not significant	<p>Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which:</p> <ul style="list-style-type: none"> • requires connectivity/access to community facilities and residential properties to be maintained during works. At the level crossings on Bannold Road and Station Road in Waterbeach, construction traffic, where necessary, should have restricted working hours, speed restrictions and the use of banks persons • requires that speed restrictions to Burgess's Drove, Bannold Drove and Bannold Road as well as Clayhithe Road to be put in place for the duration of the works in accordance with the Temporary Traffic Regulation Order set out in Article 16 of the DCO (the detail of which will be subject to agreement with Cambridgeshire County Council and any other relevant stakeholders) • requires temporary parking restrictions on Bannold Road junction with Denny End Road / Car Dyke Lane for the duration of the Waterbeach pipeline construction <p>Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which includes a commitment to avoid HGV movements through Waterbeach during school drop-off and pick-up hours throughout term time and to adequately reinstate any areas of footpath affected by the works and to maintain the existing alignment/gradient as much as is practicable</p>	Neutral – not significant	<p>Through the measures in the CTMP. Responsibility of Logistics manager to ensure compliance with any monitoring</p>

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Secondary /additional mitigation measures	Residual effect significance	Proposed monitoring
					<p>Requirement within section 3 Community & Stakeholder Engagement of the CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of traffic management activities and management of safety concerns raised by the community, residents and businesses.</p> <p>Requirement within the CTMP for Principal Contractor(s) and sub-contractor vehicles arriving at the Proposed Development to comply with sufficient safety measures and requirements relating to the following schemes:</p> <ul style="list-style-type: none"> Fleet Operator Recognition Scheme (FORS) – Requires fleet operators to demonstrate that they are achieving exemplary levels of best practice in safety, efficiency, and environmental protection; and Construction Logistics & Community Safety (CLOCS) – Is a set of road safety requirements to be adopted during the construction period by the supply chain 		<p>or approval requirements</p> <p>Through application of CLP and ongoing community liaison</p>
Construction traffic leads to temporary increase in accidents and road safety / worsening of road user safety on the local road network (that do not meet rule 2)		Negligible	Low	Slight– not significant	<p>Implementation of the CTMP in particular:</p> <ul style="list-style-type: none"> Section 6.3 Adherence to Designated Routes Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads. As a minimum this will include internal haul road speed limits, warning (hazard signs), potential vehicle or pedestrian Section 4.2 which recognises the footpath/cycleway along Cowley Road is a potential conflict area which may require diversion and traffic management measures (subject to agreement with the LHA) for pedestrians and other NMUs. <p>Implementation of the CTMP in particular Section 7.2 (Monitoring Strategy) which requires the Principal Contractor(s) to manage and operate a ‘near miss’ reporting system to ensure any accidents or near misses are recorded and investigated appropriately. Where relevant, accidents and near misses will be reported to relevant highways stakeholders by the CLO</p> <p>Requirement within the CTMP for Principal Contractor(s) and sub-contractor vehicles arriving at the Proposed Development to comply with sufficient safety measures and requirements relating to the following schemes:</p> <ul style="list-style-type: none"> Fleet Operator Recognition Scheme (FORS) – Requires fleet operators to demonstrate that they are achieving exemplary levels of best practice in safety, efficiency and environmental protection; and Construction Logistics & Community Safety (CLOCS) – Is a set of road safety requirements to be adopted during the construction period by the supply chain. 	Neutral – not significant	<p>None</p> <p>Through application of CLP and ongoing community liaison</p> <p>None</p>
Construction traffic leads to an increased risk /		Negligible	Low	Slight – not significant	Implementation of the CTMP in particular Section 7.2 (Monitoring Strategy) which requires the Principal Contractor(s) to manage and operate a ‘near	Neutral – not significant	Through application of

