

# Cambridge Waste Water Treatment Plant Relocation Project



Preliminary Environmental Information  
February 2022

Traffic and transport

| Version | Date     | Author(s)                       | Check                | Approve | Comment             |
|---------|----------|---------------------------------|----------------------|---------|---------------------|
| Draft   | 25/01/22 | W Tong<br>G Seach<br>E Soboleva | G Wicks              |         | Draft for comment   |
| P01     | 27/01/22 | G Seach<br>E Soboleva           | W Tong<br>A Rawlings | G Wicks | Update for comments |
| P02     | 08/02/22 | G Seach<br>E Soboleva           | W Tong<br>A Rawlings | G Wicks | Final               |

Document reference: 100102041-MML-XX-00-RP-TR-0204016

**Information class: Standard**

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## Environmental information paper: Traffic and transport

### Summary

The Preliminary Environmental Information (PEI) Paper has been produced to identify and understand the likely effects of the Proposed Development on Traffic and Transport. It provides preliminary information in relation to users of the transport network including people using the highway, pathways/pavements, the River Cam navigation, and public rights of way<sup>1</sup> (PRoW) for walking, cycling and horse-riding, and a preliminary assessment on how the proposed construction access routes and permanent access connection would impact people using existing transport resources.

It is recognised that people living and working in areas affected by the temporary movement of construction vehicles for the transport of materials, goods, and personnel to and from the Proposed Development have particular concerns about how this could affect their day to day activities. We also recognise that there will be concerns on how the proposed waste water treatment plant (WWTP) might affect the road network as a result of the new access connection across the B1047 Horningsea Road and through the movement of vehicles to and from the proposed WWTP once it is operational.

We have sought to address potential impacts to traffic and transport through careful design of both temporary and permanent connections to the existing road network, through the development of plans and procedures to govern our activities (as set out within the outline Construction Traffic Management Plan and the outline Code of Construction Practice (CoCP) and through carefully considered mitigation measures along the B1047 Horningsea Road.

This paper is the preliminary assessment that has been undertaken to understand existing transport movements and issues, how construction may impact on the local area and mitigation that is put in place to offset or minimise those impacts. To determine the impacts of the Proposed Development on the local area the assessment will highlight areas where temporary changes to traffic volumes could cause short term delay to road users or pedestrians, temporary changes in routes of PRoW could cause an increase in walking or cycling distances or temporary increases in HGV along roads used as construction routes may cause other uses to feel more vulnerable.

At this preliminary stage, construction traffic numbers and/or duration of the peak construction movements have been reviewed to determine the indicative measures and locations for mitigation and how significant the impact is likely to be. Where an impact is defined as short, medium, or long term, this is based on the duration of the work. Short

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<sup>1</sup> To aid understanding of the figures, the term PRoW is used to define a public right of way. This is a right by which the public can always pass along routes over land. Even if land is privately owned, the public have a right to access and cross over this land along a specific route.



term is work taking up to six months, medium term is work taking over 6 months but less than 12. Long term is used to described works of over one year.

Preliminary findings and potential impacts on the local area, specifically the settlements of Fen Ditton, Horningsea, Clayhithe, Waterbeach, Milton and the Chesterton area of Cambridge are set out in this summary, with key issues highlighted below.

Residents of both Horningsea and Fen Ditton would be likely to experience impacts, such as a slight increase in journey times due to increase of construction vehicles for the Proposed Development. The new proposed permanent site access adds an additional arm to the existing signalised junction on Horningsea Road with the A14 off slip. To construct this new permanent arm, a short-term temporary construction access route will be built using the existing junction of Horningsea Road and Low Fen Drove Way (the permanent access will be used in construction once completed). The permanent access junction will be designed to segregate vehicles (delivery vehicles, private cars, and HGVs) from pedestrians and cyclists.

The construction of the treated effluent transfer pipeline will require crossing Horningsea Road and installation work on land to the west of Horningsea Road. The short-term work to cross the road would require traffic-signal control of Horningsea Road, which is estimated to be up to 4 months based on the Construction Timeline in the PEI Introductory Paper. The treated effluent transfer pipeline also requires construction to be carried out on the bank of the River Cam which will result in the short-term disruption of footpaths 85/6, 130/10, and 130/1. This disruption would be a gated point to control construction and pedestrian movements or some short diversions for pedestrians around or through the construction site. This would cause some short delays to users on the path. Construction of the outfall will also require a temporary restriction of the width of the River Cam navigation for up to 3 months, but no overall impact is expected on river users. For impacts on the leisure use of the River Cam, please refer to the Environmental Information Paper: Recreation.

