Cambridge Waste Water Treatment Plant Relocation Project
Anglian Water Services Limited

Environmental Statement Chapter 19: Traffic and Transport

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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 is soon to be 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 (TAA)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 (assumed to be 2028) for decommissioning of the existing Cambridge WWTP and operation of proposed WWTP in the expected year 1 of operation and then for year 1 plus five and ten years (expected to be 2028, 2033 and 2028 respectively). 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 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 (Book of Figures – Traffic and Transport, App Doc Ref 5.3.19) Construction route and access points).

The assessment of the operational 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 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) meetings for Traffic and Transport, 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 operational 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 23 vehicles within the proposed WWTP on commencement of operation, with passive provision for a further 23 EV spaces implemented through the Travel Plan.

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 Construction Traffic Management Plan (CTMP) (Appendix 19.7, App Doc Ref 5.4.19.7), 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 Worker Travel Plan (Appendix 19.9, App Doc Ref 5.4.19.9), Operational Worker Travel Plan (Appendix 19.8, App Doc Ref 5.3.19.8).

During the construction phase, the Construction Traffic Management Plan (Appendix 19.7, App Doc Ref 5.4.19.7) and the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) 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 requirement for all deliveries to 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; and
- measures for temporary traffic control during the construction period and restrictions on construction vehicle movements through the Fen Ditton and Horningsea.

The CoCP requires monitoring of vehicle movements along Horningsea Road through the use of Automatic Number Plate Recognition (ANPR).

A Decommissioning Strategy (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 operational phase of the Proposed Development and outlines the measures to avoid and minimise impacts that may occur in these phases.

An Operational Traffic Management Plan 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 City 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 predicated 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
- 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 year 3 peak.

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

This considers the peak year 3 of construction (2026) with a daily peak of 628 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 waste water tunnel and Waterbeach pipeline would all occur simultaneously.

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, by including the typical daily construction flows in the reasonable worst-case scenario an allowance is made for a 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);
- 72 daily total movements for the Transfer tunnel; and
- 65 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 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 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 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 WWTP considers the 2028 year with 150 daily vehicle movements on Milton Road and Cowley Road. These would access and egress the existing 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 1 and 10 of operation. Based on the indicative programme the assessment years for operation would be 2028 and 2038. The 2038 operation assessment year has been agreed with CCC based on its Transport Assessment (TA) 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 IEMA 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 movements are derived as follows:

- Cars and LGVs (in vehicle movements)
  - 12 Operational and maintenance staff travelling to/from work
  - 4 Visitors (weekdays and out of peak only)
  - 60 Office workers using the facility daily
  - 4 Deliveries (waste water and sludge, consumables) (7 days a week)
  - 12 Cars travelling daily
- 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 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 in of 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
- The Milton Interchange (junction 33)
- 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)

Without secondary mitigation, an effect of moderate to major effect is identified on driver delay on road links and junctions below which is significant:

- In the AM peak period
  - Horningsea Road – south bound ahead
  - Horningsea Road / A14 on-slip junction – southbound in
- In the PM peak period
  - Horningsea Road – north bound ahead
  - Horningsea Road – south bound ahead
  - Horningsea Road / A14 on-slip junction – south bound, turning in to the on-slip

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 the effect on driver delay is reduced to neutral which is not significant.

No significant effects on severance, pedestrian delay, fear and intimidation, accidents and road safety, and the delivery of hazardous loads have been determined. All associated effects have been determined to be neutral and therefore are not significant.

Waste water transfer tunnel

Without secondary mitigation, a moderate to major effect on driver delay is identified on road links and junctions below and is significant:

- In the AM peak period
  - Horningsea Road – south bound ahead
  - Horningsea Road / A14 on-slip junction – southbound in
- In the PM peak period
  - Horningsea Road – north bound ahead
  - Horningsea Road – south bound ahead
  - Horningsea Road / A14 on-slip junction – south bound, turning in to the on-slip

With the application of the secondary measures within the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) to restrict peak period construction movements the effect on driver delay is reduced to neutral which is not significant.

No significant effects on severance, pedestrian delay, fear and intimidation, accidents and road safety, and the delivery of hazardous loads have been determined. All associated effects have been determined to be neutral and therefore 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. In spite of 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

Without secondary mitigation, a moderate to major effect is identified on driver delay on road links and junctions below which is significant:

- In the AM peak period
  - Horningsea Road – south bound ahead
  - Horningsea Road / A14 on-slip junction – southbound in

- In the PM peak period
  - Horningsea Road – north bound ahead
  - Horningsea Road – south bound ahead
  - Horningsea Road / A14 on-slip junction – south bound, turning in to the on-slip

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, the effect on driver delay is reduced to neutral which is not significant. No significant effects on severance, pedestrian delay, driver delay, fear and intimidation, accidents and road safety, and the delivery of hazardous loads have been determined. All associated effects have been determined to be neutral and therefore not significant.

Summary of operational effects

The operational 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.

No percentage change in total traffic flow greater than 10% in 2038 with development (as per IEMA Assessment method Rule 2) have been observed. Therefore, the road links to be used in operation have not required a detailed assessment. Effects would be negligible and as such neutral and not significant.

Despite the addition of a small amount of operational traffic (relative to the total traffic on the surrounding road network), a major cumulative effect is identified on driver delay at the Horningsea Road / A14 on-slip junction (southbound on Horningsea Road, right-hand turn into the on-slip) in the AM And PM peak which is significant. This occurs as a result of background traffic growth in 2038 in the peak hours. With the application of the secondary measure to restrict peak period movements the effect on driver delay is reduced to neutral which is not significant. This measure would be secured through the Operation Logistics Transport Plan (App Doc Ref 5.4.19.10), with which no significant effects on driver delay would occur.

Summary of decommissioning effects

Decommissioning activities for the existing WWTP are scheduled to occur at the end of the construction phase and will between June 2027 to December 2027. The future baseline year 2028 (using TEMPro growth factor from a 2021 baseline) 'Do Nothing' scenario is compared to the 2028 Decommissioning scenario to assess the potential effects arising from decommissioning.

Decommissioning will require a daily total 150 vehicle movements.

The addition of the 150 vehicle movements on the existing road network does not constitute a 30% change (Rule 1) or a 10% change on sensitive links (the links do not include

accidents black spots, conservation areas, hospitals or high pedestrian flows) and therefore no further assessment has been undertaken on these links. Effects would therefore be neutral and 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 driver delay at Horningsea Road and 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).

Once secondary mitigation has been applied, the effect on driver delay would become neutral and not significant. For pedestrian delay 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.

The addition of the operational and decommissioning flows on the road network in year 1 of operation (2028) and year 10 of operation (2038) do not amount to more than a 10% change in total traffic flow. The increase does not meet the threshold for detailed assessment, and the effects on severance, pedestrian delay, fear and intimidation, accidents and road safety and hazardous loads have been determined to not be significant.

For year 10 of operation, the peak hour operational traffic flows are low relative to the baseline traffic flow on the surrounding road network. As such, a moderate to major cumulative effect on driver delay which is significant has been identified at the Horningsea Road/A14 on-slip junction (southbound on Horningsea Road, right-hand turn onto the on-slip). This effect emerges as a result of the baseline traffic growth in 2038 and affects the operation of the junction in the peak hours Secondary mitigation has been applied, the effect on driver delay would become neutral and therefore not significant. With the application of the secondary measure of restricting operational movements in the peak the cumulative effect on driver delay is reduced to neutral which is not significant..

1 Introduction

1.1 Purpose of this chapter

1.1.1 This chapter of the Environmental Statement (ES) presents the findings of 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 construction, operational and decommissioning traffic data. 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 has been carried out based on information available in Chapter 16: Material Resources and Waste.

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 19.3 (App Doc Ref 5.4.19.3) Transport Assessment (TA);
- Appendix 19.9 (App Doc Ref 5.4.19.9) Construction Workers Travel Plan;
- Appendix 19.8 (App Doc Ref 5.4.19.8) Operational Workers Travel Plan;
- Appendix 19.1 (App Doc Ref 5.4.19.1) Traffic Survey Data and Comparison;
- 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 2.1 and 2.2 (App Doc Ref 5.4.2.1 and 5.4.2.2) Code of Construction Practice (CoCP) A & B;

- Appendix 19.3 - D: PIC Data Analysis (App Doc Ref 5.4.19.3);
- Appendix 19.3 - G: Swept Path Analysis (App Doc Ref 5.4.19.3);
- Appendix 19.3 - K: TEMPro Growth Factors Technical Note (App Doc Ref 5.4.19.3)
- App Doc Ref 5.2.21: Major Accidents and Disasters;
- Appendix 19.3- C: Sludge Imports Technical Note of the TA (App Doc Ref 5.4.19.3);

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
[redacted]	Chartered member of the Institute of Logistics and Transport	22	Experienced delivering transport assessment and modelling for DCO applications.
[redacted]	Transport Planning Society	4	Transport assessment, travel plan, ES experience over 3-4 years.
[redacted]	Member of the Institute of Highways and Transportation	3	Transport Assessments, travel plan, junction modelling, crowd modelling 3 years of experience.
[redacted]	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
Paragraph 4.13.3 An agreed methodology of assessment (with National Highways and the Local Highway Authority).	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.
Paragraph 4.13.3 Use of WebTAG as stipulated in DfT's Transport Assessment Guidance or any successor to such methodology.	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).
Paragraph 4.13.4 Preparation of a Travel Plan, including details of proposed measures to improve access by public transport, walking and cycling.	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.

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 impacts from the development can be identified, assessed and taken into account. This includes opportunities for the mitigation of any adverse effects.

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 polices, 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 (NMU);
- 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	Reference is made to the surrounding Strategic Road Network being "known to experience congestion and delay" prior to Covid-19 lockdown periods. 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.	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 Transport Assessment (TA) 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 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 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 4.2 (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 Appendix 19.3 (App Doc Ref 5.4.19.3). 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 Appendix 19.3 (App Doc Ref 5.4.19.3) Transport Assessment.
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 (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 o and have only been used for the purposes of access optioneering. To counter issues with factoring from 2013-2021 with TEMPro, 2021 surveys have been carried out in December 2021 to develop a 2021 baseline. Additional Automatic Traffic Count (ATC) re-surveys were carried out in May 2022. The re-surveys were compared to the 2021 surveys to confirm the

Date	Consultee	Points raised	How and where addressed
		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. The construction material delivery split of 10% from the east and 90% from the west questioned.	robustness of the data. The traffic data are provided in 'Traffic Survey Data and Comparison' Appendix 19.1 (App Doc Ref 5.4.19.1).
26 April 2021	CCC and Highways England (HE)	List of access options presented at the meeting. Concerns were raised in regard to the distribution of traffic on the network. Construction numbers were requested for next meeting.	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.
27 May 2021	CCC and HE	Discussion of construction route options selected ahead of Phase Two Consultation. Questioned on construction route and where signs will be put up (for HGVs and all vehicles). 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. CCC have also mentioned that Fen Ditton has a weight limit.	The construction access routes have been discussed and agreed with the district council. 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.
6 October 2021	CCC, Greater Cambridge Partnership (GCP) and HE	The purpose of the meeting was to feedback on the design capacity analysis of the 4 permanent access options selected at Consultation 2.	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.

Date	Consultee	Points raised	How and where addressed
		It was highlighted by the TWG that Option 2 would need the bridge on High Ditch Road to be widened and strengthened. National Highways agreed that a GG104 safety risk assessment would be required to better understand each proposed access option.	
4 November 2021	CCC, GCSP, NH	Review of the four access options and their respective impacts on the local road network. 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. 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. the junction spacing between junction 34 and Option 3 would not comply with DMRB standards.	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. Option 2 and 3 are no longer relevant owing to lack of technical feasibility: 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 Option 3 would require significant changes and improvements to the A14 and would disrupt the A14 during construction. Option 1b has been determined the option to be taken forward.
27 January 2022	CCC, NH, GCSP	The purpose of this meeting was to outline the construction traffic proposals including details of the flow and routes across the project. It was highlighted that the project would need to enter into a BAPA with Network Rail. Construction route travelling through level crossings will	The Applicant has entered into a Basic Asset Protection Agreement (BAPA) with Network Rail. 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.

Date	Consultee	Points raised	How and where addressed
		require further discussion with Network Rail. The commitment for no construction vehicles to travel through Horningsea and Fen Ditton was emphasised.	
25 March 2022	SCDC, CCC, AWS	The purpose of this meeting was to review PRoW proposals and confirm the PRoWs and roads affected by the Proposed Development. An overview of the proposed permanent changes to the PRoW network – bridleway was provided to TWG.	The affected PRoW and roads have been assessed 'within section 4.2 (Construction phase) of the Assessment of Effects in this ES chapter. An assessment of the bridleway is available in Chapter 11: Community, Section 4.3 (Operation Phase, App Doc Ref 5.2.11).
28 April 2022	NH, GCSP, CCC	Meeting to confirm approach to ATC re-surveys, which took place on the 16 May, across five sites, for two weeks. 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. It was highlighted that further discussions around the A14 mitigation measures would be required. Regarding the Travel Plan, key issues that were identified were the Rights of Way Improvement Plan (Cambridgeshire County Council, 2016) and horse riding connections.	A comparison between May 2022 and December 2021 flows have been carried out. The traffic data are provided in 'Traffic Survey Data and Comparison' Appendix 19.1 (App Doc Ref 5.4.19.1). A Construction Workers Travel Plan is provided in Appendix 19.9 (App Doc Ref 5.4.19.9) and framework Operational Workers Travel Plan provided Appendix 19.8 (App Doc Ref 5.4.19.8).

Date	Consultee	Points raised	How and where addressed
		Other than this, no particular comments were raised.	
28 April 2022	CCC	Discussed the following: • 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.	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). Controlled access gates will be used for other PRoW where and when construction activities occur/cross over PRoW.
23 June 2022	CCC	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. The landowners have requested that AWS consider whether a permissive path agreement could be used in place of the bridleway. CCC have asked for a potential to change the status of Low Fen Drove Way under the DCO.	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. 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.
30 June 2022	NH, GCSP, CCC	Current proposals for mitigation measures were shared for Horningsea Road, which comprised:	Mitigation measures relating to Horningsea Road and Junction 34 are outlined within the Transport Assessment (Appendix 19.3, App Doc Ref 5.4.19.3) and

Date	Consultee	Points raised	How and where addressed
		• 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. 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. It was also noted that all CCC proposals must include an equality assessment, which would include the Greenway. 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	the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7). New proposals for mitigation (on top of what was presented to consultees) include: • 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

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 preferrable 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
		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.	These mitigation measures ensure that access to the site does not compromise safety along Horningsea Road 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. 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.
17 August 2021	Fen Ditton Parish Council	FDPC considers extra mitigation is required and should include: • 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.	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.
24 August 2021	Horningsea Parish Council	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.	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.
24 August 2021	Horningsea Parish Council	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.	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.

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 (App Doc Ref 5.4.19.3) 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).

2.2 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 Transport Assessment (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, the IEMA guidelines(IEMA, 1993) state 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.

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.

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.
High	The receptor/resource has little ability to absorb change without fundamentally	Receptors of high sensitivity to traffic flow are those which include schools, colleges,

Sensitivity	Criteria	Examples
	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.	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: (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 Not significant	Neutral Not significant	Slight Not significant	Slight Not significant
	Minor	Neutral Not significant	Slight Not significant	Moderate Significant	**Moderate** **Significant**
	Moderate	Slight Not significant	**Moderate** **Significant**	**Moderate** **Significant**	**Major** **Significant**
	Major	Slight Not significant	**Moderate** **Significant**	**Major** **Significant**	**Major** **Significant**

Source: (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.

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	n/a	Main access
10	C0A3 / CA10	Low Fen Drove Way
9	CA16	Horningsea Road layby area
8	COA9	Grange Farm Access
7	C0A20	Hatridge's Lane
6	COA14	Burgess Drove (*southern end by level crossing*)
5	CA26	Burgess Drove *(western side)*
4	COA13	Burgess Drove (*eastern side)*
3	COA14	Bannold Road
2	CA29	Long Drove
1	COA17 – COA18	Bannold Drove

2.3.4 This includes junction 33 (the Milton Interchange), and junction 34 of the A14 as these junctions are used in enabling access to the proposed WWTP or for turning of construction or operational vehicles. 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;
- Milton Road;
- Cowley Road;
- Green End Road;
- Fen Road;
- Horningsea Road;
- All roads in Waterbeach that are part of the construction route; and
- Clayhithe Road.

2.3.5 The traffic and transport study area is divided into separate highway sections for construction and highway sections for 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 (The Milton Interchange) of the A14;	85/6
		Junction 34 of the A14;	85/8
		Junction 35 (the Quy Interchange) of the A14;	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
		Horningsea Road;	130/16
		All roads in Waterbeach that are part of the construction route; and	162/1
		Clayhithe Road.	
Construction year baseline	2026	Junction 33 (The Milton Interchange) of the A14;	85/6
		Junction 34 of the A14;	85/8
		Junction 35 (the Quy Interchange) of the A14;	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
		Horningsea Road;	130/16
		All roads in Waterbeach that are part of the construction route; and	162/1
		Clayhithe Road.	
Peak construction year (inc. commissioning of proposed WWTP)	2026	junction 33 (The Milton Interchange) of the A14;	85/6
		junction 34 of the A14;	85/8
		junction 35 (the Quy Interchange) of the A14;	162/1
		the A14, where appropriate;	130/2
		the A10, where appropriate;	130/10
		Milton Road;	130/8

Scenario	Year	Roads	PRoW
		Cowley Road;	130/6
		Green End Road;	247/10
		Fen Road;	130/13
		Horningsea Road;	130/16
		All roads in Waterbeach that are part of the construction route; and	162/1
		Clayhithe Road.	
Decommissioning existing WWTP	2026 / 2028	A14; Cowley Road; Horningsea Road; and Milton Road.	n/a
Operation year baseline	2028	A14 Cowley Road Horningsea Road	n/a
Operation year plus 10	2038	A14 Cowley Road 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 years for construction is year 1 to year 4 (assumed to be 2024 to 2028) and within this vehicle movements assessed for year 3 (assumed to be 2026) when the peak 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**.** Appendix 19.1 (App Doc Ref:5.4.19.1) contains full details of these counts and a summary of the baseline traffic flows for all links within the traffic and transport study area.

2.4.5 The growth predictions to 2040 have been reviewed to understand the potential for change to baseline traffic volumes that may occur should expected peak years alter due to programme changes. The percentage point increase in TEMPro growth factors is shown in Table 2-6.

Table 2-6: TEMPro growth factor increase

Years	Difference to 2026 (percentage point increase)
2021-2026	-
2021-2027	0.61%
2021-2028	1.21%
2021-2029	1.82%
2021-2030	2.43%
2021-2031	3.04%
2021-2032	3.62%
2021-2033	4.21%
2021-2034	4.79%
2021-2035	5.37%
2021-2036	5.96%
2021-2037	6.54%
2021-2038	7.12%
2021-2039	7.69%
2021-2040	8.28%

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 considered a worst case scenario.

2.4.7 Should the expected start date of 2024 alter and subsequently change the peak year for construction movements, assuming a delay of 2 years, the assessed baseline would remain valid as future baseline traffic for 2028 increase is forecast by 1.21% and 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 Year 3 (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 programme, the number of construction vehicles required would not change.
Construction of the access road to the proposed WWTP	4	Year 1	Year 1	
Construction of the transfer tunnel from the existing Cambridge WWTP to the proposed WWTP	21	Year 1	Year 2	

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 of operation;
- year 5 of operation (as required by CCC TA requirements);
- an assumed year for phase 2 activities to construction an additional PST and AST; and

- year 10 of operation (as required by CCC TA requirements).