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Secondary /additional mitigation measures	Residual effect significance	Proposed monitoring
delay for users of the local road network as a result of the transportation of hazardous loads	Entities responsible for transporting the abnormal load follow the regulations for notifying authorities				<p>miss' reporting system to ensure any accidents or near misses are recorded and investigated appropriately. Where relevant, accidents and near misses will be reported to relevant highways stakeholders by the CLO.</p> <p>Implementation of the CTMP in particular Section 4.2 (Local routeing and site plant vehicle routeing) which requires abnormal loads to have specific measures including appropriate vehicle escort and marshalling where required and timing of movement to be outside peak hours (i.e., school start and finishing times). No construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays.</p>	Neutral – not significant	CLP and ongoing community liaison Through application of CLP and ongoing community liaison
Short-term intermittent activities may potentially lead to an effect on severance, pedestrian delay, driver delay, fear and intimidation, accidents and road safety, and the delivery of hazardous and abnormal loads	N/A	Negligible	High	Slight – not significant	<p>Implementation of the CTMP in particular Section 7.2 (Monitoring Strategy) which requires the Principal Contractor(s) to manage and operate a 'near miss' reporting system to ensure any accidents or near misses are recorded and investigated appropriately. Where relevant, accidents and near misses will be reported to relevant highways stakeholders by the CLO.</p> <p>Implementation of the CTMP in particular Section 4.2 (Local routeing and site plant vehicle routeing) which requires abnormal loads to have specific measures including appropriate vehicle escort and marshalling where required and timing of movement to be outside peak hours (i.e., school start and finishing times). No construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess's Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed</p>	Neutral – not significant	Near miss records Reporting through application of CLP and ongoing community liaison

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Secondary /additional mitigation measures	Residual effect significance	Proposed monitoring
					<p>that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays.</p> <p>Requirement within the CTMP for Principal Contractor(s) and sub-contractor vehicles arriving at the Proposed Development to comply with sufficient safety measures and requirements relating to the following schemes:</p> <ul style="list-style-type: none"> • Fleet Operator Recognition Scheme (FORS) – Requires fleet operators to demonstrate that they are achieving exemplary levels of best practice in safety, efficiency and environmental protection; and • Construction Logistics & Community Safety (CLOCS) – Is a set of road safety requirements to be adopted during the construction period by the supply chain. 		
Operational vehicle movements and the presence of the new connection to the Horningsea Road junction leads to adverse effect on fear and intimidation for pedestrians and cyclists travelling along Horningsea Road	<p>A geofencing system will be used to monitor HGVs at the site to ensure they are adhering to the approved routes once the proposed WWTP access is operational. It will be installed at the proposed WWTP site access on Horningsea Road once the proposed WWTP site access is operational</p> <p>Inclusion within the design a pedestrian and cycle route and access to the proposed WWTP to be further developed by the Principal Contractor that includes</p> <ul style="list-style-type: none"> • a segregated pedestrian and cyclist access to the proposed WWTP • pedestrian island crossing on Horningsea Road and lighting extending from the junction to the crossing • a new footway section on the east side of Horningsea Road south of the junction with Low Fen Drove Way. 	Negligible	High	Slight – not significant		Slight – not significant	Geofence report records
Operational traffic leads to an increased risk / delay for users of the local road network as a result of the transportation of abnormal or hazardous loads		Negligible	High	Slight – not significant	Controlled through the Operational Traffic Logistics Plan and requirements in relation coordination of vehicle movements in line with the regulations for notifying authorities of abnormal loads	Slight – not significant	As required by approved plan

5.2 Securing mitigation

5.2.1 The delivery of mitigation will be controlled through the 'Development Consent Order (DCO) requirements' which:

- identify parameters within which certain works activities can be located and constructed (e.g. maximum and minimum building dimensions (including below ground), or locational zones);

- require construction, operation and maintenance to be undertaken in accordance with 'control documents'; and
- control identified issues or works (e.g. time limits around the completion of the outfall construction).