Waterbeach and Clayhithe residents would likely experience some short-term construction impacts from deliveries of materials and site traffic to sites located to the east of Waterbeach and to sites near Clayhithe, with April – August 2024 of construction identified as the period for the delivery of materials to create a temporary surface along the pipeline alignment.

The Chesterton area would likely experience some short-term construction impacts from deliveries of materials and site traffic due to sites located on Cowley Road and Fen Road, with September – December 2024 identified as the indicative period with peak traffic movements.

The time scale for each construction activity can be found in the PEI Introductory Paper.

In the operational phase of the Proposed Development the levels of traffic going to and from the proposed WWTP are largely similar to the current levels with the existing Cambridge WWTP. This represents a redistribution from vehicles currently using junction 33 (The Milton Interchange) of the A14, Milton Road and Cowley Road changing to use junction 34 of the A14 and Horningsea Road.



Operational traffic to the existing Waterbeach water recycling centre (which will be decommissioned and replaced with a Terminal Pumping Station), the Waterbeach pipeline, and to the transfer tunnels would be occasional in nature and in line with Anglian Water asset management program.

We have developed a set of proposed mitigation measures which will eliminate or reduce the impacts of the construction and operation phases, for example:

- manage workforce and deliveries to minimise impacts on peak times of the day
- minimise construction effects on settlements where changes to the road layout are made
- minimise construction effects on connectivity across PRow network
- propose to improve the existing road layout to segregate and protect its most vulnerable users at the proposed WWTP

Our preliminary assessment indicates that the proposed mitigation measures would mean that the Proposed Development would have no Likely Significant Effect to the local area.

### Document purpose

The Traffic and transport Preliminary Environmental Information Paper describes potential changes to traffic and transport associated with the construction and operation of the relocated waste water treatment works. The paper sets out our preliminary findings, comprising a review of the existing transport network and identification of potential traffic and transport impacts. It sets out how we intend to develop our proposals to avoid and minimise Traffic and transport impacts.

This information paper should be cross-read and the Alternatives Section of the PEI Introductory paper as part of the Preliminary Environmental Information, the Community information papers, the Environmental Information Papers for Air quality, Noise and vibration, and Recreation.

### Limitations

The earliest construction is expected to start is 2024. We have assumed a start date of April 2024 for the purposes of this Preliminary Environmental Information. The proposed WWTP is planned to be fully operational in 2028. The maximum duration of construction works in particular areas are set out in this paper, where necessary. All dates shown are subject to change and are preliminary.

## Traffic and transport overview

Our proposals are to relocate the existing Cambridge waste water treatment plant (WWTP) from its current location south of the A14 at Cowley Road to a new location approximately 2km to the northeast, close to junction 34 of the A14. The sections of the local highway network closest to the proposed WWTP are the B1047 Horningsea Road, the A14 and Low Fen Drove Way.

A new pipeline connection from Waterbeach passes to the east of the existing railway line, crosses under the River Cam and passes through farmland to the east of Horningsea. It crosses existing farm tracks and PRoW and in construction would be accessed at locations in Waterbeach, Clayhithe and the Chesterton area and near to Horningsea and Fen Ditton settlement. Refer to Figure '*Construction and Access*' within the PEI Introductory Paper.

In construction there are several points of access required from the public highway to land required for the construction of the Proposed Development. In operation there will be a new access from the proposed WWTP on to the B1047 Horningsea Road. The construction will be sequenced so that a temporary access is constructed first, followed by a permanent access road. The temporary construction access would use Low Fen Drove Way to access the proposed WWTP and enable the permanent access to be built. Once the permanent access is constructed the temporary would be removed. Vehicles will enter the proposed WWTP directly from the A14 slip road, straight across the junction and into the proposed WWTP. In operation the permanent access road would enable access and egress from the proposed WWTP on to the B1047 Horningsea Road.

This paper includes several figures so that the Proposed Development can be viewed alongside the transport network:

- Waterbeach and Clayhithe settlements, supported by Figure 1
- Horningsea and Fen Ditton settlements, supported by Figure 2 and Figure 3
- Milton settlement, supported by Figure 4
- Chesterton, supported by Figure 5

This section together with the figures provides preliminary information on the traffic and transport resources (the River Cam, aviation, the strategic road network, local roads, pavements, footpaths, cycleways, and public transport) used by people living and working within settlements contained within in the study area.