2.4.12 The proposed WWTP will become operational in 2028, therefore the assessment year for year 1 is 2028.

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 at construction in year 3. 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 2028 be delayed as a result of programme changes, assuming a delay of 2 years, the assessed baseline would remain valid as future baseline traffic increase in 2030 is forecast to be an additional 2.43% and 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 operational 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	66.6% of HGV movements occur during the operational day (08:00am-06:00pm) 33.3% of HGV movements are overnight Operational workforce movements and visitors occur during the operational day (9:00am – 5pm) Peak movements are comprised of: Cars and LGVs (in vehicle movements) • Operational and maintenance staff travelling to/from work • Visitors (weekdays and out of peak only) • Office workers using the facility daily • Deliveries (waste water and sludge, consumables) (7 days a week) • Cars travelling daily HGVs (in vehicle movements) • Liquid sludge imports

			• Biosolid exports • non-routine tanker movements • Septic waste movements Peak assessed covers vehicle movements associated with the maximum development capacity
Year 10 of operation	NA	2038	As above 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.
Phase 2 expansion (construct additional PST and FST)	12	2037	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.

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.

Item or feature	Year	Source
Personal Injury Collision (PIC) data covering the latest period available	For the period November 2016 - November 2021	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.36, 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)

Ref	Location	Survey Period
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) Chapel Street (North) St Andrews Hill (East)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)
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)

Ref	Location	Survey Period
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)
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)	Two neutral consecutive weekdays 0700-1000 & 1600-1900 and one Saturday 1200-1500 (13hrs total)

Ref	Location	Survey Period
	Kings Hedges Road (West) Green End Road (East) Milton Road A1309 (South)	
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 set of assumptions. The Transport Assessment (Appendix 19.3, App Doc Ref: 5.4.19.3) contains the full detail and summary of modelling for 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 period of construction activity in 2026, and 2038 is the expected tenth operational year of the proposed main WWTP. Variations on the indicative programme and resultant changes to the expected assessment years are discussed in section 2.4. The estimated hourly construction flows in the 2026 peak and operational flows in 2038 have subsequently been added to the 2026 and 2038 future baselines in the peak hours to form the 2026 'With Development' year and 2038 'With Operation' year, respectively.

2.5.8 A 2028 future baseline has also been established based on the 2021 baseline. 2028 corresponds to the start of the existing WWTW decommissioning programme and estimated decommissioning traffic flows have been added to form the 2028 'With Decommissioning' year.

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	The construction programme begins in Year 1 and ends in Year 4, with construction traffic peaks anticipated to occur in Year 3. Usage of the construction route by construction-related traffic could result in the impacts to users of: • 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; • Milton Road; • Cowley Road; • Green End Road; • Fen 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	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.	Represents the longest likely duration of the works to create the temporary and permanent access points to the land required for the proposed WWTP.
	There will be temporary traffic controls for up to 6 months during construction and testing of the fourth arm at the junction	Represents the peak disruption to the junction during construction of the main access
Construction of the proposed WWTP and	In total, at the permanent access for the proposed WWTP (indicative access point CA6), a total daily 628 vehicle movements would be required at Junction 34 and Horningsea Road. For each structure of the Proposed Development, this has been split as follows:	Represents the peak volumes and use of Horningsea Road by construction vehicles

Potential impact	Maximum design scenario	Justification
landscape masterplan	• 492 peak daily total vehicle movements for the proposed main WWTP (including permanent access and landscape masterplan) • 72 peak daily total vehicle movements for the waste water transfer tunnel • 64 daily total vehicle movements for the Waterbeach pipeline Peak vehicle movements assumed that there would be no batching plant in use. As part of the Reasonable worst case scenario (RWCS), worker mobilisation has been modelled to take place in the peak hour. The total daily 628 movements accounts for worker mobilisation movements, which however, do not take place every hour across the 8-hour working day but are instead concentrated in the AM and PM. A total 148 hourly movements in the peak hour for the Proposed Development at Horningsea Road and J34 would be required. 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 has been done 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 construction of the peak proposed main WWTP (including permanent access and landscape masterplan) and the waste water transfer tunnel. 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 264 daily movements. These activities would however not occur simultaneously: • 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: 134 movements • Delivery of precast concrete units for tanks walls within the proposed WWTP: 140 movements • Delivery of asphalt for road surfacing within the proposed WWTP: 30 movements	

Potential impact	Maximum design scenario	Justification
	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	
	Horningsea Road (section north of the existing junction to indicative access point COA3) will experience up to 492 total movements on a peak day in construction, which is equivalent to 34 HGV movements and 8 workforce movements on average in each direction every 60 minutes, over an eight-hour day. A total 280 daily HGV movements will be required. A total 150 daily workforce movements will be required, of which 75 movements are required before the AM and 75 movements after the PM for workforce mobilisation purposes. 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)	Represents the peak volumes and use of Horningsea Road by construction vehicles
	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.	Represents the peak period of use for construction vehicles on Low Fen Drove Way
	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. Abnormal load procedures to be followed by appointed contractors.	Represents the types of activities subject to abnormal load requirements
	There will be a batching plant within the area of land required for the construction of the proposed WWTP and the vehicle movements have accounted for this	Represents the likely scenario in relation to construction
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 70 total movements on a peak day, which is equivalent to 5 HGV movements in each direction every 60 minutes, over an eight-hour day. 20 daily total workforce movements are required, 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 10 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

Potential impact	Maximum design scenario	Justification
	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
	The route will cross each of the Fen Lien railway, the River Cam, Horningsea Road and the A14 The river crossing will be subject to an environmental permit The rail crossing will be subject to a BAPA with Network Rail 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	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	For the construction of the Waterbeach pipeline, the following daily construction movements would be required: • for road links in Waterbeach: 82 HGVs and 28 workforce; and • for sites on Horningsea Road and on Cowley Road: 90 HGVs and 28 workforce.	Represents the maximum peak daily volumes and use of road links in Waterbeach by construction vehicles
	Vehicle movements would be highest during the first 8 weeks of construction when all the equipment is delivered, and the compound area set up Construction vehicle movements will then peak again during the last 8 weeks when the temporary haul road is removed, and the compounds dismantled.	Represents the maximum peak activities associated with Waterbeach
	Denny End Road will experience up to 110 total movements on a peak day in construction, which is equivalent to 10 HGV movements on average in each direction every 60 minutes over an eight-hour day, and 28 total workforce movements outside of the peak traffic periods, with 14 required before the AM peak and 14 required after the PM peak for workforce mobilisation purposes	Represents the maximum peak volumes and use of Denny End Road by construction vehicles
	Car Dyke Road to Clayhithe Road will experience up to 110 total movements on a peak day in construction, which is equivalent to 10 HGV movements on average in each direction every 60 minutes over an eight-hour day, and 28 total workforce movements outside of the peak traffic periods, with 14 required before the AM peak and 14 required after the PM peak for workforce mobilisation purposes	Represents the maximum peak volumes and use of Car Dyke to Clayhithe Road by construction vehicles
	Use of a four-way gated system for the duration of the disruption during installation of the pipeline at PRoW at the following locations:	Represents the total number of PRoW temporarily affected by the construction

Potential impact	Maximum design scenario	Justification
	• Footpath 130/10 • Bridleway 130/8 • Footpath 130/6 • Footpath 130/16 These could be in place for up to 6 months. 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.	Represents the maximum duration of the disturbance to PRoW Represents the maximum equivalent delay
	The route will cross each of the Fen Line railway, and the River Cam in two locations The route will cross Horningsea Road and the A14 in one location The route will cross one ditch which will require permits from the LLFA and or the Internal Drainage Board The river crossings will be subject to an environmental permit from the Environment Agency The rail crossings will be subject to a BAPA agreement with Network Rail The road crossings will be subject to network management agreements with the LHA and for the A14 National Highways	Represents to total number of interfaces with the river and existing transport assets and further agreements placing controls on these activities
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 4 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 from 150m to 750m, on top of the 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. In total, the diversion on PRoW 85/6 results in a 770m? added journey length.	Represents the maximum duration the footpath is closed, and the diversion is in place

Potential impact	Maximum design scenario	Justification
	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: • the A10, where appropriate; • Milton Road; • Cowley Road; • 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 total movements on a peak day during decommissioning, which is equivalent to 11 HGV and 8 LGV movements on average in each direction every 60 minutes, over an eight-hour day. This would be over a period of up to 6 months.	Represents the peak volumes and use of Cowley Road by vehicles used for decommissioning.
Vehicle movements during the peaks related to time critical construction activities	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: • 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	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.

Potential impact	Maximum design scenario	Justification
users on the surrounding road network	The 5 year (2033) and 10 year (2038) post-opening periods have been assessed. This assessment is reported in detail in Appendix 19.3, App Doc Ref: 5.4.19.3: Transport Assessment.	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.
	Horningsea Road (modified signalised junction) would experience up to 238 total movements on a peak day in operation, which is equivalent to 18 HGV movements and 4 workforce movements on average in each direction every 60 minutes, over an eight-hour day. Additionally, 30 workforce movements would be required in the AM peak, and 30 workforce movements would be required in the PM peak for mobilisation purposes, for a total 60 workforce movements.	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 travel to import sludge to the proposed WWTP
	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)	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

Potential impact	Maximum design scenario	Justification
	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 transport assessment 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	These matters are assessed in detail as part of Chapter 11: Community (App Doc Ref 5.2.11). The Scoping Opinion accepted the approach that the assessment does not need to be duplicated as part of this chapter.
Proximity to aviation safeguarding zone for Cambridge Airport	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) 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: • 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) 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: • 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. 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.
Pipeline crossings under the Fen Line railway	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.

Potential impact	Justification
	Section 4.5 of Chapter 2 sets out the required consents/permits in the case of works affecting the railway.

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 5.3 of 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 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	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 Transport Assessment (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.
Inclusion of a temporary construction track adjacent to Hatridge's Lane for construction vehicles from Clayhithe Farm to worksite (Works Plan 22 Access for Works Area 30)	Waterbeach pipeline	Primary	Construction	Provides unhindered access to the users of Hatridge's Lane.

Mitigation measures	Applied to	Type	During	Justification
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: • Bannold Road / Bannold Drove • Bannold Road / Burgess's Drove	Primary	Construction	These junctions are currently not wide enough for HGVs' turning movements and therefore require temporary control measures. More detail is available in Swept Path Analysis (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 23 vehicles within the proposed WWTP With passive provision for a further 23 EV 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	Tertiary	Construction	Required to gain the appropriate consents.

Mitigation measures	Applied to	Type	During	Justification
	interact with railway (e.g. level crossings)			

Secondary measures

2.8.11 Secondary measures related to the mitigation of traffic and transport related impacts are contained within the Construction Traffic Management Plan (CTMP) (Appendix 19.7 App Doc Ref 5.4.19.7), 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 Worker Travel Plan (CWTP) (App Doc Ref 5.4.19.9), and the Operation Worker Travel Plan (OWTP) (Appendix 19.8 App Doc Ref 5.4.19.8). In addition an Operational Traffic Management Plan would be prepared post consent in relation to the management of operational traffic movements.

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 Code of Construction Practice (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 draft Community Liaison Framework 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 The CoCP Part A Section 3 (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 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.

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 Part A (Working Hours)(Appendix 2.1, App Doc Ref 5.4.2.1) 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 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.

Construction Traffic Management Plan

2.8.20 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 (Access route strategy) which requires 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 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 and a scheduling system to avoid AM PM peaks; 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
  - FORS and CLOCS accreditation

Abnormal loads

2.8.21 Section 4.2 (Access route strategy) which identifies the potential for conflict could 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

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

- Section 4.2 (Access route strategy) 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

2.8.23 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

2.8.24 The following measures 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 a temporary TRO which will be 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 Lane.

Cowley Road

2.8.25 The following measure is of particular relevant to Cowley Road, section 4.2 (Access route strategy) 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.

Construction Workers Travel Plan

2.8.26 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 40 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

2.8.27 An Operation Logistics Transport 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:

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

2.8.28 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.

2.8.29 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 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 Strategy

2.8.30 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 Strategy (Appendix 2.3, App Doc Ref 5.4.2.3) describes measure 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 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 The traffic modelling has been based on an 8-hour working day. This accounts for the restrictions on peak hour travel (08:00-09:00, 15:00-16:00, 17:00-18:00). Where mitigation does not apply, this would equate to an 11-hour working day. 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 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; and
- To account for construction deliveries, worker movements and worker mobilisation, a standard 8-hour working day has been calculated which includes the peak hour restrictions set out by the CTMP. An 8-hour working day is what remains once worker mobilisation and CTMP restrictions have been accounted for.

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

- The model only considers the AM and PM peak hours (08:00-09:00 and 17:00-18:00);
- Operation Logistics Transport Plan (OLTP) mitigation measures would restrict travel through Horningsea and Fen Ditton by HGV traffic and manage HGV arrivals and departures during peak hours as necessary;
- 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 calculated which includes the peak hour restrictions set out by the OLTP. An 8-hour working day is what remains once worker mobilisation and OLTP restrictions have been accounted for.

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

- The model only considers the 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 (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 calculated which includes the peak hour restrictions set out by the CTMP. An 8-hour working day is what remains once worker mobilisation and CTMP restrictions have been accounted for.

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 accidents in relation to the Proposed Development.

3.1.4 Figure 19.2 shows the study area and proposed construction routes in the ES Mapbook (App Doc Ref 5.3.19).

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 of approximately 1.3m width lies on 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 lane of the A10.

3.1.7 Table 3-1 provides an overview of the observed traffic flows during the 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 (08:00-09:00) and PM peak (17:00-18:00) traffic flows on the A10

Road	AM peak (08:00-09:00)		PM peak (17:00-18:00)	
	Car/van	HGV	Car/van	HGV
A10 northbound	1,233	91	1,217	31
A10 southbound	1,171	82	1,043	48

Source: Mott MacDonald

A14

3.1.8 The study area considers the section of the A14 between junction 33 (the Milton Interchange) and junction 34. The A14 is part of the Strategic Road Network and provides key connections for access routes to Cambridge City and other settlements in the area.

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 in 2019 compared to 2020 when COVID-19 lockdowns occurred.

Table 3-2: Two-way AADF on the A14

Link	2019 two-way AADF	2020 two-way AADF	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 Stow Cum Quy Interchange)	50,966	36,566	-28%

Source: Department for Transport

Existing Cambridge WWTP

3.1.10 To the immediate north of the existing Cambridge WWTP lies the A14, a strategic dual carriageway road, routing eastwards from the M6 near Birmingham, past Cambridge, to Felixstowe. 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 immediate west 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 Horningsea village is to the north of the A14 and is connected to the SRN by Horningsea Road to the south and Clayhithe Road to the north.

Walking in Horningsea

3.1.17 Horningsea is directly served by two footpaths (Footpath 130/4 and 130/6), both to the north of the village. 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. Footpath 130/6 begins approximately 200m further north along Horningsea Road from Footpath 130/4, and heads in an easterly direction.

3.1.18 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.

3.1.19 Within the existing network of 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 walking space. There are however no pedestrian crossing facilities within Horningsea.

Cycling in Horningsea

3.1.20 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.

3.1.21 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).

3.1.22 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.

3.1.23 National cycle route 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 the city centre. Consequently, this route is often without traffic.

3.1.24 The TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the cycle network in and in the vicinity of Horningsea.

Public transport in Horningsea

3.1.25 Horningsea is served by the Landbeach-Cambridge bus route 19 that runs services twice in the morning at 07:00 and 09:30 and twice in the afternoon at 12:30 and 17:55. This service operates from two sets of bus stops (St John's Lane and Priory Road stops) on the High Street in the village and only operates on weekdays (bustimes.org, 2022). 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.

3.1.26 Bus stops within Horningsea feature the following facilities:

- The St John's Lane southbound stop features a bus shelter. The northbound stop features no bus shelter. Neither stop features real time bus information screens; and
- Priory Road stops feature no bus shelters and no real time bus information screens.

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

3.1.28 The TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides more detail on public transport routes within Horningsea.

Local road network in Horningsea

3.1.29 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 of Waterbeach via an Automatic Half Barrier (AHB) level crossing over the railway.

3.1.30 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. Beyond junction 34 of the A14, no streetlighting is present.

3.1.31 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.

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

Traffic flows in Horningsea

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

3.1.34 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.

3.1.35 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

5-day AM Peak Average flow Northbound	5-day AM Peak Average flow Southbound	5-day PM Peak Average flow Northbound	5-day PM Peak Average flow Southbound
393	716	698	423

3.1.36 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

Collision analysis in Horningsea

3.1.37 Personal Injury Collision (PIC) data were obtained from CCC for the five-year period from November 2016 to November 2021 (Appendix 19.3-D, App Doc Ref 5.4.19.3). One slight collision has been recorded in Horningsea, approximately 200m south from the Priory Road bus stop in 2018. No vulnerable individuals were involved.

3.1.38 A total of five collisions were recorded in the vicinity of Horningsea excluding accidents recorded at junction 34 of the A14. Of these five, two slight collisions were recorded in 2018 and 2020, respectively. Neither collision involved vulnerable individuals. No particular pattern can be identified to explain the occurrence of these collisions.

3.1.39 Three serious collisions were recorded and occurred on Horningsea Road. No vulnerable individuals were involved. No pattern can be identified in determining the occurrence of these collisions.

3.1.40 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

3.1.41 On the A14 approaching junction 34 and junction 34 itself, four collisions were recorded. As per CCC's definition of collision clusters, these four collisions do not form a cluster. No pattern can be identified in determining 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

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

3.1.43 No collision clusters have been identified in or around Horningsea as per CCC's definition of collision clusters (Cambridgeshire County Council, 2011).

3.1.44 PIC data provided by CCC covers the period November 2016 to November 2021. PIC data provided for the year 2021 is provisional at best. Additionally, contributory factors have not been included in the data which would make it challenging to determine if the road layout is causing road safety concerns.

Fen Ditton

3.1.45 Fen Ditton settlement is to the south of the A14 and is connected to the SRN via Horningsea Road.

Walking in Fen Ditton

3.1.46 Fen Ditton is directly served by five footpaths (Footpaths 85/9, 85/1, 85/2, 85/3 and 85/16).

3.1.47 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 bus facility.

3.1.48 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. 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.

3.1.49 Footpath 85/3 starts on Church Street/Green End and runs north, connecting with Footpaths 85/4 and 85/6. 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.

3.1.50 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 walking space.

3.1.51 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

Cycling in Fen Ditton

3.1.52 The Fen Ditton to Horningsea Cycleway, as described earlier in paragraph 3.1.20, runs immediately north of the village alongside Horningsea Road for 2km north to the village of Horningsea.

3.1.53 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.

3.1.54 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, an off-road cycle path that provides a route towards Cambridge, including connections with the Chisholm Trail. NCR 51 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.

3.1.55 National Cycle Route 51 can also be accessed from Fen Ditton by cycling southbound on Footpath 85/1.

3.1.56 Fen Ditton will be served by both the proposed Horningsea Greenway and 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).

3.1.57 The TA (Appendix 19.3, App Doc Ref 5.4.19.3) provides an overview of the cycle network in the vicinity of Fen Ditton.

Public transport in Fen Ditton

3.1.58 Fen Ditton is served by the Landbeach-Cambridge bus route 19 that runs services 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 (Blue Lion PH stops) on the High Street in the village and only operates on weekdays (bustimes.org, 2022).