5.2.2 Table 5-2 summarises mitigation included to mitigate adverse traffic and transport impacts.

Table 5-2: Securing traffic and transport mitigation

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
Construction traffic leads to temporary adverse impacts to users of cycling routes, public rights of way, footways, and roads accessing locations along all roads used as the construction route (that do not meet the criteria in IEMA rule 2)	Neutral – not significant	Implementation of section 7.7 (Traffic and Transport) of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which includes measures for temporary traffic control and measures manage the impact upon users of the PRow during the construction period.	Secondary	Schedule 2 - Requirement to implement CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase Approval by the relevant street authority closures relevant to the phase
		Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction.	Primary	Schedule 2 – Requirement for approval of detailed design	Appointed Contractor(s)	Prior to start of construction	Approval of temporary highways connections design by the relevant local authority prior to the start of construction
		Appropriate design of temporary connections from works areas to the road network	Primary	Schedule 2 – Requirement for approval of detailed design	Appointed Contractor(s)	Pre-construction	Approval of temporary highways connections design by the relevant local authority prior to the start of construction
		Implementation of the CTMP in particular <ul style="list-style-type: none"> • Section 6.3 Adherence to Designated Routes • Section 6.9 Facilitate safe movement of users of the highway which requires maintaining the existing footway / cycleway to the west of the Horningsea Road carriageway at all times with suitable barriers separating the footway from the works 	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)		Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase
Implementation of measures within a Construction Worker Travel Plan to minimise vehicle trips such as through car sharing initiatives	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the		Prior to start of construction	Approved CWTP prior to commencement of construction		

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
				CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7).			
		Implementation of the CTMP in particular section 6.3 (Adherence to Designated Routes) which specified that temporary Automatic Number Plate Recognition (ANPR) cameras will be installed at the following locations (subject to approval by Cambridgeshire County Council as the Local Highways Authority and any other relevant stakeholders): <ul style="list-style-type: none"> On Horningsea Road, located immediately north and south of the A14 signalised junctions; and North of Low Fen Drove Way to capture construction vehicles associated with temporary site access points COA3 	Primary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase
Construction traffic leads to temporary adverse impacts to users of cycling routes, public rights of way, footways, and roads accessing certain locations for pedestrians and cyclists travelling along Long Drove, Bannold Drove, Burgess’s Drove, Fen Road.	Slight – not significant	Implementation of section 7.7 Traffic and Transport of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1 (which includes measures for temporary traffic control	Secondary	Schedule 2 – Requirement to implement CEMP in accordance with the CoCP	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase
		Appropriate design of temporary connections from works areas to the road network		Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
				(App Doc Ref 5.4.19.7)			
		<p>Implementation of the CTMP in particular</p> <ul style="list-style-type: none"> Section 4.2 that all deliveries of 3.5 tonnes or above will be made between the hours of 9:30am – 3:30pm for Fen Road or 09:30am to 3:00pm for Bannold Road and Burgess's Drove and Long Drove during school term time. Unless it is determined to be essential that the delivery is to be completed during peak hours. Section 6.3 Adherence to Designated Routes Section 6.9 Facilitate safe movement of users of the highway which requires maintaining the existing footway / cycleway to the west of the Horningsea Road carriageway at all times with suitable barriers separating the footway from the works Section 6.9 avoid HGV movements through Waterbeach during school drop-off and pick-up hours throughout term time Section 6.9 requirement to provide connectivity/access to community facilities and residential properties during works 	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase
		Implementation of the CTMP Section 6.9 requirement for speed restrictions to Burgess's Drove, Bannold Drove and Bannold Road as well as Clayhithe Road will be put in place in accordance with the Temporary Traffic Regulation Order set out in Article 16 of the DCO	Secondary	Schedule 2 – Requirement to secure TRO as defined in Article 16	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction of the Waterbeach pipeline including specific arrangements made with the developer of the Waterbeach Station relocation
		Implementation of Construction Worker Travel Plan to encourage construction workers to use more sustainable travel modes, to reduce single occupancy vehicle trips and will investigate the potential for flexible working patterns to facilitate travel outside of the peak periods.	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase
		<p>Implementation of the CTMP section 6.9 (Facilitate safe movement of users of the highway (including NMUs) which requires junction widening at:</p> <ul style="list-style-type: none"> Bannold Road / Bannold Drove Bannold Road / Burgess's Drove Burgess's Drove <p>Implementation of the CTMP section 6.9 (Facilitate safe movement of users of the highway (including NMUs) which requires temporary widening measures for vehicle passing at:</p> <ul style="list-style-type: none"> Denny End Road Bannold Road Bannold Drove Clayhithe Bridge Long Drove 	Primary			Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase including specific arrangements made with the developer of the Waterbeach Station relocation
			Secondary				