The study area encompasses the local and strategic road network, the existing public transport infrastructure, and network of PRoW in the vicinity of, or within settlements. For the local and strategic road network, this includes:

- Junction 33 (The Milton Interchange) of the A14
- Junction 34 of the A14
- the A14, where appropriate
- the A10, where appropriate
- Milton Road
- Green End Road
- Fen Road

- Horningsea Road
- All roads in Waterbeach that are part of the construction route
- Clayhithe Road

Figures 1 to 5 also illustrate each area that will likely be affected by the Proposed Development and provide preliminary information on impacts which are discussed in *How will the construction of the proposed relocation of Cambridge Waste Water Treatment Plant affect users of traffic and transport infrastructure during construction?* and *Once operational, how will the proposed relocation of Cambridge Waste Water Treatment Plant affect traffic and transport?*

### The River Cam

The River Cam is a navigable waterway and although in the past used as means to transport goods and people it is now primarily used for recreational purposes. The Conservators of the River Cam<sup>2</sup> are the statutory navigation authority for the River Cam from Bottisham Lock to the Mill Pond in Cambridge.

There are multiple PRoW running along the banks of the river, as shown in the figures for Horningsea and Waterbeach. These are also used for recreational purposes such as walking and cycling. The routes are illustrated in the respective figures for each area. More information on recreational activities associated with the River Cam is within the Environmental Information Paper: Recreation.

### Cambridge City Airport

Cambridge City Airport is located on the eastern outskirts of Cambridge, approximately 2.8km from the city centre. There are no public commercial flights scheduled from the airport as it is only available for corporate and private use and flying schools. A 13km safeguarding zone extends from Cambridge Airport<sup>3</sup> within which permits may be required in relation to specific activities, such as the use of cranes.

### Strategic cycle network

The Proposed Development crosses two existing national cycle network routes:

- NCR 51 extends from Bottisham to Barnwell, having a total length of approximately 7.4km. NCR 51 is a long-distance cycling route that connects several cities in the south of England. The route begins in Oxford, passes Milton Keynes, Bury St Edmunds and Ipswich before reaching the coast at Felixstowe<sup>4</sup>.

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<sup>2</sup> More information can be found on the Conservators of the River Cam website: <https://www.camconservancy.org/>

<sup>3</sup> CCC (2021) Cambridge Airport Air Safeguarding Zones

Heights for Referral Available at: <https://www.cambridge.gov.uk/media/2756/cambridge-airport-air-safeguarding-zones.pdf>

<sup>4</sup> Sustrans (2021) Route 51 Available at: <https://www.sustrans.org.uk/find-a-route-on-the-national-cycle-network/route-51/>



- NCR 11 extends from Waterbeach to Cambridge, having a total length of approximately 10km. NCR 11 travels through the Fens and is open in sections between Wendens Ambo and King's Lynn<sup>5</sup>.

### Strategic road network

The A14 is part of the Strategic Road Network, running through Junction 33 (the Milton Interchange), Junction 34 (Horningsea Road interchange) and Junction 35 (Quy Interchange).

The Annual Average Daily Flow<sup>6</sup> (AADF) of vehicles travelling both ways along the A14 is provided below for the year 2020.

Table 1 below summarises the two-way annual average daily flow for the A14 between Junctions 33, 34 and 35, and Table 2 the AM and PM hourly peak flows for the section of the A10 between the Milton Interchange and Waterbeach.

*Table 1 Two-way annual average daily flow on the A14*

| Road                    | Two-way Annual Average Daily Flow (AADF) |
|-------------------------|------------------------------------------|
| A14 between J33 and J34 | 44,487                                   |
| A14 between J34 and J35 | 36,566                                   |

Source: Department for Transport

Table 1 shows the two-way AADF for the sections of the A14 between Junctions 33, 34 and 35. This table should be read as there being 44,487 observed vehicles in both directions, for the section of the A14 between Junction 33 (The Milton Interchange) of the A14 and Junction 34 of the A14.

While not a part of the Strategic Road Network the A10, from junction 33 of the A14 to Waterbeach, is included in this section to account for its use as part of the construction route for the Proposed Development. Table 2 provides an overview of the observed flows during the peak hours between Junction 33 (The Milton Interchange) of the A14 and the settlement of Waterbeach.

*Table 2 AM peak (08:00-09:00) and PM peak (17:00-18:00) traffic flows on the A10 between the Milton Interchange and Waterbeach*

| 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  |

<sup>5</sup> Sustrans (2021) Route 11 Available at: <https://www.sustrans.org.uk/find-a-route-on-the-national-cycle-network/route-11/>

<sup>6</sup> The Annual Average Daily Flow corresponds to the average over a full year of the number of vehicles passing a point in the road network each day. This data is collected by the Department for Transport.

Source: Mott MacDonald

This table should be read as there being 1,233 observed cars and vans, and 91 HGVs in the AM peak (08:00-09:00), and 1,217 cars and vans and 31 HGVs in the PM peak (17:00-18:00) on the A10 going northbound.

### Preliminary information of traffic and transport resources by settlement

The sections below establish the existing traffic and transport conditions by settlement. Traffic surveys were carried out on the 4<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> December 2021 across 24 locations to capture vehicle, pedestrian, and cyclist movements, and help us establish a 2021 baseline.