3.1.59 The southbound Blue Lion stop PH features a bus shelter. The northbound Blue Lion stop PH has no bus shelter. Neither bus stop features real time bus information screens.

3.1.60 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.

3.1.61 The nearest railway station is Cambridge North, located approximately 1.1km to the east. The shortest route to access this station involves using the Chisholm Trail Bridge over the River Cam.

3.1.62 Public transport services and related infrastructure in Fen Ditton is shown in greater detail in the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

Local road network in Fen Ditton

3.1.63 Fen Ditton can be accessed from the north via the B1047 Horningsea Road. This road can be accessed from a signal-controlled junction servicing an eastbound only off-slip of the A14 (junction 34), or along Horningsea Road south from Horningsea. To the south, Fen Ditton can be accessed via Ditton Lane, itself providing 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).

3.1.64 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 opposite side of the carriageway.

3.1.65 The High Street and High Ditch Road are single carriageway roads, both with widths of approximately 7m and footways on both sides of the road.

Traffic flows in Fen Ditton

3.1.66 The following junctions were surveyed in Fen Ditton.

- High Ditch Road / Low Fen Drove Way;
- junction 35 of the A14; and
- A1303 Newmarket Road / High Ditch Road.

3.1.67 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.

3.1.68 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

Collision analysis in Fen Ditton

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

3.1.70 A total of eight slight accidents were recorded in the vicinity of Fen Ditton and on High Ditch Road (excluding the accidents shown at junction 34 of the A14). Of these, six were recorded in Fen Ditton itself. The two accidents located immediately outside of the Fen Ditton Community Primary School involved a collision between a vehicle and children. At the High Ditch Road/B1047 Horningsea Road junction, two slight accidents 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 accidents occurred between vehicles with no vulnerable users involved. No causation patterns could be determined from these accidents.

3.1.71 To the east of Fen Ditton on High Ditch Road, two slight accidents occurred. Both accidents involved a collision between a vehicle and two children. No causation patterns could be determined from these accidents.

3.1.72 Three serious collisions were recorded in the vicinity of Fen Ditton. Of these, two instances involved a collision between a vehicle and a cyclist, and a vehicle and a pedestrian respectively. Again, no causation patterns could be determined from these collisions. Table 3-9 summarises the recorded conditions for serious accidents 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

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

3.1.74 PIC data provided by CCC covers the period November 2016 to November 2021. PIC data provided for the year 2021 is provisional at best. Contributory factors have not been included in the data which make it challenging to determine if the road layout is causing road safety concerns.

Waterbeach

3.1.75 Waterbeach settlement is to the east of the A10, which is connected to the A10 by Denny End Road and Car Dyke Road. To the east and south of the railway Car Dyke Road becomes Clayhithe Road which runs to Horningsea.

Walking in Waterbeach

3.1.76 Most of the PRoW are located to the south of Waterbeach within Waterbeach Green (footpaths 247/3, 247/4, 247/5 and 247/6).

3.1.77 The two PRoW situated to the West of Waterbeach Green and North of Gibson Close (Footpath 247/1 and 247/2) lead directly to a pathway along the A10. This 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 built-up village).

3.1.78 Within the existing network of Waterbeach, footways run along at least one side of a road coupled with the 30pmh speed limit within the village, providing a generally pedestrian friendly walking space.

3.1.79 Bannold Road is a quiet two-way residential road with consistent street lighting throughout, but varying levels of footpath provision, notably onwards from Way Lane/Bannold Road junction eastbound where footways are either only found on one side of the road or absent. Bannold Drove is a country lane with grass verges on both side with no pedestrian infrastructure.

3.1.80 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 the village of Horningsea, further to the south. Pedestrian infrastructure is available on one side of Clayhithe Road coming into Waterbeach, but the footways remain narrow at a width of less than a metre.

3.1.81 To the west towards the outskirts of Waterbeach, Denny End Road and Car Dyke Road provide access and egress to and from the village. Both roads have a varying level of pedestrian infrastructure provision, with narrow footways or completely lacking in pedestrian infrastructure.

Cycling in Waterbeach

3.1.82 NCR 11 connects Waterbeach to Cambridge city centre where the route begins to the east of Waterbeach station and runs parallel to the River Cam beside the villages of Horningsea and Fen Ditton. This scenic route is largely used for leisure. It is not generally used for commuting as it as it skirts around the rural fringe and does not provide a direct route to the city centre.

3.1.83 Currently the village has poor cycling infrastructure beyond the A10 path and 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).

3.1.84 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.

3.1.85 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.

3.1.86 It is expected that the proposed Waterbeach Greenway will improve accessibility to the overall cycle network in Cambridgeshire from Waterbeach. The Greenway effectively connects to other cycling routes once in Cambridge, such as the Chisholm Trail.

Public transport in Waterbeach

3.1.87 Waterbeach is served by series of bus services 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 the TA.

3.1.88 Route 9 Cambridge-Littleport, has services every hour Mondays-Saturdays and has stops on Denny End Road and Station Road (at the junction with Lode Road). The route 19 Landbeach-Cambridge service however is far less frequent and only operates Mondays-Fridays four times a day, with services every two and a half hours from 7am-10am and then a service at 12pm and a service at 5pm peak. These four services all stop on High Street, Bannold Road and Denny End Road.

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

- the Pembroke Avenue bus stops feature bus shelters. Neither stop features real time bus information screens;
- the Winfold Road bus stops feature no bus shelters or real time bus information screens;
- the southbound Barracks bus stop features a bus shelter. The northbound bus stop has no bus shelter. Neither stop features real time bus information screens;
- the Waddlelow bus stops feature no bus shelters or real time bus information screens;
- the southbound Gibson Close bus stop features 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 southbound Recreation Ground bus stop features 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 feature no bus shelters or real time bus information screens. Access to the westbound stop is inhibited by vegetation overgrowth;

- St Andrew's Hill bus stops feature no bus shelters or real time bus information screens; and
- Lode Avenue bus stops feature no bus shelters or real time bus information screens.

3.1.90 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.

3.1.91 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).

3.1.92 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.

3.1.93 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: Greater Anglia

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

3.1.95 An Automatic Half Barrier (AHB) level crossing is located on Station Road. No pedestrian and cycle bridge is available to facilitate crossing, 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.

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

3.1.97 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 southeast of the level crossing.

Local road network in Waterbeach

3.1.98 Waterbeach can be accessed via Denny End Road and Car Dyke Road from the west off the A10. The Car Dyke Road/A10 junction is a priority T-junction. The Denny End Road/10 junction is a signal-controlled junction.

3.1.99 The existing Waterbeach Water Recycling Centre (WRC) can be accessed from Bannold Drove and Long Drove via Bannold Road.

3.1.100 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.

3.1.101 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.

3.1.102 The Waterbeach pipeline works corridor will be accessed during construction via Clayhithe Road, a two-way road lacking in pedestrian infrastructure and street lighting.

3.1.103 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; the section between Denny End Road and Car Dyke Road has a speed limit of 40mph.

3.1.104 The main road network within Waterbeach village comprises Denny End Road, Car Dyke Road, High Street, Bannold Road, Station Road.

Traffic flows in Waterbeach

3.1.105 Existing traffic flows in Waterbeach have been determined using traffic data collected in December 2021.

3.1.106 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
Ely Road/Denny End Road	Three arm junction	Signalised	Ely Road southbound Ely Road northbound
Denny End Road/Bannold Road	Three arm junction ion	Non-signalised	Denny End Road northbound Denny End Road southbound
Bannold Road/Way Lane	Three arm junction	Non-signalised	Bannold Road southbound Way Lane westbound

Junction name	Characteristics	Method of control	Key movements
Bannold Road/Bannold Drove	Three arm junction	Non-signalised	Bannold Road westbound Bannold Road eastbound
Way Ln/Burgess Road	Three arm junction	Non-signalised	Way Lane northbound Way Lane southbound
Burgess Road/ Rosemary Road	Three arm junction	Non-signalised	Burgess Road westbound Burgess Road eastbound
Cambridge Road/Chapel Street/Green Side	Three arm junction	Non-signalised	Cambridge Road westbound Cambridge Road eastbound
Chapel Street/Andrews Hill	Three arm junction	Non-signalised	Chapel Street northbound Chapel Street southbound
Car Dyke Road/Ely Road	Three arm junction	Non-signalised	Ely Road northbound Ely Road southbound

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

Table 3-12: Traffic flows in Waterbeach

Junction	AM Peak (08:00 – 09:00)		PM Peak (17:00 – 18:00)	
	Car	HGV	Car	HGV
Ely Road/Denny Ed Rd	1156	423	1328	233
Denny End Rd/Bannold Rd	521	105	544	80
Bannold Rd/Way Ln	200	35	202	29
Bannold Rd/Bannold Drove	27	9	13	5
Way Ln/Burgess Rd	193	21	220	25
Burgess Rd/ Rosemary Rd	24	5	18	4
Cambridge Road/Chapel St/Green Side	482	98	566	90
Chapel St/Andrews Hill	450	80	558	53
Car Dyke Rd/Ely Rd	1346	420	1456	258

Collision analysis in Waterbeach

3.1.108 A total of 21 slight accidents were recorded in Waterbeach. Of these, 11 slight accidents were recorded within Waterbeach itself. Two separate slight accidents involved a collision between a vehicle and a cyclist, and between a vehicle and a pedestrian. These 11 slight accidents do not form a cluster and no patterns could be discerned. At the A10/Denny End Road junction, eight slight accidents were recorded. Of these, three accidents 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 accidents at the A10/Denny End

Road junction, no particular pattern could be ascertained. One slight accident was recorded on the section of the A10 between Denny End Road and Car Dyke Road.

3.1.109 Nine serious collisions occurred in Waterbeach. Of these, two occurred in Waterbeach itself and did not involve vulnerable users. One accident at the Bannold Road/Cody Road junction involved one 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 of these two roads. Half of these collisions involved a right-turning vehicle (two vehicles turning into Denny End Road, one vehicle turning into Car Dyke Road) from the A10 while the other half did not involve any manoeuvres. Two separate collisions involved an old age pensioner (OAP) and a child. No pattern can be ascertained for the occurrence of collisions in Waterbeach itself. Equally, despite a high concentration of serious collisions at the A10/Denny End Road junction, no patterns can be determined.

3.1.110 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 3-13 summarises the recorded conditions for fatal accidents.

Table 3-13: 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

3.1.111 Nine serious collisions occurred in the vicinity of Waterbeach. Six of these occurred on the section of the A10 approaching Waterbeach. Table 3-14 summarises the recorded conditions for serious collisions.

Table 3-14: 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

Location	Date and time	Road surface conditions	No. of vehicles	Weather
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

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

3.1.113 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.

3.1.114 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

Severity	Location	Date	Road surface conditions	No. of vehicles	Weather
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: Source: CCC

3.1.115 PIC data provided for the year 2021 is provisional at best. Additionally, contributory factors have not been included in the data which would make it challenging to determine if the road layout is causing road safety concerns.

Milton

3.1.116 Milton is a settlement north of the A14 connected to the Milton Interchange via Cambridge Road. The area of Milton Parish Council covers some of the Cambridge Science Park to the south of the A14.

Walking in Milton

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

3.1.118 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.

3.1.119 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 walking space on the main route through Milton. Most side roads and residential streets within Milton also feature footways on both sides of the road.

3.1.120 The A10 features 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.

Cycling in Milton

3.1.121 Within the existing cycling network of 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 between Ely Road and North Lodge Park, to 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 the centre of Cambridge.

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

3.1.123 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 NCR 11 along the River Cam. This scenic route is largely used for leisure and is not generally used for commuting as it does not provide a direct route to Cambridge City Centre as it in fact skirts around the rural fringe. Consequently, this route finds itself, at large, traffic free.

3.1.124 The proposed Waterbeach Greenway will pass through Milton. This will include a western spur from Waterbeach leading to the north of Milton village, and another travelling east 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).

Public transport in Milton

3.1.125 Milton is directly served by three bus routes: the hourly Milton-Cambridge city centre bus route 9, bus route Citi 2, and bus route 604. These operate from 5 sets of stops (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.

3.1.126 Bus stops within Milton feature the following facilities:

- Winship Road stops both feature bus shelters and real time bus information screens;
- Barnabas Court stops only feature a bus shelter on the southbound stop, with no real time bus information screens;
- Edmund Close stops also only feature a bus shelter on the southbound stop, with no real time bus information screens;

- Waggon and Horses stops feature only a bus shelter on the southbound stop but do have real time bus information screens; and
- College of West Anglia stops only feature a bus shelter on the southbound stop, with no real time bus information screens.

3.1.127 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, 2021).

3.1.128 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, 2021).

3.1.129 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, 2021).

3.1.130 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.

3.1.131 The nearest railway station is Cambridge North which is located approximately 2km from the centre of Milton.

3.1.132 Public transport services and related infrastructure are shown in the TA (Appendix 19.3,App Doc Ref 5.4.19.3).

Local road network in Milton

3.1.133 From the north, Milton can be accessed from the A10 Ely Road via Ely Road (unclassified road) from the north by using a southbound only slip road, and from

the south by turning right using 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.

3.1.134 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.

3.1.135 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.

3.1.136 From the south, Milton can be accessed from junction 33 of the A14 (Milton Interchange) via Cambridge Road. Between junction 33 (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.

3.1.137 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

3.1.138 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)	5-arm Roundabout	Signalised	A10 northbound Cambridge Road north-east A14 eastbound Milton Road southbound A14 westbound

Collision analysis in Milton

3.1.139 The PIC study area does not include roads within Milton because no construction vehicles will be permitted to use routes through the settlement. A PIC analysis of the section of the A10 between junction 33 of the A14 (the Milton Interchange) and Ely Road is provided. The PIC analysis of the A10 includes the northbound approach of junction 33 (the Milton Interchange) as well as off-slip and on-slip roads to the A14.

3.1.140 There were 30 slight collisions recorded on the section of the A10 adjacent to Milton.

3.1.141 Five serious collisions were recorded on the section of the A10 adjacent to Milton. Of these, one accident involved a powered two-wheeler. No causation patterns could be determined from these collisions.

3.1.142 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

3.1.143 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

3.1.144 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

3.1.145 Of these nine accidents, two accidents 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).

3.1.146 PIC data provided for the year 2021 is provisional at best. Additionally, contributory factors have not been included in the data which would make it challenging to determine if the road layout is causing road safety concerns.

Chesterton

3.1.147 Chesterton is a settlement to the south of the A14, through which Green End Road and Fen Road runs. These roads form part of the construction route, required to access land to the east of the existing Cambridge WWTP.

Walking in Chesterton

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

3.1.149 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 this route until it becomes Footpath 162/1, which follows the river Cam north to Waterbeach, including connections with Footpath 85/6 at Baits Bite Lock.

3.1.150 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.

3.1.151 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 walking space.

3.1.152 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 walking space.

3.1.153 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 walking space.

3.1.154 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.

Cycling in Chesterton

3.1.155 Within the existing network of Chesterton, Milton Road features 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 the NCR 51.

3.1.156 Green End Road features 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 also feature ‘floating’ bus stops. This route forms part of the NCR 51.

3.1.157 Beyond the roundabout junction between Green End and Nuffield Road, Green End Road features 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.

3.1.158 Water Lane features 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.

3.1.159 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.

Public Transport in Chesterton

3.1.160 The main construction traffic routes within Chesterton are served by eight bus routes: bus route Citi 2, bus route 9, bus route X9, bus route 606, B the busway, C the busway, the park-and-ride service, and bus route 114. These 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.

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

- Milton Road (southbound) stop features a bus shelter with a real time bus information screen
- Scarsdale Close stops are floating bus stops with no bus shelters and no real time bus information screens
- Sherbourne Close stops are floating bus stops that only feature a bus shelter on the southbound stop with a real time bus information screen. The northbound stop features no shelter or real time bus information screens.
- The southbound Franks Lane stop is a floating bus stop with no shelter. The northbound Franks Lane stop is a standard bus stop with no shelter. Neither bus stop features real time bus information.
- Ashfield Road (northbound) stop features no bus shelter or real time bus information screen.
- Fallowfield stops features no bus shelters or real time bus information screens.
- Izaak Walton Way stops features no bus shelters or real time bus information screens.

3.1.162 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 in the south and Waterbeach/Landbeach in 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, 2021).

3.1.163 Bus route 9 operates between Littleport in the north and Cambridge Drummer Street Bus Station 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 (Stagecoach, 2021). It operates from the Milton Road (southbound) bus stop.

3.1.164 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, 2021). It operates Monday and Friday only and serves the Milton Road (southbound) bus stop.

3.1.165 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, 2021). It operates on school days only and serves the Scarsdale Close, Sherbourne Close, Franks Lane, Ashfield Road, and Water Lane bus stops.

3.1.166 The busway route C (the busway, 2022) operates between Cambridge city centre (New Square) to the south, and Hinchingbrooke Hospital in Huntingdon to the north, which 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, 2021). It serves the Milton Road (southbound) bus stop.

3.1.167 The busway route C 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, 2021). It serves the Milton Road (southbound) bus stop, meaning that only the morning peak services can be accessed from this stop.

3.1.168 The closest station to Chesterton is Cambridge North, located approximately 1.4km from the center of Chesterton. Cambridge North station can be accessed via a pedestrian footpath running from Moss Bank, itself accessed from Fen Road.

3.1.169 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.

3.1.170 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.

3.1.171 Cambridge North station also provides access to the busway route B from Cambridge North station stops. This forms part of the Cambridgeshire Guided Busway.

3.1.172 Public transport services and related infrastructure are shown in the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

Local road network in Chesterton

3.1.173 From the north, construction vehicles will access Chesterton using Milton Road. Milton Road is a wide single carriageway road approximately 10m in width. It includes 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 gradient signalised crossing. A bus lane on the northbound carriageway of Milton Road runs from this junction approximately 100m to the south.

3.1.174 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.

3.1.175 Green End Road is a single carriageway road. For the first 400m south from the junction with Milton Road, Green End Road and Kings Hedges 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.

3.1.176 For the remining 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.

3.1.177 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.

3.1.178 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.

Local road network in Chesterton

3.1.179 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.

3.1.180 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

Local road network in Chesterton

3.1.181 The PIC study area for the purpose of the assessment only covers the construction route, 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.

3.1.182 A total of 33 slight collisions were recorded within the Chesterton PIC study area. Of these, 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 a 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: 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

Source: CCC

3.1.183 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.

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

3.1.185 No fatal collisions were recorded within the Chesterton PIC study area.

3.1.186 Ten serious collisions were recorded within the Chesterton PIC study area. Of these, five collisions involved a turning manoeuvre, 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
Green End Road at junction with Nuffield Road	12/03/18, 18:42	Wet/damp	2	Right turn

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

Source: CCC

3.1.187 All collisions involving a turning manoeuvre also 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.

3.1.188 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.

3.1.189 No collision clusters have been identified based on CCC's definition (Cambridgeshire County Council, 2011).

3.1.190 PIC data provided for the year 2021 is provisional at best. Additionally, contributory factors have not been included in the data which would make it challenging to determine if the road layout is causing road safety concerns.

Accident history

3.1.191 A detailed summary of the PIC record within the study area and by settlement in the 2016-2021 period is available in TA (Appendix 19.3, App Doc Ref 5.4.19.3).

3.1.192 Over the road network study area reviewed, a total 174 accidents occurred with an average 35 accidents a year between 2016 and 2021. Of these:

- 76% of the accidents are classified as slight;
- 21% of accidents are classified as serious; and
- 3% of accidents are classified as fatal.