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		<ul style="list-style-type: none"> Cambridge Road Chapel Street Station Road <p>Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following:</p> <ul style="list-style-type: none"> Documented pre-commencement meetings with the site management team as a contractual requirement; Active traffic management; and FORS and CLOCS accreditation 	Secondary			Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase including specific arrangements made with the developer of the Waterbeach Station relocation
Construction traffic leads to temporary adverse impacts on driver delay at junction 34 of the A14 in the AM and PM peak.	Slight – not significant	<p>Implementation of Section 7.7 Traffic and Transport of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which includes measures for temporary traffic control</p> <p>Implementation of Section 4.2. Access route strategy. of the CTMP which identifies the off and on-slip of the A14 as a potential conflict area which may require traffic marshalling during peak hours</p> <p>Requirement of Section 4.2 that all deliveries will be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00) unless it is determined to be essential that the delivery is to be completed during peak hours.</p> <p>Implementation of Section 6.5 of the CTMP (Deliveries) which requires the management of deliveries via a scheduling system with deliveries scheduled so that they do not coincide with peak hours, especially during the AM and PM peak hours to minimise the possibility of adding to congestion on the road network</p> <p>Implementation of Section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours</p> <p>Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction.</p>	Secondary	Schedule 2 – Requirement to implement CEMP in accordance with the CoCP)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction of the Waterbeach pipeline
				Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)		
				Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the	Appointed Contractor(s)		

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
				measures set out in the CTMP (App Doc Ref 5.4.19.7)			
		Appropriate design of temporary connections from works areas to the road network	Primary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Road connection design approved by the relevant local authority prior to the start of construction
		Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following: <ul style="list-style-type: none"> Documented pre-commencement meetings with the site management team as a contractual requirement; Active traffic management; and FORS and CLOCS accreditation 	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)		Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction of the Waterbeach pipeline
		Implementation of Construction Worker Travel Plan to encourage construction workers to use more sustainable travel modes, to reduce single occupancy vehicle trips and will investigate the potential for flexible working patterns to facilitate travel outside of the peak periods.	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction of the Waterbeach pipeline
Construction traffic leads to temporary adverse impacts on driver delay at the A10/Car Dyke Road junction, and A10 / Denny End Road in the AM peak.	Slight – not significant	Implementation of Section 7.7 (Traffic and Transport of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which includes measures for temporary traffic control Implementation of the CTMP in particular: <ul style="list-style-type: none"> Section 6.3 Adherence to Designated Routes section 6.5 of the CTMP (Deliveries) which requires the management of deliveries via a scheduling system with deliveries scheduled so that they do not coincide with peak hours, especially during the AM and PM peak hours to 	Secondary	Schedule 2 – Requirement to implement CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction of the Waterbeach pipeline

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		minimise the possibility of adding to congestion on the road network <ul style="list-style-type: none"> section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours 					
		Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following: <ul style="list-style-type: none"> Documented pre-commencement meetings with the site management team as a contractual requirement; Active traffic management; and FORS and CLOCS accreditation 		Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction of the Waterbeach pipeline
		Implementation of Construction Worker Travel Plan to encourage construction workers to use more sustainable travel modes, to reduce single occupancy vehicle trips and will investigate the potential for flexible working patterns to facilitate travel outside of the peak periods.	Secondary	Schedule 2 – Requirement to implement approved CWTP based on outline CWTP (Appendix 19.9, App Doc Ref 5.4.19.9)	Appointed Contractor(s)	Prior to start of construction	Approval of the CWTP prior to the commencement of the construction of the Waterbeach pipeline
Construction traffic leads to temporary adverse impacts on driver delay at the A10 approach of the Milton Interchange in the PM peak	Slight – not significant	Implementation of section 6.5 of the CTMP (Deliveries) which requires the management of deliveries via a scheduling system with deliveries scheduled so that they do not coincide with peak hours, especially during the AM and PM peak hours to minimise the possibility of adding to congestion on the road network	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP prior to the commencement of the construction phase