#### Waterbeach and Clayhithe

Figure 1 sets out the local transport network in Waterbeach including roads, cycle ways, bridleways, footpaths, public transport, and parking facilities.

The settlement has a moderate vehicular traffic flow at most times of the day<sup>7</sup>; however, it is noted that at morning and evening peak times there are high traffic flows from commuter travel movements caused by people using Waterbeach rail station. Commuting activity and use of the station also means in the area along Station Road near the existing Waterbeach station experiences high parking demand.

Waterbeach is served by bus routes 9 and 19. Route 9 Cambridge-Littleport, has services every hour and has a stop on Station Road (at the junction with Lode Road). Route 19 Landbeach-Cambridge operates twice in the morning, at 7:00 and 9:30, and twice in the afternoon at 12:30 and 17:55 and stops on the High Street and Bannold Road. Both routes have stops on Denny End Road. The routes are shown in the figure for Waterbeach.

Currently the village has poor cycling infrastructure beyond the A10 path and Haling Way; both paths have been reported to be narrow and inconvenient and overall unsuitable for cyclists' safety<sup>8</sup>.

Hall Farm Stables located to the south of the village of Waterbeach, just off the A10, provides riding lessons across a 14ha site.

A series of PRoW cross Waterbeach to join bridleway 247/10 on the west bank of the River Cam and are illustrated on the Waterbeach figure.

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<sup>7</sup> Vehicular traffic flow information for Waterbeach includes review of the Waterbeach New Town East Transport Assessment. Available at: [https://www.greatercambridgeplanning.org/media/1756/es\\_appendix\\_81\\_-\\_transport\\_assessment\\_volume.pdf](https://www.greatercambridgeplanning.org/media/1756/es_appendix_81_-_transport_assessment_volume.pdf)

<sup>8</sup> Information on the A10 and Haling Way is based on Waterbeach Cycling Campaign's response to the Waterbeach Cambridge 2020 Consultation, available at: <http://www.waterbeachcc.com/index.html>

Waterbeach New Town<sup>9</sup> development proposals (S/2075/18/OL<sup>10</sup> and S/0559/17/OL<sup>11</sup>) are proposed in land located to the north of the existing settlement of Waterbeach. These proposals consist of:

- residential development of around 11,000 new homes in total (over both east and west sites)
- retail uses, primary and secondary schools and a sixth form centre
- office space
- community, recreation, and leisure space.

In relation to the strategic development proposals an application (S/0791/18/FL<sup>12</sup>) has been submitted to relocate Waterbeach Rail Station from its existing site at Station Road to a new site east of Bannold Drove. Upon relocation, the existing station would be closed. The new station would be located immediately adjacent to the Waterbeach New Town development. The timing of these proposals is uncertain; however, it is reasonable to expect that they could affect the numbers of vehicles using the local road network at the time when the Proposed Development is in construction.

Table 3 summarises information collected in relation to vehicular traffic flows within the area of Waterbeach.

*Table 3 AM peak (08:00 – 09:00) and PM peak (17:00 – 18:00) traffic flows in Waterbeach*

| Road                                   | AM Peak (08:00 – 09:00) |     | PM Peak (17:00 – 18:00) |     |
|----------------------------------------|-------------------------|-----|-------------------------|-----|
|                                        | Car/Van                 | HGV | Car/Van                 | HGV |
| Denny End Road Eastbound               | 302                     | 12  | 156                     | 2   |
| Denny End Road Westbound               | 168                     | 10  | 360                     | 4   |
| Bannold Road Westbound                 | 39                      | 2   | 18                      | 0   |
| Bannold Road Eastbound                 | 25                      | 2   | 44                      | 0   |
| Car Dyke Road Westbound                | 115                     | 0   | 83                      | 2   |
| Car Dyke Road Eastbound                | 89                      | 2   | 122                     | 0   |
| Station Road/Clayhithe Road Southbound | 247                     | 2   | 137                     | 0   |
| Station Road/Clayhithe Road Northbound | 116                     | 1   | 288                     | 1   |
| Burgess Road Westbound                 | 7                       | 0   | 10                      | 0   |
| Burgess Road Eastbound                 | 11                      | 0   | 6                       | 0   |

<sup>9</sup> More information on Waterbeach New Town available at: <http://www.waterbeach.co.uk/>

<sup>10</sup> S/2075/18/OL refers to the planning application reference submitted to the relevant local authorities. The application outcome can be found at: <https://scambs.moderngov.co.uk/ieDecisionDetails.aspx?AllId=87494>

<sup>11</sup> S/0559/17/OL refers to the planning application reference submitted to the relevant local authorities. The application outcome can be found at: <https://scambs.moderngov.co.uk/ieDecisionDetails.aspx?Id=11063>

<sup>12</sup> S/0791/18/FL refers to the planning application reference submitted to the relevant local authority. The application outcome can be found at: <https://scambs.moderngov.co.uk/ieDecisionDetails.aspx?AllId=74679>

Source: Mott MacDonald

Table 3 provides an overview of the observed flows during the peak hours for various roads in the settlement of Waterbeach. As an example, this data should be interpreted as there being 302 cars and vans and 12 HGVs in the AM peak (08:00-09:00) and 156 cars and vans and 2 HGVs in the PM peak (17:00-18:00).