3.1.193 Accidents 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 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% a left turn manoeuvre and 1% both a left and right turn manoeuvre. No specific 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 "With Development" and "Without Development" scenarios. 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 to account for the 2026 future baseline.

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) – 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 in the coming years;
- Future baseline 2033 (existing plus committed development) – operation year (2033) – existing/surveyed baseline plus cumulative schemes which are forecast to be built in the coming years; and
- Future baseline 2038, which 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 traffic based on a 2021 baseline (built using traffic survey data collected in December 2021 and May 2022), for the future baseline year 2026, opening year 2028 and year 10 operational year 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 (Appendix 19.3 - G, 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 (RWC) scenario.

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 (Proposed WWTP, the outfall and FE pipeline, the waste water transfer tunnel and 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 (atypical) vehicle movements owing to the sequencing of construction which guarantee that construction activities where the absolute peak Waterbeach traffic movements would be required do not occur at the same time as the construction of other structures;
- the hourly construction flows as identified in the first assumption have been added to the network peak hours (08:00-09:00, 15:00-16:00, 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 sequencing of the construction programme is such that the construction of structures (i.e., proposed WWTP (including permanent access and landscape masterplan), waste water transfer tunnel, Waterbeach pipeline) of the Proposed Development would not 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 Therefore, the results of the RWCS should be viewed in the context of the above as the worst-case assumptions for traffic movements.

4.1.5 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.

4.1.6 While the RWC scenario test 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 by the total peak hour(s) vehicle flow 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.

4.1.7 The assessment of vehicle movements for decommissioning the existing WWTW 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.

4.1.8 Table 4-1 summarises the effects during the construction phase with primary and secondary and tertiary mitigation as set out in this section and shows the RWC assessment and the mitigated impacts of the scheme proposals.

4.1.9 The assessment of vehicle movements for decommissioning the existing WWTW 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 4-1: Summary of effects for the construction phase with mitigation and during the RWC scenario

Effect		Waste water transfer tunnel	Treated effluent pipeline to outfall	Proposed WWTP	Waterbeach Pipeline	Existing Cambridge WWTP
Severance	Mitigated RWC (primary, tertiary)	Slight – Neutral (not significant)	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral
Pedestrian Delay	Mitigated RWC (primary, tertiary)	Slight – Neutral	**Major: significant at PRoW 85/6 and 85/8**	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Neutral	**Minor – Moderate: significant at PRoW 85/6 (residual)**	Slight – Neutral	Slight – Neutral	Slight – Neutral
Driver Delay	Mitigated RWC (primary, tertiary)	**Moderate – major: significant at Horningsea Road / Junction 34**	Slight – Neutral	**Moderate – major: significant at Horningsea Road / Junction 34**	**Moderate – major: significant at Horningsea Road / Junction 34**	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral
Fear and Intimidation	Mitigated RWC (primary, tertiary)	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral
Accidents and safety	Mitigated RWC (primary, tertiary)	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral
Hazardous loads	Mitigated RWC (primary, tertiary)	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral
	Mitigated RWC (with secondary mitigation)	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral	Slight – Neutral

4.1.10 Table 4-2 summarises the effects during the construction phase as set out in this section and shows the assessment and the mitigated impacts of the Proposed Development.

Table 4-2 Summary of effects for the decommissioning of existing WWTW

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

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 construction phase 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 operational phase

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)	**Major cumulative at Horningsea Road on-slip to the A14.**	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

Effect		Proposed WWTP	Waterbeach Pipeline	Existing Cambridge WWTP
	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

4.2 Construction phase

4.2.1 The potential environmental impacts relating to traffic and transport from the construction 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 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 movements are required for:

- movement of materials and construction equipment to the Proposed Development;
- movement of the construction workforce to and from the Proposed Development;
- 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;

- 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 (DfT, 2022) – abnormal loads will be required for 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:

- 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;
- open cut excavation crossing Horningsea Road to install final effluent pipeline; and
- use of existing level crossings as part of the construction route (see figures for Waterbeach and Chesterton, available in 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.

4.2.7 For construction in 2026, a daily peak of 628 vehicle movements would be required on Horningsea Road and Junction 34 of the A14 to access and egress the permanent access (Option 1b). However, 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.

4.2.8 This peak total daily movement is comprised of construction movements from the Proposed Development:

- the peak traffic flow for the proposed main WWTP (including permanent access and landscape masterplan): 492 daily total movements;
- the peak traffic flow for the Transfer tunnel: 72 daily total movements; and
- the typical day traffic flow for the Waterbeach pipeline: 64 daily total movements

4.2.9 For the number of construction vehicle movements for the Waterbeach pipeline, as stated within the assumptions of the RWCS, typical construction vehicle numbers have been added on to the road network instead of the peak vehicle numbers. 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.

4.2.10 In the assessment of the construction effects of the Waterbeach pipeline, the peak daily construction movements are instead used which amounts to:

- 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

4.2.11 The peak 628 total daily movements therefore mirrors the sequencing of the construction programme. This value has only been considered for the assessment of Horningsea Road and the A14 off-slip and on-slip because these are the only roads / links that would potentially accommodate simultaneous traffic flows for all elements (i.e., proposed WWTP (including permanent access and landscape masterplan), the waste water transfer tunnel and the Waterbeach pipeline) of the Proposed Development as part of the permanent access (Option 1b).

4.2.12 Table 4-4 summarises the total construction flow used in the assessment.

Table 4-4 Peak daily construction vehicle movements

Structure of the Proposed Development	Total daily construction vehicle movements (HGVs and cars)
	RWCS (taking into account programme sequencing)
Proposed WWTP (including permanent access and landscape masterplan)	492
Waste water transfer tunnel	72
Waterbeach pipeline	64
Total	**628**
	Used for the assessment of construction effects on receptors at Junction 34 and Horningsea Road for the proposed WWTP (including permanent access and landscape masterplan)

Project wide

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

Temporary impact of hazardous loads

4.2.14 In the absence of IEMA thresholds for hazardous loads, where hazardous load movements account for 30/60/90% of total construction movements, this corresponds to a minor/moderate/major magnitude of impact, respectively.

4.2.15 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

4.2.16 It is estimated that the Proposed Development could generate up to 1,312m^3 of hazardous waste throughout the entire duration of the programme (based on Chapter 15: Material resources and waste). With an assumed average load capacity of 15m^3 per HGV, this equates to 87 HGVs (or 174 HGV movements) across the entire construction phase.

4.2.17 The 174 HGV movements have been compared to the total construction flow across all sites in the construction peak period in 2026 (relevant to the proposed WWTP, waste water transfer tunnel, and Waterbeach pipeline). In this scenario, hazardous load movements account for 22% of total construction movements.

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

4.2.19 The magnitude of impact is therefore negligible.

Sensitivity of receptor

4.2.20 The sensitivity of receptors is expected to vary on road links and is summarised below in Table 4-5.

Table 4-5 Waste water transfer tunnel (including shafts 4 and 5): hazardous loads – sensitivity of receptors

Road link name	Sensitivity of receptors
Horningsea Road	High
Milton Road (includes Arm D of J33)	High
Cowley Road	Low
A14 on-slip	High
A14 off-slip	High
A14	High

Significance of effect

4.2.21 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 4-6.

Table 4-6: Waste water transfer tunnel (including shafts 4 and 5): hazardous loads – significance of effect

Road link name	Significance of effect
Horningsea Road	Slight – not significant
Milton Road (includes Arm of J33)	Slight – not significant
Cowley Road	Slight – not significant
A14 on-slip	Slight – not significant
A14 off-slip	Slight – not significant
A14	Slight – not significant

Secondary mitigation or enhancement

4.2.22 The CTMP and CoCP section 2.8 Mitigation measures adopted as part of the Proposed Development) would further mitigate the potential non-significant effects associated with construction vehicle movements. Specifically:

- CTMP measures:
  - section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (08:00-09:00, 15:00-16:00, 17:00-18:00);
  - 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.

4.2.23 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

4.2.24 There are no residual significant effects.

Proposed WWTP

4.2.25 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 access connection with Horningsea Road.

4.2.26 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 to the proposed WWTP) has been assessed in relation likely significant effects on receptors.

4.2.27 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

4.2.28 The following roads, part of the construction route, will be used for the construction of the waste water transfer tunnel and shafts:

- B1047 Horningsea Road (the section south of the existing junction with the A14 to the north of Fen Ditton settlement);
- A14, J33 and J34 on-slip roads;
- A14, J33 and J34 off-slip roads;
- Sections of the A14 between J33 and J34;
- Milton Road (section from Milton Interchange to Cowley Road junction); and
- Cowley Road.

4.2.29 The peak daily total number of two-way HGV movements for the duration of the construction programme relevant to the construction of the waste water transfer tunnel and shafts is estimated to be 40 HGV movements and 20 workforce 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). An additional 10 workforce movements would be required for engineer, supervision, or visits/audit movements.

4.2.30 The total peak 70 daily construction movements required for the construction of the waste water transfer tunnel, have been divided across an 8-hour working day to obtain hourly movement rates:

- 6 HGV movements and 1 worker and staff movement hourly; and
- movements required for mobilisation (07:00-08:00am and 06:00-07:00pm) would be 10 worker and staff movements for both hours.

Waste water transfer tunnel, and shafts: 2026 Construction (worst case) scenario year

4.2.31 The two-way peak hour flows for the worst-case 2026 construction year scenario for the road links relevant to the construction of the waste water transfer tunnel and shafts in the AM and PM peak hours is provided in Table 4-7.

Table 4-7: Waste water transfer tunnel and shafts: 2026 without and with Development two-way flows (base traffic flow with construction)

	2026 Without Development		2026 With Development	
Road link	08:00-09:00	17:00-18:00	08:00-09:00	17:00-18:00
Horningsea Road	1455	1538	1603	1686
Cowley Road	690	550	705	565
J33 Arm A	2188	2029	2207	2048
J33 Arm B	931	1177	931	1177
J33 Arm C	1584	1243	1604	1263
Milton Road (includes arm D of J33)	2324	2534	2339	2549
J33 Arm E	2207	1879	2259	1931
A14 on-slip junction 34	489	656	534	804
A14 off-slip junction 34	596	474	744	519
A14	6418	7187	6566	7335

4.2.32 A junction capacity assessment of junction 34 of the A14 has been carried out and is included in the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

4.2.33 The absolute change and percentage change for the projected construction traffic volumes in the 2026 construction scenario in comparison to the 2026 'Do Nothing' scenario (future baseline year) is shown in Table 4-8. Only links relevant to the construction of the waste water transfer tunnel and shafts are summarised. Traffic flow diagrams are provided in 'Traffic Flow Diagrams' (Appendix 19.5, App Doc Ref 5.4.19.5).

Table 4-8: Waste water transfer tunnel and shafts: absolute and percentage change for 2026 two-way traffic flows 'With Development' in construction

	Absolute change		Percentage change	
	08:00-09:00	17:00-18:00	08:00-09:00	17:00-18:00
Horningsea Road	148	148	10%	10%
Cowley Road	15	15	2%	3%
J33 Arm A	19	19	1%	1%
J33 Arm B	0	0	0%	0%
J33 Arm C	20	20	1%	2%
Milton Road (includes Arm D of J33)	15	15	1%	1%
J33 Arm E	52	52	2%	3%
A14 on-slip	45	148	9%	23%
A14 off-slip	148	45	25%	9%
A14	148	148	2%	2%

4.2.34 The IEMA 30% increase traffic flow rule is used to determine which traffic links required further assessment. Where no change in traffic flow greater than 30% has

been observed on road links relevant to the construction of waste water transfer tunnel and shafts, IEMA Rule 2 is applied: assess 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 (IEMA, 1993).

4.2.35 In this instance, 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%. As such, IEMA Rule 2 has been applied, whereby the following sensitive areas where traffic flows have increased by 10% or more comprise:

- Horningsea Road;
- A14 on-slip; and
- A14 off-slip.

Temporary impact on severance

Magnitude of impact

4.2.36 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 4-9.

Table 4-9: Waste water transfer tunnel: (including shafts 4 and 5) severance – magnitude of impact

Road link name	Magnitude of impact
Horningsea Road	Negligible
A14 on-slip	Negligible
A14 off-slip	Negligible

Source: Mott MacDonald

Sensitivity of receptor

4.2.37 The sensitivity of receptors on all road links relevant to the waste water transfer tunnel summarised in Table 4-10.

Table 4-10: Waste water transfer tunnel (including shafts 4 and 5): severance – sensitivity of receptor

Road link name	Sensitivity of receptor
Horningsea Road	High
A14 on-slip	Low
A14 off-slip	Low

Source: Mott MacDonald

Significance of effect

4.2.38 The significance of effect on severance for road links relevant to the construction of the waste water transfer tunnel is summarised in Table 4-11.

Table 4-11: Waste water transfer tunnel (including shafts 4 and 5): severance – significance of effect

Road link name	Significance of effect
Horningsea Road	Slight – not significant
A14 on-slip	Neutral – not significant
A14 off-slip	Neutral – not significant

Source: Mott MacDonald

Secondary mitigation or enhancement

4.2.39 The application of measures within 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) would mitigate the potential effects associated with construction vehicle movements in the peak hour. Specifically:

- CTMP measures:
  - section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00);
  - 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.

4.2.40 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.

4.2.41 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 2026. These activities are, however, unlikely to generate a significant effect.

4.2.42 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

4.2.43 With the exception of a few instances of time critical activities there are no residual significant effects.

Temporary impact on pedestrian delay

4.2.44 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).

Magnitude of impact

4.2.45 The magnitude of impact on road links with footways is outlined in Table 4-12.

Table 4-12: Waste water transfer tunnel (including shafts 4 and 5): pedestrian delay – magnitude of impact on roads with footways

Road	Magnitude of impact
Horningsea Road	Negligible
A14 on-slip	Negligible
A14 off-slip	Negligible

4.2.46 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.

4.2.47 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

4.2.48 The sensitivity of receptors on all road links relevant to the construction of the waste water transfer tunnel and shafts is summarised in Table 4-13.

Table 4-13: Waste water transfer tunnel (including shafts 4 and 5): pedestrian delay – sensitivity of receptor on road links with footways

Road link name	Sensitivity of receptor
Horningsea Road	High
A14 on-slip	Low
A14 off-slip	Low

Significance of effect

4.2.49 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 4-14.

Table 4-14: Waste water transfer tunnel: pedestrian delay – significance of effect on road links with footways

Road link name	Significance of effect
Horningsea Road	Slight – not significant
A14 on-slip	Neutral – not significant
A14 off-slip	Neutral – not significant

Secondary mitigation or enhancement

4.2.50 The CTMP and CoCP (section 2.8, Mitigation measures adopted as part of the Proposed Development) would further mitigate the potential effects associated with construction vehicle movements. Specifically:

- CTMP measures
  - section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00);
  - 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.

4.2.51 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

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

Temporary impact on driver delay

4.2.53 IEMA guidance indicates that the Ratio of Flow to Capacity (RFC) and Degree of Saturation (DoS) at junctions and links are to be used to determine the average delay per vehicle. It is noted that delays are only considered significant when the traffic on

the road network in the vicinity of the Proposed Development is already at or close to capacity.

4.2.54 The full junction capacity assessment results are provided in 'Junction Capacity Assessment' (Appendix 19.6, App Doc Ref: 5.4.19.6) The assessment considered how the vehicle movements as a result of the construction of the Proposed Development would impact the operation of the highway network during peak periods (08:00-09:00 and 17:00-18:00).

4.2.55 Potential capacity issues have been identified on the road network in the 2026 baseline, required for the construction route and the construction of the waste water transfer tunnel and shafts. Capacity issues (i.e., where a Degree of Saturation over 90% has been observed) have been noted at arms of the following junctions:

- the Milton Interchange (Junction 33 of the A14) in the AM and PM peak; and
- Milton Road in the PM peak.

4.2.56 Table 4-15 provides a summary of the change in average delay per vehicle (in seconds) at junctions and links relevant to the construction of the waste water transfer tunnel and shafts between the 2026 Construction (worst case scenario) and 2026 'Do Nothing' scenario in the peak hours.

Table 4-15 Waste water transfer tunnel and shafts: driver delay – change in delay per PCU (seconds) between the 2026 Construction scenario (construction plus baseline) and 2026 baseline

Link	AM peak		PM peak	
	Change in seconds	%	Change in seconds	%
Junction 34				
A14 offslip Left	2.1	7%	6.7	23%
A14 offslip Right	-38.6	-36%	13.1	29%
A14 WB onslip	0.1	9%	0.2	17%
Horningsea Road NB exit	0	0%	0	0%
Horningsea Road NB Left Ahead	0	0%	0	0%
Horningsea Road SB Ahead	64.3	83%	206.5	566%
Horningsea Road SB Exit	-0.3	-9%	-0.4	-19%
Horningsea Road NB Ahead	1.9	10%	14.9	63%
Horningsea Road SB Ahead Right	101.1	945%	214.5	5645%
Milton Road / Cowley Road junction				
Milton Rd SB Left Ahead	0.1	1%	0.2	2%
Milton Rd SB Ahead	0.1	1%	0.9	6%
Milton Rd SB Ahead	0.1	1%	0.9	6%
Cowley Rd WB Left	0	0%	-1	-5%
Cowley Rd WB Right	0.8	2%	-1.3	-5%
Cowley Rd WB Right	0.7	2%	-0.7	-3%
Milton Rd NB Ahead	0	0%	0.5	7%

Link	AM peak		PM peak	
Milton Rd NB Right Ahead	0	0%	0.3	3%
Green End Road / Kings Hedges / Milton Road junction				
Milton Rd_SB Left Ahead	0.1	0%	1	5%
Milton Rd_SB Right	0	0%	0	0%
Green End_WB Left Ahead Right	7.7	13%	0.4	1%
Milton Rd_NB Right Left Ahead	0	0%	2.2	6%
Kings Hedges_EB Ahead Right Left	0	0%	0	0%

Source: Mott MacDonald

4.2.57 Table 4-16 provides a summary of the average change in delay per PCU (in seconds) at the Milton Interchange (junction 33 of the A14). For simplicity, the delay per arm is shown instead of the delay per lane. The full assessment of the Milton Interchange is available in the TA (Appendix 19.3, App Doc Ref 5.4.19.3).

Table 4-16 Waste water transfer tunnel: driver delay – change in delay per PCU (seconds) between the 2026 Construction (worst case scenario) and 2026 'Do Nothing' scenario at the Milton Interchange (junction 33)

Junction arm	AM peak		PM peak	
	Change in seconds	**%**	**Change in seconds**	**%**
Arm A: A10 junction approach	2.3	4%	0.7	1.22%
Arm B: Cambridge Road	2.2	13%	0.8	13.56%
Arm C: A14 on-slip and off-slip	21.1	22%	-7.7	-11.29%
Arm D: Milton Road junction approach	-0.9	-1%	20.5	24.26%
Arm E: A14 on-slip and off-slip	12.5	15%	-5	-6.85%

4.2.58 The increase in delay occurs as a result of the test of the reasonable worst-case scenario across the peak construction period of three months in 2026 (September to November 2026) where construction vehicles for multiple structures (proposed WWTP and Waterbeach pipeline) have been modelled to all travel along the link. In practice, as the construction of each structure is phased, the delay is expected to decrease.

4.2.59 Changes in average driver delay per vehicle (in seconds) of 30/60/90% are used to represent a minor/moderate/major 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.