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		Implementation of section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)			
Construction traffic leads to temporary delay to users of PRow due to gated controlled access on PRow intersected by works corridor and construction activities	Slight – not significant	Requirement within section 3, Community & Stakeholder Engagement, of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1 to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of changes to access because of PRow realignment or diversion	Secondary	Schedule 2 – Requirement to implement approved CEMP including CLP based on the CLP (App Doc Ref 7.8)	Appointed Contractor(s)	Prior to start of construction	Approval of the CEMP and accompanying CLP prior to the start of construction of the Waterbeach pipeline Appointment of CLO prior to the start of construction
		Implementation of section 7.7, Traffic and Transport, of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which includes measures PRow in particular: <ul style="list-style-type: none"> the requirement to maintain access through the use of safety gates to allow safely cross the construction working area. the requirement to divert PRow where no safe option exists to continue its use the requirement to restore PRow to the same condition as before the works took place 	Secondary	Schedule 2 – Requirement to implement a CEMP that must accord with the CoCP			
		Temporary diversion of the PRow 85/6 at the outfall works area using 85/8 and a temporary path to re-join the PRow 85/6 upstream of the outfall works area	Primary	Schedule 2 Requirement requiring the applicant to provide the relevant highway authority with a programme	Appointed Contractor(s)	Prior to start of construction	Approved diversion with the local PRow officer

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
Construction traffic leads to temporary adverse effect on pedestrians travelling along / crossing roads that are part of the construction route (that do not meet the criteria in IEMA rule 2)	Slight – not significant	Requirement within section 3, Community & Stakeholder Engagement, of the CoCP Part A and B (Appendix 2.1, App Doc Ref 5.4.2.1) to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of changes to access.	Secondary	Schedule 2 – Requirement to implement a CEMP that must accord with the CoCP	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase
		Implementation of section 7.7 Traffic and Transport of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which includes measures for temporary traffic control		Schedule 2 – Requirement to implement Schedule 2 – Requirement to implement a CEMP that must accord with the CoCP			
		Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction.		Schedule 2 – Requirement for approval of detailed design			
		Appropriate design of temporary connections from works areas to the road network		Requirement for approval of detailed design of temporary connections			
Implementation of the CTMP in particular: <ul style="list-style-type: none"> Section 6.3 Adherence to Designated Routes Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads. As a minimum this will include internal haul road speed limits, warning (hazard signs), potential vehicle or pedestrian crossing points and distances to destinations. 	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase			

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		<p>Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following:</p> <ul style="list-style-type: none"> • Documented pre-commencement meetings with the site management team as a contractual requirement; • Active traffic management; and • FORS and CLOCS accreditation 		<p>measures set out in the CTMP (App Doc Ref 5.4.19.7)</p>	<p>Appointed Contractor(s)</p>	<p>Prior to start of construction</p>	<p>Approval of the CTMP and CEMP prior to the commencement of the construction phase</p>
<p>Construction traffic leads to temporary adverse effect on fear and intimidation for pedestrians and cyclists travelling along Horningsea Road</p>	<p>Slight – not significant</p>	<p>Implementation of the CTMP in particular:</p> <ul style="list-style-type: none"> • Section 4.2 which recognises the potential conflict of site access point CA2/CA3 which will cross the existing footway / cycleway on the west side of Horningsea Road which may require marshalling during peak hours and/or traffic management measures to provide a safe crossing point for site traffic and pedestrians and cyclists • Section 6.9 (Facilitate safe movement of users of the highway (including NMUs))which refers to site access point COA3, CA6, CA2/CA3 which indicates the majority of the highway works can be carried out under TM that maintains vehicular access on Horningsea Road, under temporary signal control. And requires that the existing footway / cycleway to the west of the Horningsea Road carriageway will be maintained at all times with suitable barriers separating the footway from the works. • Section 6.9 (Facilitate safe movement of users of the highway (including NMUs))which requires that speed restrictions to Horningsea Road will be put in place for the duration of the works in accordance with the Temporary Traffic Regulation Order set out in Article 16 of the DCO (the detail of which will be subject to agreement with Cambridgeshire County Council and any other relevant stakeholders) • Section 4.2 which recognises the potential conflict of site access point CA2/CA3 which will cross the existing footway / cycleway on the west side of Horningsea Road which may require marshalling during peak hours and/or traffic 	<p>Secondary</p>	<p>Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)</p>	<p>Appointed Contractor(s)</p>	<p>Prior to start of construction</p>	<p>Approval of the CTMP and CEMP prior to the commencement of the construction phase</p>