Table 4 below shows the peak pedestrian and cyclists flow along the surveyed area.

*Table 4 AM peak (08:00 – 09:00) and PM peak (17:00 – 18:00) pedestrian and cycle flows in Waterbeach*

| Location                             | Pedestrians |         | Cyclists |         |
|--------------------------------------|-------------|---------|----------|---------|
|                                      | AM Peak     | PM Peak | AM Peak  | PM Peak |
| Denny End Road / Bannold Road        | 13          | 25      | 0        | 0       |
| Cambridge Road (near Green Side)     | 35          | 45      | 0        | 0       |
| Chapel Street (near St Andrews Hill) | 58          | 27      | 2        | 4       |

Source: Mott MacDonald

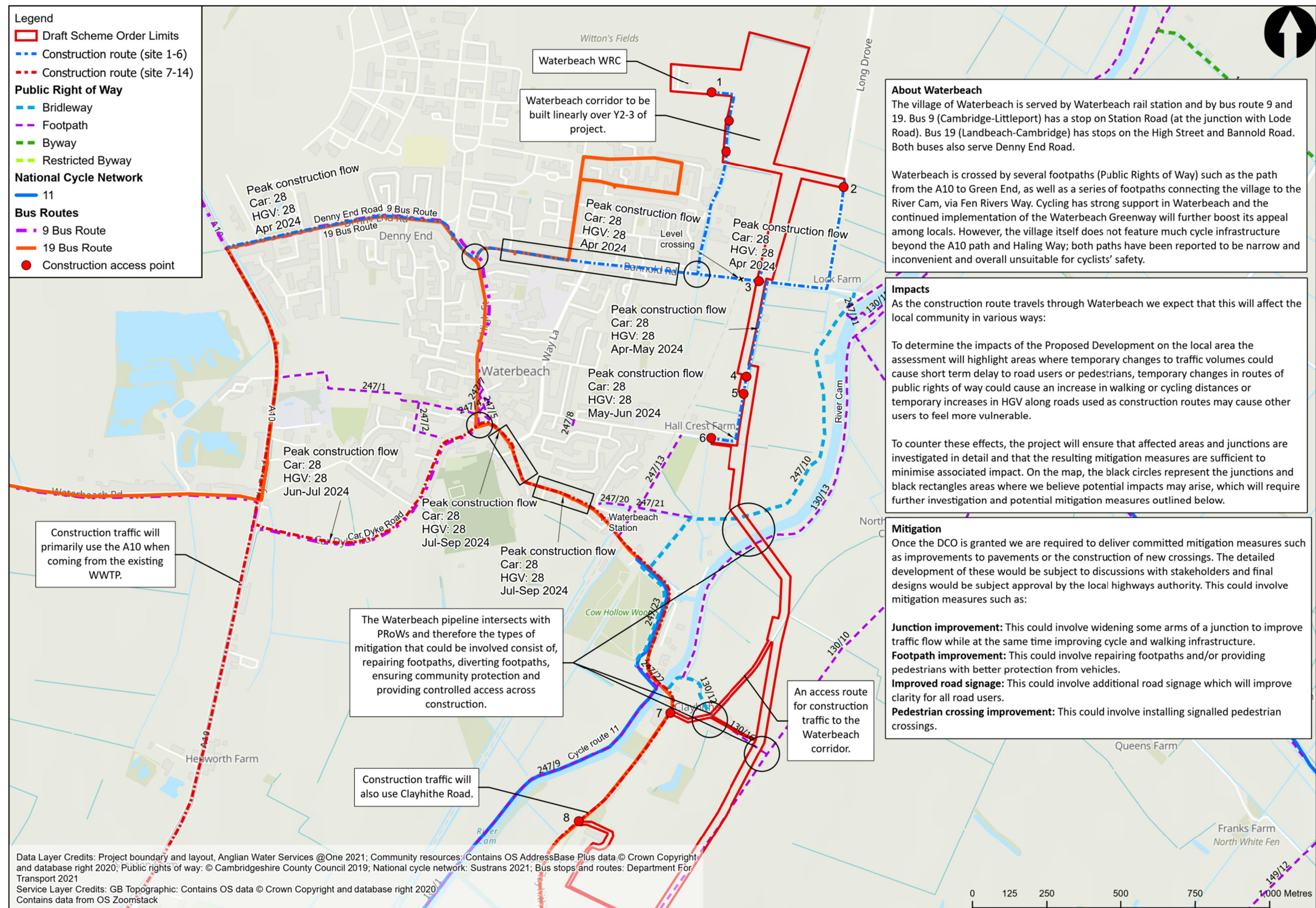


Figure 1 Waterbeach and Clayhithe: Transport baseline, construction impacts and proposed mitigation

## Horningsea and Fen Ditton

Figure 2 and Figure 3 sets out the local transport network around Fen Ditton and Horningsea including roads, cycleways, footpaths, public transport, and parking facilities.

Low Fen Drove Way is a byway (Horningsea 17 byway) to the south of Horningsea and is open to all traffic. The byway meets Biggin Lane and B1047 Horningsea Road at the northern entrance of Low Fen Drove Way.

Fen Ditton Road and B1047 Horningsea Road are 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.

The area surrounding the settlements of Fen Ditton and Horningsea feature a range of cycling infrastructure, with a shared use pedestrian and cycleway — the Fen Ditton to Horningsea Cycleway — approximately 2km in length and located to the west of Horningsea Road, planned to become part of the Horningsea Greenway. This will provide wider connections to other Greenways, notably the proposed Waterbeach and Bottisham Greenway and the recently completed Chisholm Trail<sup>13</sup>.

A series of PRoW cross Horningsea to join the footpath on the east bank of the River Cam, as shown in Figure 2.