4.2.60 In this instance, the following roads/links requiring a detailed assessment of driver delay would comprise:

- Horningsea Road southbound ahead;
- Horningsea Road northbound ahead; and
- Horningsea Road southbound right-turn onto the A14 on-slip.

Magnitude of impact

4.2.61 The magnitude of impact on driver delay for all road links relevant to the construction of the waste water transfer tunnel is summarised in Table 4-17.

Table 4-17: Waste water transfer tunnel: driver delay – magnitude of impact

Road link name	Magnitude of impact	
	AM peak	PM peak
Horningsea Road – North bound (NB) ahead	Negligible	Moderate
Horningsea Road – South bound (SB) ahead	Major	Major
Horningsea Road / A14 on-slip junction – SB in	Major	Major

Source: Mott MacDonald

Sensitivity of receptor

4.2.62 The sensitivity of receptors on users of all road links relevant to the links affected by construction of the transfer tunnel (including shafts 4 and 5) is summarised in Table 4-18.

Table 4-18: Waste water transfer tunnel (including shafts 4 and 5): driver delay – sensitivity of receptor

Road link name	Sensitivity of receptor
Horningsea Road / A14 on-slip junction	High
Horningsea Road / A14 off-slip junction	High
Horningsea Road	High

Source: Mott MacDonald

Significance of effect

4.2.63 It is anticipated that there would be a temporary (for the duration of construction) effect on driver delay of variable significance on relevant road links. These are summarised in Table 4-19.

Table 4-19: Waste water transfer tunnel (including shafts 4 and 5): driver delay – significance of effect

Road link name	Significance of effect	
	AM peak	PM peak
Horningsea Road – NB ahead	Slight – not significant	Moderate - **significant**
Horningsea Road – SB ahead	Major – **significant**	Major – **significant**
Horningsea Road / A14 on-slip junction – SB in	Major – **significant**	Major – **significant**

Source: Mott MacDonald

4.2.64 A major effect which is **significant** has been determined on the following junction arms during the peak hours:

- In the AM peak period:
  - Horningsea Road – SB ahead; and
  - Horningsea Road / A14 on-slip junction (southbound right-turn into the on-slip).

- In the PM peak period:
  - Horningsea Road – NB ahead;
  - Horningsea Road – SB ahead; and
  - Horningsea Road / A14 on-slip junction (southbound right-turn into the on-slip).

Further mitigation or enhancement

4.2.65 Where effects have been identified as significant, these would be fully mitigated through the implementation of the measures within the CTMP and CoCP (Section 2.8). The CTMP Section 4.2 (Access route and strategy) specifies a requirement for construction vehicle movements to occur outside the AM and PM peak hours. Therefore, no construction vehicles will travel along the construction route in the AM and PM peak for standard construction activities.

4.2.66 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**.

4.2.67 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 2026. These activities are, however, unlikely to generate a significant effect.

4.2.68 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

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

Temporary impact of construction on fear and intimidation

4.2.70 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.

4.2.71 In the absence of clear thresholds, a 30/60/90% change in traffic flow is considered to correspond to a minor/moderate/major magnitude of impact, respectively. The percentage change in traffic flow for road links relevant to the waste water transfer tunnel and shafts is available in Table 4-5.

Magnitude of impact

4.2.72 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

4-20. 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.

4.2.73 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 4-20: Waste water transfer tunnel (including shafts 4 and 5): fear and intimidation – magnitude of impact

Road link name	Magnitude of impact
Horningsea Road	Negligible
A14 on-slip	Negligible
A14 off-slip	Negligible

Sensitivity of receptor

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

Table 4-21: Waste water transfer tunnel (including shafts 4 and 5): fear and intimidation – sensitivity of receptor

Road link name	Sensitivity of receptor
Horningsea Road	High
A14 on-slip	Low
A14 off-slip	Low

Significance of effect

4.2.75 The significance of effect on fear and intimidation for all 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 (including shafts 4 and 5): fear and intimidation – significance of effect

Road link name	Significance of effect
Horningsea Road	Slight – not significant
A14 on-slip	Neutral – not significant
A14 off-slip	Neutral – not significant

Secondary mitigation or enhancement

4.2.76 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. Specifically:

- CTMP measures

- section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00);
- 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.

4.2.77 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.

4.2.78 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 Year 3. These activities are, however, unlikely to generate a significant effect.

4.2.79 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

4.2.80 With the exception of a few instances of time critical activities there are no residual significant effects on fear and intimidation.

Temporary impact of construction on accidents and road safety

4.2.81 As per IEMA guidance, 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.

4.2.82 A summary of PIC history can be found in section 3.1 (Accident history).

Magnitude of impact

4.2.83 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 4-23.

Table 4-23: Waste water transfer tunnel (including shafts 4 and 5): Accidents and road safety – magnitude of impact

Road link name	Magnitude of impact
Horningsea Road	Negligible
A14 on-slip	Negligible
A14 off-slip	Negligible

Sensitivity of receptor

4.2.84 The sensitivity of receptors is expected to vary between road links and is set out in Table 4-24 below.

Table 4-24: Waste water transfer tunnel (including shafts 4 and 5): Accidents and road safety – sensitivity of receptors

Road link name	Sensitivity of receptors
Horningsea Road	High
A14 on-slip	High
A14 off-slip	High

Significance of effect

4.2.85 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 4-25.

Table 4-25: Waste water transfer tunnel (including shafts 4 and 5): accidents and road safety – significance of effect

Road link name	Significance of effect
Horningsea Road	Slight – not significant
A14 on-slip	Slight – not significant
A14 off-slip	Slight – not significant

Secondary mitigation or enhancement

4.2.86 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. Specifically:

- CTMP measures
  - section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00).
  - 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.

4.2.87 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.

4.2.88 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 2026. These activities are, however, unlikely to generate a significant effect.

4.2.89 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

4.2.90 With the exception of a few instances of time critical activities there are no residual significant effects on road accidents and safety.

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

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

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

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

4.2.93 The daily total number of two-way HGV and LGV movements for the duration of the construction programme relevant to the construction of the proposed WWTP is estimated to be 492 movements at the proposed WWTP indicative access point CA6.

4.2.94 The daily total number of HGV and LGV movements for the duration of the construction programme relevant to the construction of the new permanent access is estimated to be 142 movements on Low Fen Drove Way.

4.2.95 While the assessment of links relevant to the main proposed WWTP is based on the 492 daily movements, the assessment of the new access via Low Fen Drove Way has been based on the 142 daily movements. This is due to the new access beginning

and completing construction prior to the proposed WWTP works. It is considered that the 142 daily movements on Low Fen Drove Way will be required prior to the 492 daily movements required for the proposed WWTP.

4.2.96 The daily total 492 movements are split as follows on an hourly basis over an 8-hour working day:

- Construction vehicle movements required:
  - 35 HGV movements per hour; and
  - 8 LGV/car movements per hour.
- Vehicle movements required for worker mobilisation:
  - 75 car movements at 06:00 to 07:00; and
  - 75 car movements at 18:00 to 19:00.

Time critical activities

4.2.97 Although the CTMP, 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) in the peak hours in 2026.

4.2.98 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:

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

4.2.99 These time critical activities and the associated expected maximum number of vehicle movements provided in Table 4-26.

Table 4-26 Short term intermittent activities creating temporary high 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
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	140	20

Activity	Vehicle movements per day	No. of vehicles per day
Delivery of asphalt for road surfacing within the proposed WWTP	30	15
Total	**263**	**132**

Source: Anglian Water Services

4.2.100 While these four short-term intermittent 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. Table 4-27 below provides a summary of the traffic flow on relevant roads / links without (baseline) and with the addition of the flows required for short term intermittent activities.

Table 4-27 Construction 2026: traffic flow on the road network without and with short-term intermittent activities

Link	2026 Without short term intermittent activities		2026 With short term intermittent activities	
	08:00-09:00	17:00-18:00	08:00-09:00	17:00-18:00
A14 Eastbound	2845	3999	2964	4118
A14 Westbound	3573	3188	3586	3201
Horningsea Road	1455	1538	1603	1670
Junction 34, A14 off-slip	596	474	728	606
Junction 34, A14 on-slip	489	656	621	788
Milton Interchange, Arm A: A10	2188	2029	2320	2161
Milton Interchange, Arm B: Cambridge Road	931	1177	931	1177
Milton Interchange, Arm C: A14	1584	1243	1716	1375
Milton Interchange, Arm D: Milton Road	2324	2534	2456	2666
Milton Interchange, Arm E: A14	2207	1879	2339	2011

4.2.101 Table 4-28 below provides a summary of the absolute and percentage change in traffic flow resulting from short-term activities.

Table 4-28 Absolute and percentage change for 2026 two-way traffic flows with short-term intermittent activities in the peak hours

	Absolute change		Percentage change	
	08:00-09:00	17:00-18:00	08:00-09:00	17:00-18:00
A14 Eastbound	119	119	4%	3%
A14 Westbound	13	13	0%	0%
Horningsea Road	132	132	14%	9%
Junction 34, A14 off-slip	132	132	22%	28%

	Absolute change		Percentage change	
Junction 34, A14 on-slip	132	132	27%	20%
Milton Interchange, Arm A: A10	132	132	6%	7%
Milton Interchange, Arm B: Cambridge Road	0	0	0%	0%
Milton Interchange, Arm C: A14	132	132	8%	11%
Milton Interchange, Arm D: Milton Road	132	132	6%	5%
Milton Interchange, Arm E: A14	132	132	6%	7%

4.2.102 IEMA Rule 1 has been applied, which only requires the assessment of highways links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%). As no traffic flows have increased by more than 30% on the above roads / links, a detailed assessment is not required. Any residual effect would be of negligible impact, and therefore slight and not significant.

Proposed WWTP and permanent access: 2026 construction year (worst case) scenario year

4.2.103 The two-way peak hour flows for the worst-case 2026 construction year scenario for the links relevant to the construction of the proposed WWTP is outlined in Table 4-29.

Table 4-29: Proposed WWTP, landscape areas and the permanent access: 2026 without and with Development two-way flows

	2026 Without Development		2026 With Development	
Link	08:00-09:00	17:00-18:00	08:00-09:00	17:00-18:00
Horningsea Road	1455	1538	1603	1538
Low Fen Drove Way	12	4	30	22
A14 on-slip junction 34	489	656	489	804
A14 off-slip junction 34	596	474	744	474
A14	6418	7187	6566	7335

4.2.104 The absolute change and percentage change for the projected construction traffic / HGV volumes in the 2026 construction scenario in comparison to the 2026 'Do Nothing' scenario (future baseline year) is shown in Table 4-30. Only links relevant to the construction of the proposed WWTP are summarised. Traffic flow diagrams are available in 'Traffic Flow Diagrams' (Appendix 19.5, App Doc Ref 5.4.19.5).

Table 4-30: Proposed WWTP, landscape areas and the permanent access: absolute and percentage change for 2026 two-way traffic flows 'With Development' in construction

Link	Absolute change		Percentage change	
	08:00-09:00	17:00-18:00	08:00-09:00	17:00-18:00
Horningsea Road	148	148	10%	10%
Low Fen Drove Way	18	18	150%	450%
A14 on-slip junction 34	0	148	0%	23%

Link	Absolute change		Percentage change	
	08:00-09:00	17:00-18:00	08:00-09:00	17:00-18:00
A14 off-slip junction 34	148	0	25%	0%
A14	148	148	2%	2%

4.2.105 In this instance, based on the predicted traffic flows associated with construction of the proposed main WWTP, Low Fen Drove Way would experience a change in traffic flows greater than 30% (Rule 1). However, the percentage change on Low Fen Drove Way is due to the road being a quiet countryside lane with low vehicle flows which means that the addition of construction traffic would cause a significant percentage change.

4.2.106 As such, IEMA Rule 2 has also been applied, whereby the following sensitive areas where traffic flows have increased by 10% or more comprise:

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

Temporary impact on severance

Magnitude of impact

4.2.107 The magnitude of impact on severance for all road links relevant to the construction of the proposed WWTP is summarised in Table 4-31.

Table 4-31: Proposed WWTP, landscape area and the permanent access: severance – magnitude of impact

Road link name	Magnitude of impact
Horningsea Road	Negligible
A14 on-slip	Negligible
A14 off-slip	Negligible
Low Fen Drove Way	**Major**

4.2.108 The percentage change of two-way traffic flows on Low Fen Drove Way is noted to result in a major magnitude of impact without mitigation in the 2026 construction scenario owing to the increase of over 100% in the AM and PM compared to the 2026 baseline. However, 2026 baseline traffic data suggests that Low Fen Drove Way traffic flow is very low to begin with as it is not a commuter route and is more likely to be used for farm activities. The addition of construction traffic associated with the development, amplifies the percentage change shown in Table 4-30, creating an artificially high impact.

Sensitivity of receptors

4.2.109 The sensitivity of receptors on all road links relevant to the proposed WWTP and the new permanent access is summarised in Table 4-32.

Table 4-32: Proposed WWTP, landscape area and the permanent access: severance – sensitivity of receptors

Road link name	Sensitivity of receptors
Horningsea Road	High
A14 on-slip	Low
A14 off-slip	Low
Low Fen Drove Way	Low

Source: Mott MacDonald

Significance of effect

4.2.110 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 4-33.

Table 4-33 Proposed WWTP, landscape area and the new permanent access: severance - significance of effect

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

Secondary mitigation or enhancement

4.2.111 The CTMP and CoCP (described in section 2.8, Mitigation measures adopted as part of the Proposed Development) would further mitigate the potential effects associated with construction vehicle movements. Specifically:

- CTMP measures
  - section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00);
  - 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.

4.2.112 There will be short term intermittent occurrences of construction vehicle movements within the peak hours required for time critical activities (Table 4-26). During these activities there could be very short term slight to neutral severance effects that are not significant.

4.2.113 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

4.2.114 There are no residual significant effects on severance.

Temporary impact on pedestrian delay

4.2.115 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.

4.2.116 Road links with footways are assessed differently to PRoW given the difference in the makeup of traffic.

4.2.117 The construction of the proposed WWTP and the new access would cross two existing PRoW, summarised in Table 4-34.

Table 4-34: Proposed WWTP, landscape area and new permanent access: pedestrian delay – 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.

Magnitude of impact

4.2.118 The magnitude of impact on pedestrian delay on roads with footways is summarised in Table 4-35. 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 4-35: Proposed WWTP, landscape area and the new permanent access: pedestrian delay – magnitude of impact

Road link name	Magnitude of impact
Horningsea Road	Negligible
A14 on-slip	Negligible
A14 off-slip	Negligible
Low Fen Drove Way	Major

4.2.119 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.

4.2.120 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)).

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

Sensitivity of receptor

4.2.122 The sensitivity of receptors on all road links relevant to the proposed WWTP and the new permanent access is summarised in Table 4-36.

Table 4-36: Proposed WWTP, landscape area and the new permanent access: pedestrian delay – sensitivity of receptors

Road link name	Sensitivity of receptors
Horningsea Road	High
A14 on-slip	Low
A14 off-slip	Low
Low Fen Drove Way	Low

Source: Mott MacDonald

4.2.123 The sensitivity of receptors on PRoW relevant to the construction of the proposed WWTP is in Table 4-37.

Table 4-37: Proposed WWTP, landscape area and the new permanent access: pedestrian delay – sensitivity of receptors on PRoW

PRoW Reference	Sensitivity of receptors
85/14 & 130/17	Medium

Significance of effect

4.2.124 During the construction phase, it is anticipated that there would be temporary effects, which are not significant, on pedestrian delay on relevant road links with footways. This is summarised below in Table 4-38.

Table 4-38: Proposed WWTP, landscape area and the new permanent access: pedestrian delay – significance of effect

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

4.2.125 The significance of effect on pedestrian delay on PRoW intersected by the proposed WWTP construction corridor is summarised in Table 4-39.

Table 4-39: Proposed WWTP, landscape area and the new permanent access: pedestrian delay – significance of effect on PRoW

PRoW Reference	Significance of effect
85/14	Slight – not significant
130/17	Slight – not significant

Secondary mitigation or enhancement

4.2.126 Measures within the CTMP and CoCP would mitigate the potential effects associated with construction vehicle movements. Specifically:

- CTMP measures
  - section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00);
  - 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.

4.2.127 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.

4.2.128 There will be short term intermittent occurrences of construction vehicle movements within the peak hours required for time critical activities (Table 4-26). During these activities there could be very short-term slight pedestrian delay effects that are not significant.

4.2.129 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

4.2.130 There are no residual significant effects on pedestrian delay.

Temporary impact on driver delay

4.2.131 The full junction capacity assessment results are provided in the TA available at 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 peak periods (08:00-09:00, 17:00-18:00).

4.2.132 Table 4-40 provides a summary of the change in average delay per vehicle at junctions and road links relevant to the construction of the proposed WWTP between the 2026 Construction / 'With Development' scenario and 2026 'Do Nothing' scenario in the peak hours.

Table 4-40 Proposed WWTP, landscape area and the new permanent access: driver delay - change in delay per vehicle (seconds) between the 2026 Construction ('With Development') scenario and 2026 'Do Nothing' scenario

Link	AM peak		PM peak	
	Change in seconds	%	Change in seconds	%
Junction 34				
A14 offslip Left	2.1	7%	6.7	23%
A14 offslip Right	-38.6	-36%	13.1	29%
A14 WB onslip	0.1	9%	0.2	17%
Horningsea Road NB exit	0	0%	0	0%
Horningsea Road NB Left Ahead	0	0%	0	0%
Horningsea Road SB Ahead	64.3	83%	206.5	566%
Horningsea Road SB Exit	-0.3	-9%	-0.4	-19%
Horningsea Road NB Ahead	1.9	10%	14.9	63%
Horningsea Road SB Ahead Right	101.1	945%	214.5	5645%

4.2.133 Changes in average driver delay per vehicle (in seconds) of 30/60/90% are used to represent a minor/moderate/major 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.

4.2.134 In this instance, the following roads/links requiring a detailed assessment of driver delay would comprise:

- Horningsea Road SB ahead;
- Horningsea Road NB ahead; and
- Horningsea Road SB ahead right (right-turn onto the A14 on-slip).

Magnitude of impact

4.2.135 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.

4.2.136 The magnitude of impact on driver delay for all road links relevant to the proposed WWTP is summarised in Table 4-41.

Table 4-41: Proposed WWTP, landscape area and the new permanent access: driver delay – magnitude of impact

Junction name	Magnitude of impact	
	AM peak	PM peak
Horningsea Road NB ahead	Negligible	Minor
Horningsea Road SB ahead	Moderate	Major
Horningsea Road / A14 on-slip junction – SB ahead right (right-turn onto the A14 on-slip)	Major	Major

Source: Mott MacDonald

Sensitivity of receptor

4.2.137 The sensitivity of receptors on all road links relevant to the proposed WWTP, landscape area and the new permanent access is summarised in Table 4-42.

Table 4-42: Proposed WWTP, landscape area and the new permanent access: driver delay - sensitivity of receptors

Road link name	Sensitivity of receptors
Horningsea Road ahead	High
Horningsea Road / A14 on-slip junction	High
Horningsea Road / A14 off-slip junction	High

Significance of effect

4.2.138 During construction it is anticipated that there would be a temporary effects on driver delay of on relevant road links without mitigation, some of which are significant. This is summarised below in Table 4-43.