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		management measures to provide a safe crossing point for site traffic and pedestrians and cyclists.					
		Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction to minimise use of Horningsea Road to access Low Fen Drove Way			Appointed Contractor(s)	Prior to start of construction	
		Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following: <ul style="list-style-type: none"> Documented pre-commencement meetings with the site management team as a contractual requirement; ANPR cameras along Horningsea Road; Active traffic management; and FORS and CLOCS accreditation 	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase
		Requirement within section 3, Community & Stakeholder Engagement, of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of traffic management activities and management of safety concerns raised by the community, residents and businesses.		Schedule 2 – Requirement to implement approved CEMP including CLP based on the CLP (App Doc Ref 7.8)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase
Construction traffic leads to temporary effect on fear and intimidation for pedestrians and cyclists travelling along Long Drove, Bannold Road, Burgess’s Road, Fen Road	Slight – not significant	Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which: <ul style="list-style-type: none"> requires connectivity/access to community facilities and residential properties to be maintained during works. At the level crossings on Bannold Road and Station Road in Waterbeach, construction traffic, where necessary, should have restricted working hours, speed restrictions and the use of banks persons requires connectivity/access to community facilities and residential properties to be maintained during works. At the level crossings on Bannold Road and Station Road in Waterbeach, construction traffic, where necessary, should have restricted working hours, speed restrictions and the use of banks persons Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which includes a commitment to 	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		avoid HGV movements through Waterbeach during school drop-off and pick-up hours throughout term time and to adequately reinstate any areas of footpath affected by the works and to maintain the existing alignment/gradient as much as is practicable					
		Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) which requires that speed restrictions Speed restrictions to Burgess’s Drove, Bannold Drove and Bannold Road as well as Clayhithe Road to be put in place for the duration of the works in accordance with the Temporary Traffic Regulation Order set out in Article 16 of the DCO (the detail of which will be subject to agreement with Cambridgeshire County Council and any other relevant stakeholders).	Secondary	Temporary Traffic Regulation Order			
		Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following: <ul style="list-style-type: none"> • Documented pre-commencement meetings with the site management team as a contractual requirement; • Active traffic management; and • FORS and CLOCS accreditation 	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)			Appointment of CLO
		Requirement within section 3 (Community & Stakeholder Engagement) of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of traffic management activities and management of safety concerns raised by the community, residents and businesses.	Secondary	Schedule 2 – Requirement to implement approved CEMP including CLP based on the CLP (App Doc Ref 7.8)	Appointed Contractor(s)	Prior to start of construction	
Construction traffic leads to temporary effect on fear and intimidation for pedestrians and cyclists travelling along roads that are part of the	Neutral – not significant	Implementation of section 7.7 Traffic and Transport of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which includes measures for temporary traffic control	Secondary	Schedule 2 – Requirement to implement CoCP Part A and B (Appendix	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the enabling phase