For more detail on equestrian recreational activities, please see the Environmental Information Paper: Recreation.

Table 5 and Table 6 below summarise information collected in relation to traffic flows within the area of Horningsea near Junction 34.

*Table 5 AM peak (08:00 – 09:00) and PM peak (17:00 – 18:00) traffic flows on Horningsea Road*

| Road                             | AM Peak (08:00 – 09:00) |      | PM Peak (17:00 – 18:00) |      |
|----------------------------------|-------------------------|------|-------------------------|------|
|                                  | Cars/vans               | HGVs | Cars/vans               | HGVs |
| B1047 Horningsea Road northbound | 122                     | 39   | 255                     | 30   |
| B1047 Horningsea Road southbound | 236                     | 41   | 126                     | 13   |

Source: Mott MacDonald

*Table 6 AM peak (08:00 – 09:00) and PM peak (17:00 – 18:00) traffic flows on the A14 on-slip and off-slip roads*

| Road              | AM Peak (08:00 – 09:00) |      | PM Peak (17:00 – 18:00) |      |
|-------------------|-------------------------|------|-------------------------|------|
|                   | Cars/vans               | HGVs | Cars/vans               | HGVs |
| A14 on-slip road  | 394                     | 74   | 563                     | 64   |
| A14 off-slip road | 460                     | 110  | 412                     | 41   |

Source: Mott MacDonald

<sup>13</sup> For more information on the Chisholm Trail scheme, please see:  
<https://www.greatercambridge.org.uk/transport/transport-projects/chisholm-trail>

Table 5 and Table 6 should be read similarly. For example, on B1047 Horningsea Road, traffic surveys have observed 122 cars and vans and 39 HGVs in the AM peak (08:00-09:00), and 255 cars and vans and 30 HGVs in the PM peak (17:00-18:00).