Table 4-43 Proposed WWTP: driver delay - significance of effect

Junction name	Significance of effect (no mitigation)	
	AM peak	PM peak
Horningsea Road NB ahead	Slight – not significant	Moderate – **significant**
Horningsea Road SB ahead	Moderate - **significant**	Major - **significant**
Horningsea Road / A14 on-slip junction – SB in	Major - **significant**	Major - **significant**

4.2.139 Without mitigation a significant effect has been determined on the following junction arms:

- In the AM peak period:
  - Horningsea Road SB ahead
  - Horningsea Road / A14 on-slip junction (right-turn southbound onto the on-slip)

- In the PM peak period:
  - Horningsea Road NB ahead
  - Horningsea Road SB ahead
  - Horningsea Road / A14 on-slip junction (right-turn southbound onto the on-slip)

Secondary mitigation or enhancement

4.2.140 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.

4.2.141 Where effects have been noted as significant, 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.

4.2.142 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.

4.2.143 There will be short term intermittent occurrences of construction vehicle movements within the peak hours required for time critical activities (Table 4-26). During these activities there could be very short term (such as movements occurring over 2-3 days) major to moderate effects on driver delay that are significant.

4.2.144 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

4.2.145 With the exception of a instances of time critical activities expected to occur in 2026 there are no residual significant effects on driver delay.

Temporary impact on fear and intimidation

4.2.146 In the absence of clear thresholds, a 30/60/90% change in traffic flow is considered to correspond to a minor/moderate/major magnitude of impact, respectively. The percentage change in traffic flow for road links relevant to the proposed WWTP and the new permanent access is available in Table 4-30.

Magnitude of impact

4.2.147 The magnitude of impact on fear and intimidation for all road links relevant to the construction of the proposed WWTP is summarised in Table 4-44.

4.2.148 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 4-44: Proposed WWTP and the permanent access: fear and intimidation – magnitude of impact

Road link name	Magnitude of impact
Horningsea Road	Negligible
Low Fen Drove Way	Major
A14 on-slip	Negligible
A14 off-slip	Negligible

4.2.149 The percentage change of two-way traffic flows on Low Fen Drove Way is noted to result in a major magnitude of impact without mitigation in the 2026 construction scenario owing to the increase of over 100% in the AM and PM compared to the 2026 baseline. However, 2026 baseline traffic data suggests that Low Fen Drove Way traffic flow is low to begin with, and with the addition of construction traffic associated with the development, amplifies the percentage change shown in Table 4-30 creating an artificially high impact.

Sensitivity of receptor

4.2.150 The sensitivity of receptors on all road links relevant to the proposed WWTP and the new permanent access is summarised in Table 4-45.

Table 4-45: Proposed WWTP and the new permanent access: fear and intimidation - sensitivity of receptors

Road link name	Sensitivity of receptors
Horningsea Road	High
Low Fen Drove Way	Low
A14 on-slip	Low
A14 off-slip	Low

Significance of effect

4.2.151 During the construction phase, it is anticipated that there would be variable temporary effects on fear and intimidation on relevant road links. These are summarised in Table 4-46.

Table 4-46: Proposed WWTP and the new permanent access: fear and intimidation – significance of effect

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

Secondary mitigation or enhancement

4.2.152 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. Specifically:

- CTMP measures
  - section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00);
  - 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.

4.2.153 There will be short term intermittent occurrences of construction vehicle movements within the peak hours required for time critical activities (Table 4-26). During these activities there could be very short term slight and neutral effects on fear and intimidation that are not significant.

4.2.154 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

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

Temporary impact on accidents and road safety

4.2.156 A summary of PIC history can be found in section 3.1 (Accident history).

Magnitude of impact

4.2.157 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 inTable 4-47.

Table 4-47: Proposed WWTP and the new permanent access: accidents and road safety – magnitude of impact

Road link name	Magnitude of impact
Horningsea Road	Negligible
Low Fen Drove Way	Major

Road link name	Magnitude of impact
A14 on-slip	Negligible
A14 off-slip	Negligible

Sensitivity of receptor

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

Table 4-48: Proposed WWTP and the permanent access: accidents and road safety – sensitivity of receptors

Road link name	Sensitivity of receptors
Horningsea Road	High
Low Fen Drove Way	Low
A14 on-slip	High
A14 off-slip	High

Significance of effect

4.2.159 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 4-49.

Table 4-49: Proposed WWTP and the permanent access: accidents and road safety - significance of effect

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

Secondary mitigation or enhancement

4.2.160 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. Specifically:

- CTMP measures:
  - section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00);
  - 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.

4.2.161 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.

4.2.162 There will be short term intermittent occurrences of construction vehicle movements within the peak hours required for time critical activities (Table 4-26). During these activities there could be very short term slight effects on accidents and road safety that are not significant.

4.2.163 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

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

Construction of treated effluent pipeline to outfall

4.2.165 The construction of the treated effluent pipeline is expected to take approximately nine months scheduled to commence in 2026. The site access point to the construction corridor is located south of Low Fen Drove Way.

4.2.166 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)' section above and includes any potential effects on the treated effluent pipeline and outfall, with the exception of pedestrian delay, which is assessed in this section.

4.2.167 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 4-50.

4.2.168 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.

4.2.169 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 unique 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

4.2.170 The PRoW outlined in Table 4-50 require diversion during various phases of the construction programme.

Table 4-50: 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.
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

4.2.171 Based on IEMA guidance and professional judgement, PRoW have been assessed based on added journey length. Standard road links with pavements have been assessed using changes in traffic flow in the 2026 'With Development' year. This has been determined to be the most appropriate method to assess the significance of effect of pedestrian delay owing to the different composition of traffic on PRoW and roads.

4.2.172 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

4.2.173 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, is 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).

4.2.174 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)).

4.2.175 For the footpath (85/6) there would be a short-term diversion of up to 6 months during construction of the outfall. To avoid severance and maintain a connection

there would be a temporary diversion put in place for up to 6 months, meaning users of the 85/6 would need to travel an additional 780m to return to back to the 85/6 at Baits Bite Lock.

4.2.176 During the diversion there would be a period where use of the footpath 85/8 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 to join the PROW 130/1 meaning users of the 85/6 would need to travel an additional 1010m to return to back to the 85/6 at Baits Bite Lock.

4.2.177 Users moving from the direction of Horningsea on the footpath 85/8 would also be affected when the use of 85/8 would cease due to the open cut construction of the treated effluent pipeline and 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 the 85/8, meaning users would need to travel an additional 760m to return to back to the 85/6.

4.2.178 The magnitude of impact on pedestrian delay on PRoW is set out in Table 4-51.

Table 4-51: Treated effluent pipeline: pedestrian delay - magnitude of impact on PRoW

PRoW reference	Potential added journey length (metres)	Magnitude of impact
85/6	Users would be diverted an additional 780m using the 85/8 and then temporary diversion route to re-join the 85/6	Major
	During works to cross the 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 85/6 requiring an increased journey of 1010m	Major
85/8	Users moving north to join the 130/1 from the 85/8 would have an increased journey of 760m via Horningsea Road	Major
	Users moving south from the 85/8 from the 130/1 to join the 85/6 would walk have an increased journey of 760m via Horningsea Road	Major

Sensitivity of receptor

4.2.179 The sensitivity of receptors on all road links relevant to the treated effluent pipeline and outfall is summarised in Table 4-52.

Table 4-52: Treated effluent pipeline and outfall: pedestrian delay - sensitivity of receptors on PRoW

PRoW reference	Sensitivity of receptors
85/6	Medium
85/8	Medium

Significance of effect

4.2.180 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 4-53.

Table 4-53: 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 would be diverted an additional 780m using the 85/8 and then temporary diversion route to re-join the 85/6	Major
	During works to cross the 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 85/6 requiring an increased journey of 1010m	Major
85/8	Users moving north to join the 130/1 from the 85/8 would have an increased journey of 760m via Horningsea Road	Major
	Users moving south from the 85/8 from the 130/1 to join the 85/6 would walk have an increased journey of 760m via Horningsea Road	Major

4.2.181 A 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

4.2.182 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.

4.2.183 Additional measures secured by the CTMP and CoCP would include:

- CTMP measures
  - Section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00) which would reduce interface with construction vehicle movements and users of the footway during the morning and afternoon peaks;
  - Section 4.2 (Access route strategy) 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 the 85/8 to cross over the works to construct the treated effluent pipeline and join the temporary diversion back to the 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.

4.2.184 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).

4.2.185 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 plus the gate would increase the journey from 160m to 780mplus 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. In total, the diversion on PRoW 85/6 results in a 790m added journey length.

4.2.186 Users of the footpath 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 4-54.

Table 4-54 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 an additional 780m using the 85/8 and then temporary diversion route to re-join the 85/6	No change	Major

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	During works to cross the 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 85/6 requiring an increased journey of 1010m	Diversion along Horningsea Road no longer needed within gate in place however the equivalent journey accounting for wait time is 790m	Major
85/8	Users moving north to join the 130/1 via the 130/2 would have an increased journey of 620m	No longer needed within gate in place however the equivalent journey accounting for wait time is 170m	Minor
	Users moving south from the 130/2 to join the 85/8 would walk have an increased journey of 600m using Horningsea Road to reach the 85/6		Minor

Residual effect

4.2.187 There is a significant residual effect of pedestrian delay to users of the 85/6 which is temporary.

Waterbeach pipeline

4.2.188 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, a section south of the A14 which connects to the area of land where the existing Cambridge WWTP is located.

4.2.189 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, by including the typical daily construction flows in the reasonable worst-case scenario an allowance is made for a delay to the Waterbeach construction programme and potential effects.

4.2.190 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.

4.2.191 Milton Road, Cowley Road, and junction 34 of the A14 have not been included in this list as the assessment of effects has been carried out in accordance with the RWC scenario. The construction of the waste water transfer tunnel, the proposed WWTP, and the Waterbeach pipeline have been considered to occur simultaneously in this scenario. As such, the three links have not been included in the assessment of effects for the Waterbeach pipeline as they have previously been assessed in section 4.2 (Construction phase), 'Proposed WWTP'. For these roads / links, the typical Waterbeach pipeline construction movements have been used and are considered to be:

- 64 total daily movements:
  - 6 HGVs per hour across an 8-hour working day; and
  - 20 worker movements required for worker mobilisation.

4.2.192 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
- Milton Road (assessed as part of section 4.2 'Construction of the waste water transfer tunnel').

4.2.193 In terms of construction 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 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 is removed from site along with the plant and machinery and the compounds dismantled.

4.2.194 Construction vehicle movements between these periods will reduce significantly 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.

4.2.195 For the construction of the Waterbeach pipeline, the following peak daily (atypical) construction movements would be required:

- 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.

4.2.196 The peak construction traffic will be during spring and summer Year 1 (2024) with lower levels of construction movements in Waterbeach between Year 1 and Year 3 (2024-2026) for the duration of the construction work.

4.2.197 For the number of construction vehicle movements for the Waterbeach pipeline at Junction 34 and Horningsea Road, as stated within the assumptions of the RWCS, 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 atypical 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.

4.2.198 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 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 Lane.

2026 Construction 'With Development' (worst case) scenario year

4.2.199 The two-way flows for the worst-case 2026 construction year scenario for the construction of the Waterbeach pipeline are summarised in Table 4-55.

Table 4-55: Waterbeach pipeline: 2026 without and with Development two-way flows (worst case scenario year)

	2026 Without Development		2026 With Development	
Link	**08:00-09:00**	**17:00-18:00**	**08:00-09:00**	**17:00-18:00**
Waterbeach pipeline – roads used to access work sites (North of the A14)				
A10 (Ely Road)	2132	2006	2153	2026
Denny End Road	514	547	535	567
Bannold Road	295	168	315	189
Bannold Drove	4	2	25	23
Burgess's Drove	4	2	25	23
Long Drove	33	17	54	37
Car Dyke Road	491	477	512	498
Clayhithe Road – included as part of Station Road	-	-	-	-
Station Road	331	435	352	456
Waterbeach pipeline - roads used to access work sites (south of the A14)				
Milton Rd	2324	2534	2344	2554
Green End Road	733	630	753	650
Water Lane (includes Water Street and Fen Road)	341	362	361	382

4.2.200 The absolute change and percentage change for the projected HGV volumes in the 2026 construction scenario in comparison to the 2026 'Do Nothing' scenario (future baseline year) is shown in Table 4-56. Only links relevant to the construction of the Waterbeach pipeline are summarised. Traffic flow diagrams are available in 'Traffic Flow Diagrams' (Appendix 19.5, App Doc Ref 5.4.19.5).

Table 4-56: Waterbeach pipeline: absolute and percentage change for 2026 two-way traffic flows in construction

Link name	Absolute change		Percentage change	
	08:00-09:00	**17:00-18:00**	**08:00-09:00**	**17:00-18:00**
A10 (Ely Road)	19	19	1%	1%
Denny End Road	19	19	4%	3%
Bannold Road	19	19	6%	11%
Bannold Drove	19	19	475%	950%
Burgess's Drove	19	19	475%	950%
Long Drove	19	19	57%	112%
Car Dyke Road	19	19	4%	4%

Link name	Absolute change		Percentage change	
Clayhithe Road – included as part of Station Rd	-	-	-	-
Station Road	19	19	6%	4%
Green End Road	20	20	6%	6%
Water Lanes (includes Water Street and Fen Road)	20	20	6%	6%

Temporary impact of construction on severance of routes

4.2.201 The IEMA 30% increase traffic flow rule has been used to determine which traffic links require further assessment. Where no change in traffic flow greater than 30% has been observed on road links relevant to the construction of the Waterbeach pipeline, IEMA Rule 2 has been applied: assess 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 (IEMA, 1993).

4.2.202 In this instance, based on the predicted traffic flows associated with construction of the Waterbeach pipeline, road links which would experience a change in traffic flows greater than 30% comprise:

- Bannold Drove;
- Burgess's Drove; and
- Long Drove.

4.2.203 The above roads are however quiet countryside lanes with very few vehicle movements, which means that the addition of construction vehicle movements would cause a significant percentage change. As such, IMEA Rule 2 has also been applied where traffic flows have increased by 10% or more, as observed on Bannold Road.

Magnitude of impact

4.2.204 The magnitude of impact on severance for all road links relevant to the Waterbeach pipeline is summarised in Table 4-57.

Table 4-57: Waterbeach pipeline: severance – magnitude of impact

Road link name	Magnitude of impact
Bannold Road	Negligible
Bannold Drove	Major
Burgess's Drove	Major
Long Drove	Major

4.2.205 A major magnitude of impact on severance is identified on Bannold Drove, Burgess's Drove, Long Drove and Fen Road. However, this is due to the low volumes of vehicular flows on these links, meaning that any increase in flows is likely to result in a change in total traffic flow greater than 100%.

Sensitivity of receptor

4.2.206 The sensitivity of receptors on all road links relevant to the Waterbeach pipeline is summarised in Table 4-58.

Table 4-58: Waterbeach pipeline: severance – sensitivity of receptors

Road link name	Sensitivity of receptors
Bannold Road	Low
Bannold Drove	Low
Burgess's Drove	Low
Long Drove	Low

Significance of effect

4.2.207 The significance of effect on severance for road links relevant to the construction of the Waterbeach pipeline is summarised in Table 4-59.

Table 4-59: Waterbeach pipeline: severance – 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

Secondary mitigation or enhancement

4.2.208 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. Specifically:

- CTMP measures
  - section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00);
  - 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.

4.2.209 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

4.2.210 Residual effects are not significant and remain as indicated in Table 4-59.

Temporary impact of construction on pedestrian delay

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

4.2.212 The proposed pipeline route would cross five existing PRoW summarised in Table 4-60.

Table 4-60: Waterbeach pipeline: pedestrian delay – 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 diversion of 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 diversion of 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 diversion of PRoW.
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 diversion of PRoW.

Magnitude of impact

4.2.213 The percentage change in traffic flow in the 2026 'With Development' peak scenario is summarised in Table 4-61.

Table 4-61: Waterbeach pipeline: pedestrian delay – magnitude of impact on road links with footways

Road link name	Magnitude of impact
Bannold Road	Negligible
Bannold Drove	Major
Burgess's Drove	Major
Long Drove	Major

4.2.214 The magnitude of impact on pedestrian delay on PRoW is provided in Table 4-62.

Table 4-62: Waterbeach pipeline: pedestrian delay – magnitude of impact on PRoW

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

Sensitivity of receptor

4.2.215 The sensitivity of receptors on all road links with footways relevant to the Waterbeach pipeline is provided in Table 4-63.

Table 4-63: Waterbeach pipeline: pedestrian delay – sensitivity of receptors on road links with footways

Road link name	Sensitivity of receptors
Bannold Road	Low
Bannold Drove	Low
Burgess's Drove	Low
Long Drove	Low

4.2.216 The sensitivity of receptors on PRoW relevant to the Waterbeach pipeline are provided in Table 4-64.

Table 4-64 Waterbeach pipeline: pedestrian delay - sensitivity of receptors on PRoW

PRoW	Sensitivity of receptors
130/10	Medium
130/8	Medium
130/6	Medium
130/16	Medium

Significance of effect

4.2.217 The significance of effect on pedestrian delay for road links with footways relevant to the construction of the Waterbeach pipeline is summarised in Table 4-65.

Table 4-65: Waterbeach pipeline: pedestrian delay – significance of effect on road links with footways

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

4.2.218 The significance of effect on pedestrian delay on PRoW intersected by the Waterbeach pipeline construction corridor is summarised in Table 4-66.

Table 4-66: Waterbeach pipeline: pedestrian delay – significance of effect on PRoW

PRoW	Significance of effect
130/10	Moderate - significant
130/8	Moderate - significant
130/6	Moderate - significant
130/16	Moderate - significant

Secondary mitigation or enhancement

4.2.219 The measures within 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. Specifically:

- CTMP measures:
  - section 4.2 (Access route strategy) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00);
  - 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.

4.2.220 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 4-67.

Table 4-67 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	Minor

PRoW / road link reference	Potential added journey length (metres) diversions only	Potential added journey length (metres) diversions and additional measures	Magnitude of impact
		before continuing on the PRoW	
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

Residual effect

4.2.221 No residual significant effect has been determined.

Temporary impact of construction on driver delay

4.2.222 The A10/Denny End Road junctions (required for the movement of construction vehicles for the Waterbeach pipeline) will operate over capacity in the 2026 baseline ('Without Development') in the AM peak. Therefore, this junction is likely to require intervention by others prior to 2028 (opening year).

4.2.223 The full junction capacity assessment results are provided in the TA available at Appendix 19.3 (App Doc Ref 5.4.19.3). Table 4-68 provides a summary of the change in average delay per vehicle (in seconds) at junctions relevant to the construction of the Waterbeach pipeline between the 2026 'With Development' (worst case) peak scenario and 2026 'Do Nothing' scenario in the peak hours.

Table 4-68 Waterbeach pipeline: driver delay - change in delay per vehicle (seconds) between the 2026 Construction ('With Development') and 2026 'Do Nothing' scenario

Link	AM peak		PM peak	
	Change in seconds	%	Change in seconds	%
A10 / Denny End Road junction				
Denny End Rd Left Right	1.2	2%	0.6	2%
A10 SB Left Ahead	3.9	21%	1.1	4%
A10 NB Right Ahead	1.7	12%	1.6	8%
A10 / Car Dyke Road junction				
Car Dyke Road / A10 (both left-turn and right-turn)	2.38	10%	1.4	7%
A10 northbound / Car Dyke Road (right-turn from the A10 onto Car Dyke Road)	1.44	10%	0.89	6%

4.2.224 Changes in average driver delay per vehicle (in seconds) of 30/60/90% are used to represent a minor/moderate/major 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.