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
construction route (that don't meet Rule 2)		<p>Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated with the construction of the Proposed Development, this will include the following:</p> <ul style="list-style-type: none"> • Documented pre-commencement meetings with the site management team as a contractual requirement; • Active traffic management; and • FORS and CLOCS accreditation 	Secondary	2.1, App Doc Ref 5.4.2.1)			
		<p>Section 4.2 of the CTMP which recognises the footpath/cycleway along Cowley Road is a potential conflict area which may require diversion and traffic management measures (subject to agreement with the LHA) for pedestrians and other NMUs.</p>		Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)			
		<p>Requirement within section 3, Community & Stakeholder Engagement, of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1)(to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of traffic management activities and management of safety concerns raised by the community, residents and businesses.</p>		Schedule 2 – Requirement to implement approved CEMP including CLP based on the CLP (App Doc Ref 7.8)			
Construction traffic leads to temporary increase in accidents	Slight – not significant	Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) which:		Schedule 2 – Requirement to	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
and road safety / worsening of road user safety on Long Drove, Bannold Drove, Burgess's Drove, Fen Road		<ul style="list-style-type: none"> requires connectivity/access to community facilities and residential properties to be maintained during works. At the level crossings on Bannold Road and Station Road in Waterbeach, construction traffic, where necessary, should have restricted working hours, speed restrictions and the use of banks persons requires that speed restrictions to Burgess's Drove, Bannold Drove and Bannold Road as well as Clayhithe Road to be put in place for the duration of the works in accordance with the Temporary Traffic Regulation Order set out in Article 16 of the DCO (the detail of which will be subject to agreement with Cambridgeshire County Council and any other relevant stakeholders) requires temporary parking restrictions on Bannold Road junction with Denny End Road / Car Dyke Lane for the duration of the Waterbeach pipeline construction 		implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)			
		Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which includes a commitment to avoid HGV movements through Waterbeach during school drop-off and pick-up hours throughout term time and to adequately reinstate any areas of footpath affected by the works and to maintain the existing alignment/gradient as much as is practicable	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase
		Requirement within section 3 Community & Stakeholder Engagement of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of traffic management activities and management of safety concerns raised by the community, residents and businesses.					
		<p>Requirement within the CTMP for Principal Contractor(s) and sub-contractor vehicles arriving at the Proposed Development to comply with sufficient safety measures and requirements relating to the following schemes:</p> <ul style="list-style-type: none"> Fleet Operator Recognition Scheme (FORS) – Requires fleet operators to demonstrate that they are achieving exemplary levels of best practice in safety, efficiency, and environmental protection; and Construction Logistics & Community Safety (CLOCS) – Is a set of road safety requirements to be adopted during the construction period by the supply chain 		Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
Construction traffic leads to temporary increase in accidents and road safety / worsening of road user safety on the local road network (that do not meet rule 2)	Neutral – not significant	<p>Implementation of the CTMP in particular:</p> <ul style="list-style-type: none"> Section 6.3 Adherence to Designated Routes Section 5.2 (Temporary access points and construction road signage) which requires the use of temporary signage along all proposed construction haul roads. As a minimum this will include internal haul road speed limits, warning (hazard signs), potential vehicle or pedestrian Section 4.2 which recognises the footpath/cycleway along Cowley Road is a potential conflict area which may require diversion and traffic management measures (subject to agreement with the LHA) for pedestrians and other NMUs. <p>Implementation of the CTMP in particular Section 7.2 (Monitoring Strategy) which requires the Principal Contractor(s) to manage and operate a ‘near miss’ reporting system to ensure any accidents or near misses are recorded and investigated appropriately. Where relevant, accidents and near misses will be reported to relevant highways stakeholders by the CLO.</p> <p>Requirement within the CTMP for Principal Contractor(s) and sub-contractor vehicles arriving at the Proposed Development to comply with sufficient safety measures and requirements relating to the following schemes:</p> <ul style="list-style-type: none"> Fleet Operator Recognition Scheme (FORS) – Requires fleet operators to demonstrate that they are achieving exemplary levels of best practice in safety, efficiency and environmental protection; and Construction Logistics & Community Safety (CLOCS) – Is a set of road safety requirements to be adopted during the construction period by the supply chain. 	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	<p>Approval of the CTMP and CEMP prior to the commencement of the construction phase</p> <p>Approval of the CTMP and CEMP prior to the commencement of the construction phase</p> <p>Approval of the CTMP and CEMP prior to the commencement of the construction phase</p>