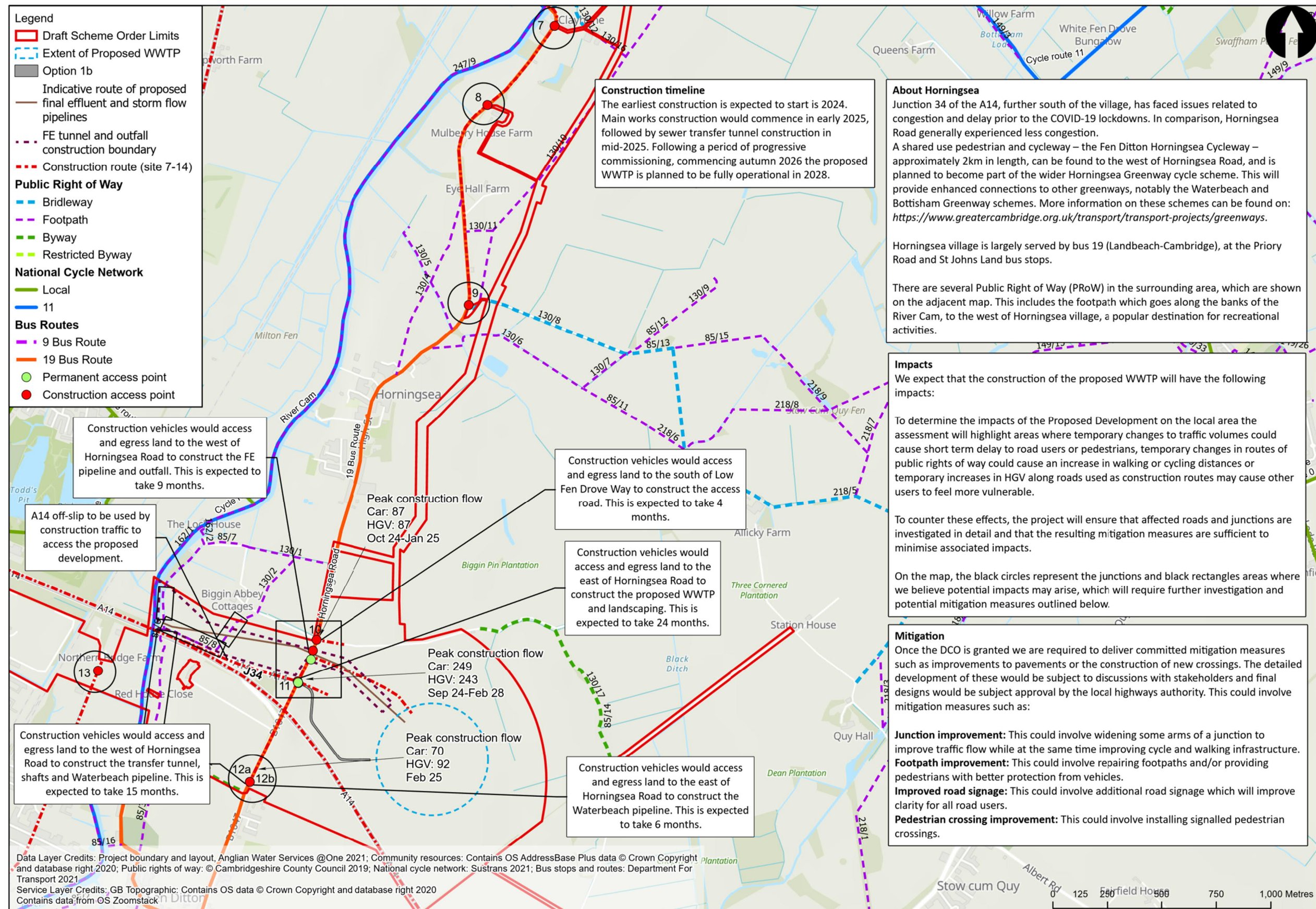


Figure 2 Horningsea: Transport baseline, construction impacts and proposed mitigation