4.2.225 In this instance, no roads/links would require a detailed assessment of driver delay.

Magnitude of impact

4.2.226 The magnitude of impact on driver delay is negligible for junctions of the A10 relevant to the construction of the Waterbeach pipeline.

Sensitivity of receptor

4.2.227 The sensitivity of receptors for links / junctions of the A10 relevant to the Waterbeach pipeline is high.

Significance of effect

4.2.228 No significant effect on driver delay have been determined. The effect on driver delay is slight and not significant.

Secondary mitigation or enhancement

4.2.229 Section 4.2 (Access route strategy) of the CTMP (Appendix 19.7, App Doc Ref: 5.4.19.7) requires all deliveries to be made outside of peak hours (8:00-9:00, 15:00-16:00, and 17:00-18:00). This measure which restricts construction vehicle movements during the peak hours would mitigate the potential effects on driver delay associated with construction vehicle movements.

4.2.230 The effect on driver delay would remain as slight and not significant.

Residual effect

4.2.231 No residual significant effect has been determined.

Temporary impact of construction on fear and intimidation

4.2.232 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. In the absence of clear thresholds, a 30/60/90% change in traffic flow is considered to correspond to a minor/moderate/major magnitude of impact, respectively.

Magnitude of impact

4.2.233 The magnitude of impact on fear and intimidation for all road links relevant to the Waterbeach pipeline is summarised in Table 4-69 below.

Table 4-69: Waterbeach pipeline: fear and intimidation – magnitude of impact

Road link name	Magnitude of impact
Bannold Road	Negligible
Bannold Drove	Major
Burgess's Drove	Major
Long Drove	Major

Sensitivity of receptor

4.2.234 The sensitivity of receptors on all road links relevant to the Waterbeach pipeline is summarised in Table 4-70.

Table 4-70: Waterbeach pipeline: fear and intimidation – sensitivity of receptors

Road link name	Sensitivity of receptors
Bannold Road	Low
Bannold Drove	Low
Burgess's Drove	Low
Long Drove	Low

Significance of effect

4.2.235 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 4-71.

Table 4-71: Waterbeach pipeline: fear and intimidation – 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

Secondary mitigation or enhancement

4.2.236 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, 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 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 Lane.

4.2.237 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

4.2.238 The effect remains as effect neutral and not significant. No residual significant effect has been determined.

Temporary impact of construction on accidents and road safety

4.2.239 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.

4.2.240 The assessment of the effect of the construction of the Waterbeach pipeline has been based on IEMA guidance, where changes in traffic flow of 30/60/90% are used to represent a corresponding minor/moderate/major magnitude of impact on accidents and road safety, respectively.

Magnitude of impact

4.2.241 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 4-72.

Table 4-72: Waterbeach pipeline: accidents and road safety – magnitude of impact

Road link name	Magnitude of impact
Bannold Road	Negligible
Bannold Drove	Major
Burgess's Drove	Major
Long Drove	Major

Sensitivity of receptor

4.2.242 The sensitivity of receptors on all road links relevant to the Waterbeach pipeline is summarised in Table 4-73.

Table 4-73: Waterbeach Pipeline: accidents and road safety – sensitivity of receptor

Road link	Sensitivity of receptor
Bannold Road	Low
Bannold Drove	Low
Burgess's Drove	Low
Long Drove	Low

Source: Mott MacDonald

Significance of effect

4.2.243 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 4-74.

Table 4-74: Waterbeach pipeline: accidents and road safety – significance of effect

Road link name	Significance of effect
Bannold Road	Neutral – not significant
Bannold Drove	Slight – not significant

Road link name	Significance of effect
Burgess's Drove	Slight – not significant
Long Drove	Slight – not significant

Secondary mitigation or enhancement

4.2.244 The following measures within the CTMP (Appendix 19.7, App Doc Ref: 5.4.19.7) 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 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.

4.2.245 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

4.2.246 The residual effect remains as neutral and not significant. No significant residual effect has been determined.

Existing Cambridge WWTP

4.2.247 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.

4.2.248 Owing to the sequencing of the construction programme, the flows associated with the Transfer tunnel and the Waterbeach pipeline would not overlap. The construction flows assessed at the existing Cambridge WWTP only account for Transfer tunnel flows.

4.2.249 The following roads, part of the construction route, will be used for construction activities at the existing Cambridge WWTP:

- Cowley Road;
- Milton Road (includes Arm D Milton Road of the Milton Interchange)

4.2.250 The daily total number of two-way HGV movements at the existing WWTP for the duration of the construction programme is estimated to be:

- 192 car/LGV daily movements or 24 car/LGV hourly movements over 8 hours.
- 88 HGV daily movements or 11 HGV hourly movements over 8 hours.

4.2.251 These movements would travel to the existing Cambridge WWTP via Cowley Road.

4.2.252 The assessment of the significance of roads and links associated with the construction of the waste water transfer tunnel is covered in section 4.2'.

2026 Construction (worst case) scenario year

4.2.253 The two-way flows for the worst case 2026 construction year scenario for works within the existing Cambridge WWTP are summarised in Table 4-75.

Table 4-75: Existing Cambridge WWTP: 2026 without and with two-way flows (worst case scenario year)

	2026 Without Development		2026 With Development	
Link	**08:00-09:00**	**17:00-18:00**	**08:00-09:00**	**17:00-18:00**
Cowley Road	690	550	725	585
Milton Road (includes Arm D of J33)	2324	2534	2359	2569

4.2.254 Development in this context refers to the 'with' Proposed Development and refers only to movements associated with the Cambridge Waste Water Relocation Project. A junction capacity assessment of the Milton Interchange (junction 33 of the A14) has been carried out and is available in Appendix 19.3 (App Doc Ref 5.4.19.3) Transport Assessment.

4.2.255 The absolute change and percentage change for the projected construction traffic volumes in the 2026 construction scenario in comparison to the 2026 'Do Nothing' scenario (future baseline year) is shown in Table 4-76. Traffic flow diagrams are available at Appendix 19.5, App Doc Ref 5.4.19.5: Traffic flow diagrams.

Table 4-76: Existing Cambridge WWTP: absolute and percentage change for 2026 two-way traffic flows 'With Development' in construction

Link name	Absolute change		Percentage change	
	08:00-09:00	**17:00-18:00**	**08:00-09:00**	**17:00-18:00**
Cowley Road	35	35	5%	6%
Milton Road (includes Arm D of J33)	35	35	2%	1%

4.2.256 IEMA guidance sets out a range of indicators for determining the magnitude of impact and determining which links need to be further investigated. Specifically, "highway links should be separately assessed when:

- traffic flows have increased by more than 30%; or
- other sensitive areas are affected by traffic increases of at least 10%; or
- HGV flows have increased significantly." (GEART, 1993).

4.2.257 Based on IEMA Rule 1 and 2, none of the above road links require detailed assessment.

Monitoring

4.2.258 During the construction phase, monitoring will be in accordance with section(s) 7.7 of the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1, 5.4.2.2). This requires the development of a CTMP, including a Construction Workers Travel Plan which will specify monitoring and reporting procedures.

4.3 Operational 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 (the Milton Interchange) of the A14 will be used for operational traffic needing to travel east from the proposed WWTP, having access to the A14 via the west bound 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 0.

4.3.4 To better understand HGV movements associated with the existing Cambridge WWTP, monthly import and export data were obtained from the Applicant to estimate average daily HGV movements that would be experienced at the proposed WWTP

4.3.5 HGV movements include liquid sludge imports, biosolids exports, non-routing tanker movements and septic waste movements. In addition to HGV movements, further data have been provided by the Applicant regarding the number of operational staff movements in the form of cars and LGVs associated with the proposed WWTP, based on operational movements at the existing Cambridge WWTP. This data represents the peak operational daily total peak movements and AM and PM peak hourly movements that would be experienced at the proposed main WWTP at full capacity.

4.3.6 These movements include cars and LGV movements which include site technicians, managers for treatment processes, maintenance activities, other technical support and office staff. The average daily and peak hour movements are summarised in Table 4-77.

Table 4-77: Operational related traffic daily and peak hour movements

Vehicle type	AM peak hour			PM Peak hour			Daily total		
	Arrival	Departure	Total	Arrival	Departure	Total	Arrival	Departure	Total
Cars and LGV	33	0	33	0	28	28	46	46	92
HGV	6	6	12	6	6	12	73	73	146
Total	39	6	45	6	34	40	119	119	238

Source: Anglian Water

4.3.7 The traffic flows outlined above have been distributed on the highway network for the permanent access to the proposed WWTP for the opening / operational year 2028 and future year 2038.

4.3.8 The distributional split in Table 4-77 has been based on the operational split of 50% from the east and 50% from the west as experienced at the existing Cambridge WWTP. Further detail is provided in 'Appendix C Technical Note Sludge Imports' (Appendix 19.3, App Doc Ref: 5.4.19.3).

4.3.9 Abnormal operations, that may result in periods where there will be additional vehicle movements may occur, would be associated with emergency repairs or other maintenance activities are required. These additional movements would be in the region of 1 -2% additional vehicle movements and would not result in a significant impact.

4.3.10 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. Though 2028 is the opening year for the Proposed Development, CCC TA requirements state that, "when considering the strategic network, the design year should be 10 years post full occupation" (Cambridgeshire County Council, 2019).

4.3.11 As such, the 2038 operation year scenario is compared to the 2038 without development scenario 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

4.3.12 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.

Operational phase: 2038 operation (worst case scenario year) of the proposed WWTP

4.3.13 A summary of two-way traffic flows for road links used during the operational phase of the proposed WWTP during the worst case 2038 operation year is provided in Table 4-78.

Table 4-78: Operational phase: 2038 without and with development two-way flows (operational year: opening year plus 10 years)

	Without development		With development	
Link	**08:00-09:00**	**17:00-18:00**	**08:00-09:00**	**17:00-18:00**
Horningsea Road	1595	1686	1640	1731
A14 on-slip	536	719	581	764
A14 off-slip	653	519	698	564

4.3.14 The absolute change and percentage change for the projected construction traffic / HGV volumes in the 2038 operation scenario in comparison to the 2038 'Do Nothing' scenario is shown in Table 4-79. 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 are available in 'Traffic flow diagrams' (Appendix 19.5 App Doc Ref 5.4.19.5).

Table 4-79: Operational phase: absolute and percentage change for 2038 two-way flows 'With Development'

Link name	Absolute change		Percentage change	
	08:00-09:00	**17:00-18:00**	**08:00-09:00**	**17:00-18:00**
Horningsea Road	45	40	3%	2%
A14 on-slip	45	40	7%	8%
A14 off-slip	45	40	8%	6%

4.3.15 As no percentage change in traffic flow greater than 10% in 2038 with development (as per IEMA Rule 2) has been observed, the road links above do not require a detailed assessment.

4.3.16 While this is the case, 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.

4.3.17 The above mitigation measures would reduce the likelihood of severance and fear and intimidation to pedestrians and cyclists through the wider footpath, speed restriction and provide additional safe crossing point between Horningsea Road and Low Fen Drove Way.

4.3.18 An Operational Workers Travel Plan (OWTP, Appendix 19.8, App Doc Ref: 5.4.19.8) has also been produced and sets out the indicative operational staff numbers for the proposed WWTP, and the primary objectives for reducing vehicle trips and encouraging active travel.

Operation and maintenance of the outfall / ditch habitat

4.3.19 The anticipated level and makeup 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.

4.3.20 The associated vehicle movements would be related to 1-2 vans (less than 1% traffic change) 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). These do not amount to a significant effect, and it is therefore considered that the magnitude of impact would be negligible. The effect is determined to be of neutral or slight significance, and therefore not significant.

Operation and maintenance of transfer tunnel

4.3.21 The anticipated level and makeup 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.

4.3.22 The associated vehicle movements would be related to 1-2 vans (less than 1% traffic change) 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). These do not amount to a significant effect, and it is therefore considered that the magnitude of impact would be negligible. The effect is determined to be of neutral or slight significance, and therefore not significant.

Abnormal operations – pipeline or outfall repair

4.3.23 Abnormal operations for the Waterbeach pipeline refer to emergency operational activities such as to address instances where a leak has occurred.

4.3.24 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, one excavator and one LGV).

4.3.25 On this basis, it is unlikely that abnormal operations would have a significant effect on the surrounding road and PRoW network owing to their irregular frequency.

Waterbeach transfer pipeline

4.3.26 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

4.3.27 The anticipated level and makeup 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. The changes in traffic flow are expected to be 1-2 vans (less than 1% traffic change) visiting sections of the pipeline on an infrequent basis. These do not amount to a significant effect and it is therefore considered that the magnitude of impact would be negligible. The effect is determined to be of neutral or slight significance, and therefore not significant.

Abnormal operations – pipe repair

4.3.28 Abnormal operations for the Waterbeach pipeline refer to emergency operational activities such as to address instances where a leak has occurred.

4.3.29 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, one excavator and one LGV).

4.3.30 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 their irregular frequency.

Monitoring

4.3.31 During the operational phase, monitoring of the Operational Workers Travel Plan (OWTP) will be a requirement of CCC for a 5-year period.

4.3.32 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 project 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.

4.4.2 Decommissioning activities are expected to take place at the end of the construction phases, between June 2027 to December 2027. The future baseline year 2028 (using TEMPro growth factor from a 2021 baseline) 'Do Nothing' 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 this phase, decommissioning traffic flows will be accessing and egressing the existing Cambridge WWTP site (access point COA1 Cowley Road) on a daily basis and will be limited to the existing Cambridge WWTP site. Table 4-80 provides a summary of the peak total flow (sum of all decommissioning activities, assuming an 8-hour work day and that all decommissioning activities occur at the same time, which is unlikely to happen in practice.

Table 4-80: Decommissioning traffic composition - total peak daily vehicle movements in 2028

	Daily vehicle movements	AM peak*	PM peak*
LGV	64	8	8
HGV	86	11	11

*Source: Anglian Water Services. *Values have been rounded*

4.4.4 There are 20 unique activities required to decommission the existing Cambridge WWTP. The full list of decommissioning activities and the number of required staff and vehicles is available in the decommissioning section of the Transport Assessment (Appendix 19.3, App Doc Ref 5.4.19.3).

4.4.5 Decommissioning will require a daily total 150 vehicle movements. The 2028 'Decommissioning' scenario is presented in Table 4-81.

Table 4-81: Decommissioning phase: 2028 without and with decommissioning two-way flows

	2028 Without Decommissioning		2028 With Decommissioning	
Link	08:00-09:00	17:00-18:00	08:00-09:00	17:00-18:00
Cowley Road	708	564	727	583
Milton Road (includes Arm D of J33)	2383	2599	2402	2618

4.4.6 The absolute and percentage change in total traffic is shown below in Table 4-82.

Table 4-82: Decommissioning phase: absolute and percentage change for 2028 two-way flows with decommissioning

Link name	Absolute change		Percentage change	
	08:00-09:00	17:00-18:00	08:00-09:00	17:00-18:00
Cowley Road	19	19	3%	3%
Milton Road (includes Arm D of J33)	19	19	0.8%	0.7%

4.4.7 IEMA guidance (IEMA, 1993) notes that only links where a change in traffic flow of 30% or more has been observed needs to be assessed. The addition of the above vehicle movements on the existing road network does not constitute a 30% change (Rule 1) or a 10% change on sensitive links (the links do not include accidents black spots, conservation areas, hospitals or high pedestrian flows) and therefore no further assessment has been undertaken on these links.

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. However, should construction of developments happen simultaneously, each developer would need to agree their Construction Transport Management Plan with the relevant highway and local planning authority.

Mitigation or enhancement

4.5.4 The stakeholder liaison group specified in the CTMP to assist with mitigation development/approval would be the mitigation measure to be implemented to manage the potential cumulative effects arising from the construction are managed. 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. Regular liaison meetings with planning and highway authorities and the developer of the WNTS and station sites, cumulative traffic effects will be identified and mitigation agreed to avoid those cumulative impacts on the local area.

4.5.5 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 measure required as part of other developments to manage traffic demand.

Residual Effect

4.5.6 Overall, it is considered it is that the impacts of the proposed development can be mitigated limited through the proposed construction management of the transport network and are not significant.

Operation Phase

4.5.7 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 former set of 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 ‘With Development’, 2028 Decommissioning, and 2038 Operation scenarios. Effects arising from committed developments in proximity to the study area have therefore been accounted for in the TEMPro Growth Factors used. These include:

- Waterbeach New Town, including the relocation of the Waterbeach Station;
- Marleigh Development;
- Land north of Cherry Hinton;
- Cambridge Eastern Access Scheme; and
- Cambridge Northern Fringe East and Cambridge North railway station area (allocated for high quality mixed-use development).

4.5.8 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.

4.5.9 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 'TEMPro Growth Factors technical note' (Appendix 19.3 - K, App Doc Ref 5.4.19.3).

4.5.10 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 baseline junction models should be treated as indicative. As such, 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 instead to assess the junction.

4.5.11 Background traffic growth from committed developments in the surrounding area, and in Cambridgeshire, have been determined to have an effect on Junction 34 of the A14. In relation to the effect of the Proposed Development during operation, it has been noted that operational vehicle movements are not large enough to cause an effect, relative to the traffic flows observed in 2038 at junction 34 without operation. As such, it is likely that junction 34 would have already been operating close to or over capacity in the 2038 future baseline ("without operation") even without the addition of operational traffic from the Proposed Development. As this is a matter relating to background traffic growth, this has been considered to be a cumulative effect. The cumulative effect of the main proposed WWTP in operation is assessed below.

4.5.12 IEMA guidance indicates that Ratio of Flow to Capacity (RFC) and Degree of Saturation (DoS) at junctions and links are to be used to determine the average delay per vehicle. It is noted that delays are only considered significant when the traffic on the road network in the vicinity of the development is already at or close to capacity.

4.5.13 The indicative average delay per vehicle (in seconds) is shown below in Table 4-83 for junctions of the A14 used during operation of the proposed WWTP.

Table 4-83: Indicative average delay per PCU (seconds) during operation

Link	AM peak				PM peak			
	Northbound /eastbound		Southbound /westbound		Northbound /eastbound		Southbound /westbound	
Horningsea Road ahead	-0.4	-2%	-7.9	-12%	-1.4	-6%	-3.3	-8%
Horningsea Road / A14 on-slip junction	-0.3	-12%	33.3	158%	0	-	15.7	224%
Horningsea Road / A14 off-slip junction	1.5	6%	11.9	16%	1.9	6%	5.7	12%

4.5.14 A detailed assessment of the junctions above are available 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 peak periods (08:00-09:00, 17:00-18:00).

Magnitude of impact

4.5.15 The magnitude of impact on driver delay for all road links relevant to the operational phase of the proposed WWTP is summarised in Table 4-84. The percentage change in total traffic flow is available in Table 4-79.

Table 4-84: Proposed WWTP: driver delay - magnitude of impact during 2038 Operation Year

Junction / road link name	Magnitude of impact	
	AM peak	PM peak
Horningsea Road – NB ahead	Negligible	Negligible
Horningsea Road – SB ahead	Negligible	Negligible
Horningsea Road / A14 on-slip junction – NB in	Negligible	Negligible
Horningsea Road / A14 on-slip junction – SB in	Major	Major
Horningsea Road / A14 off-slip junction - left	Negligible	Negligible
Horningsea Road / A14 off-slip junction – right	Negligible	Negligible

Sensitivity of receptor

4.5.16 The sensitivity of receptors has been set out similarly to the 2026 'With Development' (construction) year. The sensitivity of receptors on all road links relevant to the operation of the proposed WWTP is summarised in Table 4-85.