Construction traffic leads to an increased risk / delay for users of the local road network as a result of the transportation of hazardous loads	Neutral – not significant	<p>Temporary traffic control, design of temporary connections to the road network, sequencing the proposed WWTP access road construction.</p> <p>Implementation of the CTMP in particular Section 7.2 (Monitoring Strategy) which requires the Principal Contractor(s) to manage and operate a ‘near miss’ reporting system to ensure any accidents or near misses are recorded and investigated appropriately. Where relevant, accidents and near misses will be reported to relevant highways stakeholders by the CLO.</p>	Secondary	Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
Construction traffic leads to an increased risk / delay for users of the local road network as a result of the transportation of abnormal loads	Neutral – not significant	<p>Implementation of the CTMP in particular Section 4.2 (Local routeing and site plant vehicle routeing) which requires:</p> <ul style="list-style-type: none"> abnormal loads to have specific measures including appropriate vehicle escort and marshalling where required and timing of movement to be outside peak hours (i.e., school start and finishing times). no construction deliveries (including site won material) over 3.5 tonnes will access or egress the site during the agreed peak hours unless it is a time critical delivery or it is determined to be essential that the delivery is to be completed during peak hours or specific alternative restrictions are agreed with the local highway authority. The agreed general peak hour restrictions are 08:00-09:00, 15:00-16:00, and 17:00-18:00 from Monday to Friday. Specific restrictions have been agreed with CCC in respect of Fen Road, Cowley Road, Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road. For Fen Road and Cowley Road this ensures that construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:30 from Monday to Friday. For Bannold Road, Bannold Drove, Burgess’s Drove, Station Road and Clayhithe Road, construction deliveries (including site won material) over 3.5 tonnes will only travel along these construction routes between 09:30 and 15:00 from Monday to Friday during school term time. In addition, it has been agreed that Abnormal Indivisible Loads will not use junction 34 of the A14 and Horningsea Road between 11:00 and 15:00 on Saturdays and Sundays. 		Schedule 2 – Requirement to implement approved CTMP, as part of the CEMP, included which must accord with the measures set out in the CTMP (App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP prior to the commencement of the construction phase
Operation							
Proposed WWTP							
Operational vehicle movements and the presence of the new connection to the Horningsea Road junction leads to adverse effect on fear and intimidation for pedestrians and cyclists travelling along Horningsea Road	Slight – not significant	A geofencing system will be used to monitor HGVs at the site to ensure they are adhering to the approved routes once the proposed WWTP access is operational. This will be installed at the proposed Cambridge WWTP site access on Horningsea Road once the proposed Cambridge WWTP site access is operational (subject to approval by Cambridgeshire County Council as the Local Highways Authority and any other relevant stakeholders).	Primary (design)/Secondary (monitoring)	Requirement to prepare detailed OLTP in alignment with the Operation Logistics Traffic Plan (App Doc Ref 5.4.19.10)	The Applicant	Prior to start of operation	Preparation of approved operational plans a procedure prior to commencement of operation.
					The Applicant	Prior to start of operation	Preparation of approved operational plans a procedure prior to commencement of operation.

Description of impact	Residual effect	Mitigation measure	Mitigation type	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		Inclusion within the design a pedestrian and cycle route and access to the proposed WWTP to be further developed by the Principal Contractor that includes: <ul style="list-style-type: none"> • a segregated pedestrian and cyclist access to the proposed WWTP • pedestrian island crossing on Horningsea Road and lighting extending from the junction to the crossing • a new footway section on the east side of Horningsea Road south of the junction with Low Fen Drove Way. 	Primary	Design Plans – Highways and Site Access (App Doc Ref 4.11)	The appointed contractor	Prior to start of construction	Implement design as approved by relevant local authority.
Operational traffic contributes to overall traffic and contributes to future delay	Minor	Implementation of Operational Worker Travel Plan to reduce vehicle movements to and from the proposed WWTP	Secondary	Schedule 2 – Requirement to appoint Travel Plan Coordinator as specified in outline OWTP (Appendix 19.8, App Doc Ref 5.4.19.8) Requirement to prepare detailed OWTP in alignment with the Operational Workers Travel Plan (Appendix 19.8, App Doc Ref 5.4.19.8)	The Applicant	Operation	Approval of Operational Workers Travel Plan prior to the start of operation

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