Table 4-85: Proposed WWTP: driver delay - sensitivity of receptor

Sensitivity of receptor on	Sensitivity level
Horningsea Road	High
A14 off-slip	High
A14 on-slip	High

Significance of effect

4.5.17 The significance of effect on driver delay is summarised in Table 4-86.

Table 4-86: Proposed WWTP: driver delay - significance of effect during the 2038 Operation Year

Junction / road link name	Significance of effect	
	AM peak	PM peak
Horningsea Road – NB ahead	Slight – not significant	Slight – not significant
Horningsea Road – SB ahead	Slight – not significant	Slight – not significant
Horningsea Road / A14 on-slip junction – NB in	Slight – not significant	Slight – not significant
Horningsea Road / A14 on-slip junction – SB in	Major - **significant**	Major **- significant**
Horningsea Road / A14 off-slip junction - left	Slight – not significant	Slight – not significant
Horningsea Road / A14 off-slip junction – right	Slight – not significant	Slight – not significant

4.5.18 A significant effect has been determined on the following junction arms:

- in the AM peak on the Horningsea Road / A14 at the off slip junction – SB, turning in to the on-slip; and
- in the PM peak Horningsea Road / A14 on-slip junction – SB, turning in to the on-slip.

Further mitigation or enhancement

4.5.19 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 outlined within the Local Transport and Connectivity Plan (LTCP), 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 traffic growth associated with background population growth.

4.5.20 For this major significant effect on driver delay to be made not significant, an Operational Traffic Management Plan would be necessary in order to clearly manage operational traffic. Measures secured through the Operational Traffic Management Plan (OLTP) / Servicing and Delivery Plan would also form part of further mitigation. Measures could include (but are not limited to):

- Restrictions on peak hour travel
- A requirement to adhere to work hours
- A requirement for the management of deliveries and a scheduling system to avoid AM PM peaks

Residual effect

4.5.21 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 no 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, 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. Appendix 19.3 (App Doc Ref 5.4.19.3) Transport Assessment, 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), respectively, have been based on data consistent with the flows considered within this chapter and App Doc Ref 5.4.19.3: Transport Assessment. 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. Appendix 19.9 (App Doc Ref 5.4.19.9) Construction Workers Travel Plan and the Appendix 19.8 (App Doc Ref 5.4.19.8) Operational Workers Travel Plan are both requirements and will provide mitigation measures to further encourage modal shift, which would in turn contribute to the reduction of 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 owing to the secondary mitigation secured through the CTMP and CoCP.

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 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 reversable.

5.1.7 When the restriction on peak hour travel does not apply in the case of short-term intermittent activities (e.g., concrete pours), peak hour travel will be permitted. The effect of these activities has been assessed and no significant effects would emerge.

5.1.8 Without the restriction on peak hour travel (secondary measure), the effects of the Proposed Development on driver delay in construction would vary from neutral to major adverse prior to secondary mitigation, which would be significant in the case of moderate and major adverse effects.

5.1.9 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 would be reduced to an effect of moderate significance. However, a residual significant effect would remain at PRoW 85/6.

5.1.10 Table 5-1 provides a summary of the significant effects associated with driver delay and pedestrian delay.

Table 5-1 Construction - significant effects

Effect	Peak	Location	Significance	Residual significance (with secondary mitigation)
Driver delay				
Users will experience driver delay when travelling along this link	AM	B0147 Horningsea Road – SB ahead	Major - significant	Slight – not significant
Users will experience driver delay when travelling along this link	PM	Horningsea Road – NB ahead	Moderate – significant	Neutral – not significant
Users will experience driver delay when travelling along this link	PM	Horningsea Road – SB ahead	Major – significant	Neutral – not significant
Users will experience driver delay when travelling along this link	AM	Horningsea Road / A14 on-slip junction – SB in	Major - significant	Neutral – not significant
Users will experience driver delay when travelling along this link	PM	Horningsea Road / A14 on-slip junction – SB in	Major - significant	Neutral – not significant
Pedestrian delay				
Users will experience pedestrian delay when travelling along PRoW 85/6 and 85/8	AM and PM	PRoW 85/6 and 85/8	Major – significant	**Residual Major – significant at PRoW 85/6**

5.1.11 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 and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2). In addition to the requirements 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) 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 5-2.

5.1.12 Throughout construction, traffic management measures will be communicated in advance to the local community in accordance with the Community Liaison Plan (outline plan is provided in 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.

Operational phase

5.1.13 Roads used for the Proposed Development in operation have not required an assessment of effects owing to traffic flow changes of less than 10%, as per IEMA Rule 2. Therefore, 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.

5.1.14 In operation improvements to Horningsea Road are expected to result in a reduction in the likelihood of fear and intimidation to pedestrians and cyclists through the wider footpath, speed restriction and additional safe crossing point between Horningsea Road and Low Fen Drove Way and would be beneficial.

Decommissioning the existing Cambridge WWTP

5.1.15 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.

5.1.16 A summary of potential environmental effects, mitigation and monitoring is provided in Table 5-2 sets out how mitigation would be secured.

Table 5-2: Summary of traffic and transport effects

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							
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)	Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction.	Negligible	Low	Neutral – not significant	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 for temporary traffic control and measures manage the impact upon users of the PRoW during the construction period. Implementation of the CTMP in particular • 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	Neutral – not significant	Through Traffic Working Groups / Community Liaison
	Appropriate design of temporary connections from works areas to the road network				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): • 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		ANPR records
	Construction vehicle movements are not permitted to travel through Horningsea or Fen Ditton.						
Construction traffic leads to temporary adverse impacts on driver delay at junction 34 of the A14 in the AM and PM peak. .	Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction.	Major	Slight – not significant	Moderate significant	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 for temporary traffic control	Slight – not significant	Through Traffic Working Groups / Community Liaison
					Implementation of section 6.5 of the CTMP (Deliveries) which requires the management of deliveries through a scheduling system to avoid AM PM peaks		
					Implementation of section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours		
	Appropriate design of temporary connections from works areas to the road network				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: • Documented pre-commencement meetings with the site management team as a contractual requirement; • Active traffic management; and • FORS and CLOCS accreditation		
	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.				Implementation of section 4.2 of the CTMP (Access route strategy) which identifies the off and on slip of the A14 as a potential conflict area which may require traffic marshalling during peak hours Requirement of section 4.2 that all deliveries will be made outside of peak hours (8am-9am and 3-4pm) unless it is determined to be essential that the delivery is to be completed during peak hours.		
Construction traffic leads to temporary delay to	Temporary diversion of the PRoW 85/6 at the outfall works area using 85/8 and a	Minor	Medium		Requirement within section 3 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 (Community & Stakeholder		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
users of PRoW due to gated controlled access on PRoW intersected by works corridor and construction activities	temporary path to re-join the PRoW 85/6 upstream of the outfall works area			Slight – not significant	Engagement) 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. 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 • 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	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	Moderate significant	Implementation of the CTMP in particular • 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) 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: • 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 accidents and road safety / worsening of road user safety on Horningsea	N/A	Low	Low	Neutral – not significant	Implementation of the CTMP in particular • 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	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
Road and A14 on and off slip					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) 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. 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: • 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		
Construction of the outfall leads to temporary adverse impacts to users of cycling routes, public rights of way, footways	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 and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) Part A	Minor	Medium	Slight – not significant		Slight – not significant	
	Diversion of Fen Ditton footpath (85/6) during construction of the outfall along PRoW 85/8 in part and then connecting back to 85/6 downstream of the outfall works	Major	Medium	Moderate		Moderate	

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.	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. 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	Major	Low	Slight – not significant	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 for temporary traffic control Implementation of the CTMP in particular • 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 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 Implementation of the CTMP section 6.9 (Facilitate safe movement of users of the highway (including NMUs) which requires junction widening at: • Bannold Road / Bannold Drove • Bannold Road / Burgess's Drove 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: • Denny End Road • Bannold Road • Bannold Drove • Clayhithe Bridge • Long Drove • Cambridge Road • Chapel Street Station Road 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: • Documented pre-commencement meetings with the site management team as a contractual requirement; • Active traffic management; and FORS and CLOCS accreditation	Slight – not significant	Through application of CLP and ongoing community liaison
Construction traffic leads to temporary adverse impacts on driver delay	Implementation of Construction Worker Travel Plan to encourage construction workers to use more sustainable travel	Negligible	High	Slight – not significant	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 for temporary traffic control	Neutral – not significant	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
at the A10/Car Dyke Road junction, and A10 / Denny End Road in the AM and PM peak.	modes, to reduce single occupancy vehicle trips and will investigate the potential for flexible working patterns to facilitate travel outside of the peak periods.				Implementation of the CTMP in particular • Section 6.3 Adherence to Designated Routes • section 6.5 of the CTMP (Deliveries) which requires the management of deliveries through a scheduling system to avoid AM PM peaks section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours		community liaison
					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: • 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		Negligible	High	Slight – not significant	Implementation of section 6.5 of the CTMP (Deliveries) which requires the management of deliveries through a scheduling system to avoid AM PM peaks	Neutral – not significant	Section 7.2 of the CTMP
					Implementation of section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours		
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)	Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction.	Negligible	Low	Neutral – not significant	Requirement within section 3 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 (Community & Stakeholder Engagement) 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.	Slight – not significant	Through application of CLP and ongoing community liaison
	Appropriate design of temporary connections from works areas to the road network				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 for temporary traffic control		
					Implementation of the CTMP in particular • 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.		
					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: • Documented pre-commencement meetings with the site management team as a contractual requirement; • Active traffic management; and FORS and CLOCS accreditation		
	Sequencing the proposed WWTP access road construction at the start of the				Requirement within section 3 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 (Community & Stakeholder		

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
	programme so that it can be used in construction to minimise use of Horningsea Road to access Low Fen Drove Way				Engagement) 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.		
Construction traffic leads to temporary effect on fear and intimidation for pedestrians and cyclists travelling along Long Drove, Burgess's Road.		Major	Low	Slight - not significant	Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which • 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 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	Slight – not significant	Through application of CLP and ongoing community liaison
					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)		
					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: • Documented pre-commencement meetings with the site management team as a contractual requirement; • Active traffic management; and • FORS and CLOCS accreditation		
					Requirement within section 3 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 (Community & Stakeholder Engagement) 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.		

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)		Negligible	Low	Neutral – not significant	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 for temporary traffic control 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: • Documented pre-commencement meetings with the site management team as a contractual requirement; • Active traffic management; and FORS and CLOCS accreditation 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. Requirement within section 3 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 (Community & Stakeholder Engagement) 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.	Neutral – not significant	Through application of CLP and ongoing community liaison
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		Major	Low	Slight – not significant	Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs)) which • 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 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 Requirement within section 3 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 (Community & Stakeholder Engagement) 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	Slight – not significant	

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
					management activities and management of safety concerns raised by the community, residents and businesses.		
					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: • 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		
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	Neutral – not significant		Implementation of the CTMP in particular • 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.	Neutral – 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 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		
					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: • 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.		
Construction traffic leads to an increased risk / 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	Negligible	Low	Neutral – 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 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.	Neutral – not significant	Through application of CLP and ongoing community liaison
					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	Neutral – not significant	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
					required and timing of movement to be outside peak hours (i.e., school start and finishing times). All deliveries will be made outside of peak hours (8am-9am and 3-4pm) unless it is determined to be essential that the delivery is to be completed during peak hours.		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	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. 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). 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. 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: • 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.	Slight – not significant	
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	Permanent Automatic Number Plate Recognition (ANPR) cameras 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). 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 • 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	Negligible	High	Slight – not significant		Slight – not significant	ANPR records

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
	a new footway section on the east side of Horningsea Road south of the junction with Low Fen Drove Way.						
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 h Operational Transport Logistics Plan and requirements in relation coordination of vehicle movements in line with the regulations for notifying authorities of abnormal loads	Slight – not significant	

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 5-3 summarises mitigation included to mitigate adverse traffic and transport impacts.

Table 5-3: 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 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 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 and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) Part A	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction.	Primary	Schedule 1 / Requirement	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		Appropriate design of temporary connections from works areas to the road network	Primary		Appointed Contractor(s)	Pre-construction	Approval of temporary highways connections design by CCC
		Implementation of the CTMP in particular • 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		Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B 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 Construction Worker Travel Plan to minimise vehicle trips	Secondary			Prior to start of construction	Approved CWTP prior to commencement of construction
		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): • 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	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B 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 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 for temporary traffic control	Secondary	Schedule 2 – Requirement to implement 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	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B 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	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		Implementation of the CTMP in particular • 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	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B 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 CoCP Part A and Part B 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	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		Implementation of the CTMP section 6.9 (Facilitate safe movement of users of the highway (including NMUs) which requires junction widening at: • Bannold Road / Bannold Drove	Primary			Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase including specific arrangements

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
		• Bannold Road / Burgess's Drove • Burgess's Drove 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: • Denny End Road • Bannold Road • Bannold Drove • Clayhithe Bridge • Long Drove • Cambridge Road • Chapel Street • Station Road	Secondary				made with the developer of the Waterbeach Station relocation
		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: • 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 CoCP Part A and Part B 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	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 for temporary traffic control	Secondary	Schedule 2 – Requirement to implement 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	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction of the Waterbeach pipeline
		Implementation of Section 4.2 of the CTMP (Access route strategy) which identifies the off and on slip of the A14 as a potential conflict area which may require traffic marshalling during peak hours 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.		Schedule 2 – Requirement to implement approved CTMP	Appointed Contractor(s)		
		Implementation of Section 6.5 of the CTMP (Deliveries) which requires the management of deliveries through a scheduling system to avoid AM PM peaks					
		Implementation of Section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours					
		Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction.		Schedule1/Requirement	Appointed Contractor(s)		
		Appropriate design of temporary connections from works areas to the road network	Primary	Schedule 2 – Requirement to implement approved CTMP	Appointed Contractor(s)	Prior to start of construction	Road connection design approved by CCC prior to the start 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
		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: • 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 CoCP Part A and Part B 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	Appointed Contractor(s	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B 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 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 for temporary traffic control Implementation of the CTMP in particular • Section 6.3 Adherence to Designated Routes • section 6.5 of the CTMP (Deliveries) which requires the management of deliveries through a scheduling system to avoid AM PM peaks • section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours	Secondary	Schedule 2 – Requirement to implement 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	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction of the Waterbeach pipeline
		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: • 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 based on the CTMP (Appendix 19.7, App Doc Ref: 5.4.19.7)			
		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)			
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 through a scheduling system to avoid AM PM peaks	Secondary	Schedule 2 – Requirement to implement approved CTMP	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		Implementation of section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours	Secondary	Schedule 2 – Requirement to implement approved CTMP based on the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)			

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 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 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 (Community & Stakeholder Engagement) 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	Through application of CLP and ongoing community liaison	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		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 • 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 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			
		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	Schedule1/Requirement	Appointed Contractor(s)	Prior to start of construction	Approved diversion with the local PROW officer
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 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 (Community & Stakeholder Engagement) 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 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	Appointed Contractor(s) #	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		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 for temporary traffic control		Schedule 2 – Requirement to implement 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			
		Sequencing the proposed WWTP access road construction at the start of the programme so that it can be used in construction.		Schedule1/Requirement to			
		Appropriate design of temporary connections from works areas to the road network		Requirement for approval of detailed design of temporary connections		Prior to start of construction	Road connection design approved by CCC prior to the start of construction
		Implementation of the CTMP in particular • 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 based on the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		Section 7.2 of the CTMP requires that the Principal Contractor(s) will implement a system for monitoring the movement of vehicles associated		Schedule 2 – Requirement to implement approved CTMP based on the CTMP	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the

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
		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		(Appendix 19.7, App Doc Ref: 5.4.19.7)			commencement of the construction phase
Construction traffic leads to temporary adverse effect on fear and intimidation for pedestrians and cyclists travelling along Horningsea Road	Slight – not significant	Implementation of the CTMP in particular • 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 management measures to provide a safe crossing point for site traffic and pedestrians and cyclists.	Secondary	Schedule 2 – Requirement to implement approved CTMP based on the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)	Appointed Contractor(s) Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		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					
		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: • 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 based on the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B 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
		Requirement within section 3 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 (Community & Stakeholder Engagement) 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.		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	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B 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 • 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 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 based on the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		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				
		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: • 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 based on the CTMP (Appendix 19.7, App Doc Ref: 5.4.19.7)			
		Requirement within section 3 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 (Community & Stakeholder Engagement) 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	Secondary	Schedule 2 – Requirement to implement 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	Appointed Contractor(s)	Prior to start of construction	Appointment of CLO

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 activities and management of safety concerns raised by the community, residents and businesses.					
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)	Neutral – not significant	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 for temporary traffic control	Secondary	Schedule 2 – Requirement to implement 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	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the enabling phase
		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: • 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 based on the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)			
		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.					
		Requirement within section 3 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 (Community & Stakeholder Engagement) 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 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			
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	Slight – not significant	Implementation of the CTMP in particular Section 6.9 (Facilitate safe movement of users of the highway (including NMUs) which • 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		Schedule 2 – Requirement to implement approved CTMP based on the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		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	Secondary	Schedule 2 – Requirement to implement CoCP Part A and B (Appendix 2.1 and	Appointed Contractor(s)		Approval of the CTMP and CoCP Part A and Part B prior to the

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
		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		2.2, App Doc Ref 5.4.2.1 and 5.4.2.2)		Prior to start of construction	commencement of the construction phase
		Requirement within section 3 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 (Community & Stakeholder Engagement) 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.					
		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: • 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 based on the CTMP (Appendicx 19.7, App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
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	Implementation of the CTMP in particular • 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.	Secondary	Schedule 2 – Requirement to implement approved CTMP based on the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		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.					Approval of the CTMP and CoCP Part A and Part B prior to the commencement of the construction phase
		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: • 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					Approval of the CTMP and CoCP Part A and Part B 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 Logistics & Community Safety (CLOCS) – Is a set of road safety requirements to be adopted during the construction period by the supply chain.					
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	Temporary traffic control, design of temporary connections to the road network, sequencing the proposed WWTP access road construction.	Secondary	Schedule 2 – Requirement to implement approved CTMP based on the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP
		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.					
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	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). • 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.		Schedule 2 – Requirement to implement approved CTMP based on the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)	Appointed Contractor(s)	Prior to start of construction	Approval of the CTMP and CEMP
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	Permanent Automatic Number Plate Recognition (ANPR) cameras 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)	Schedule 1 / Requirement to install ANPR Schedule 2 – requirement to monitor vehicle movements through use of ANPR	The appointed contractor	Prior to start of construction	Implement ANPR as approved by LPA
					The Applicant	Prior to start of operation	Preparation of approved operational plans a procedure prior to commencement of operation
		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 • 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	Schedule 1 / Requirement to complete highway improvements related to Works Plan Schedule 2 – Requirement to complete detailed design related to Works Plans 01 and 02 Requirement to obtain approval from LHA regarding highway works	The appointed contractor	Prior to start of construction	Implement design as approved by LPA

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
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	Slight – not significant	Controlled through the Operational Transport Logistics Plan and requirements in relation coordination of vehicle movements in line with the regulations for notifying authorities of abnormal loads	Secondary	Schedule 2 – requirement to monitor imports/ exports Requirement to prepare detailed OLTP in alignment with the Operation Logistics Transport Plan (App Doc Ref 5.4.19.10)	The Applicant	Operation	Preparation of approved operational plans a procedure prior to commencement of operation
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)	The Applicant	Operation – 6 months post opening	Approval of Operational Workers Travel Plan

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