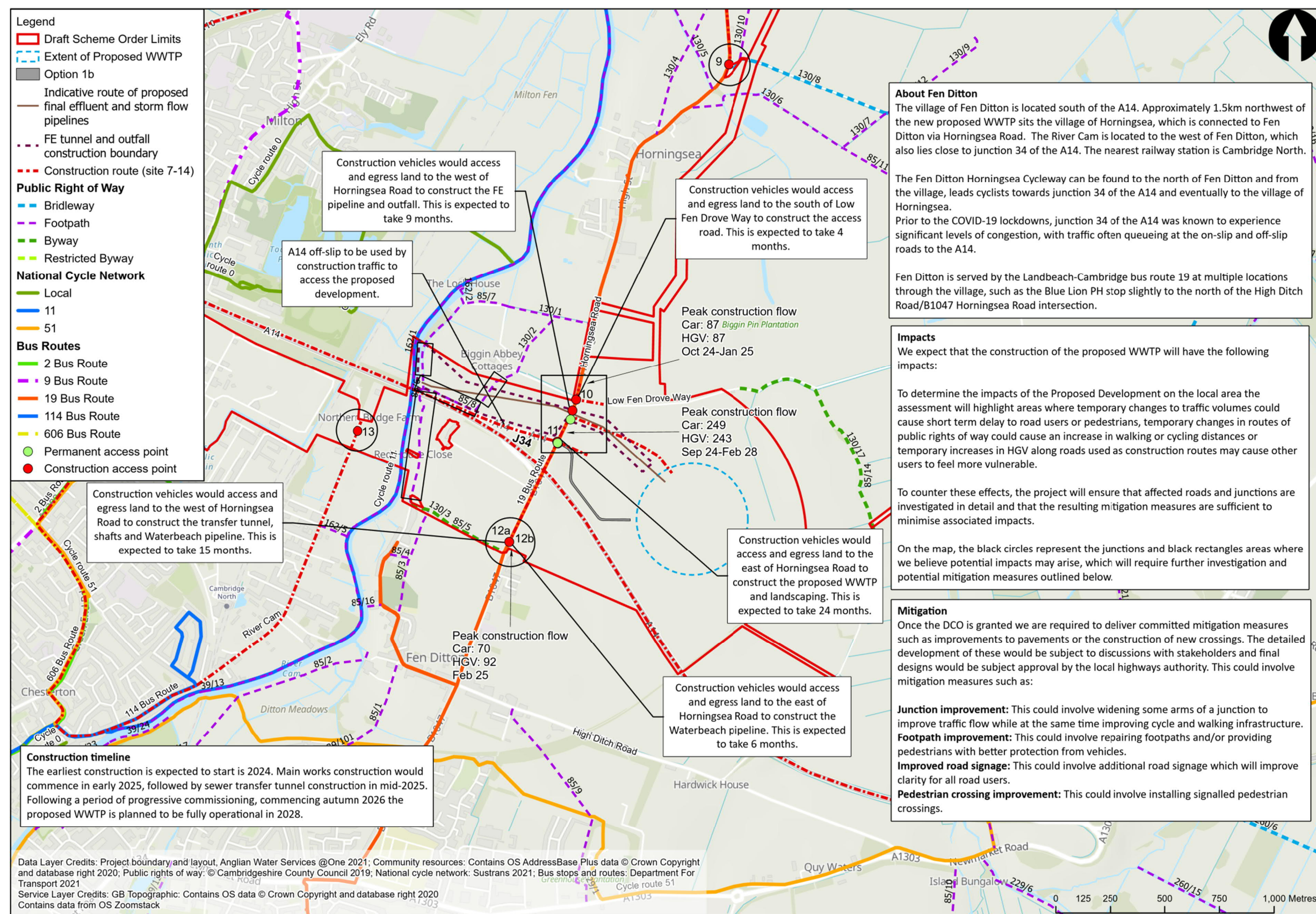


Figure 3 Fen Ditton: Transport baseline, construction impacts and proposed mitigation



## Milton

Figure 4 illustrates details for Milton setting out the local transport network including roads, cycleways, footpaths, and public transport.

The A10 runs to the west of Milton and the A14 immediately to the south via Junction 33 (the Milton Interchange) of the A14.

Milton is served by two bus routes; the hourly Milton-Cambridge city centre bus route 9 and bus route Citi 2. The latter provides a service between Milton and Cambridge in the morning peak and from Cambridge to Milton in the evening peak, and on to Waterbeach and Landbeach. During the day, the service starts from Cambridge and terminates at the Science Park.

The nearest railway station is Cambridge North which is approximately 1km from the existing Cambridge WWTP.

NCR11 and NCR51 run through or near Milton and are shown on the Figure 4.

The Jane Coston Cycle Bridge provides a connection between Milton and Chesterton and is connected to the wider cycle network. The bridge can be accessed from the south of the A14 via Cowley Road and connects to Cambridge Road north of the A14.

Fen Road, from High Street, is connected to footpath 162/1 on the west bank of the River Cam. It is possible to cross the river via the Baits Bite Lock, at which point the footpath continues via Biggin Lane and eventually intersects with Horningsea Road. For further information on the use of the PRow, please refer to the Environmental Information Paper: Recreation.

Table 7 below summarises information we have collected in relation to traffic flows for the Milton Interchange J33. The data below represents incoming traffic and does not include traffic exiting junction 33 (the Milton Interchange) of the A14.

*Table 7 AM peak (08:00-09:00) and PM peak (17:00 – 18:00) traffic flows for the Milton Interchange J33*

| Road                       | AM peak (08:00 – 09:00) |     | PM peak (17:00 – 18:00) |     |
|----------------------------|-------------------------|-----|-------------------------|-----|
|                            | Cars/vans               | HGV | Cars/vans               | HGV |
| Milton Interchange Arm (N) | 922                     | 63  | 880                     | 42  |
| Milton Interchange (NE)    | 446                     | 9   | 563                     | 3   |
| Milton Interchange Arm (E) | 934                     | 20  | 578                     | 10  |
| Milton Interchange Arm (S) | 727                     | 66  | 1469                    | 10  |
| Milton Interchange Arm (W) | 1328                    | 84  | 524                     | 32  |

Source: Mott MacDonald

Table 7 provides a summary of the observed flows on Junction 33 (the Milton Interchange) of the A14. This data should be read as traffic surveys have observed 922 cars and 63 HGVs in the AM peak (08:00 – 09:00), and 880 cars and 42 in the PM peak (17:00 – 18:00) on the northern arm of the Milton Interchange/A10

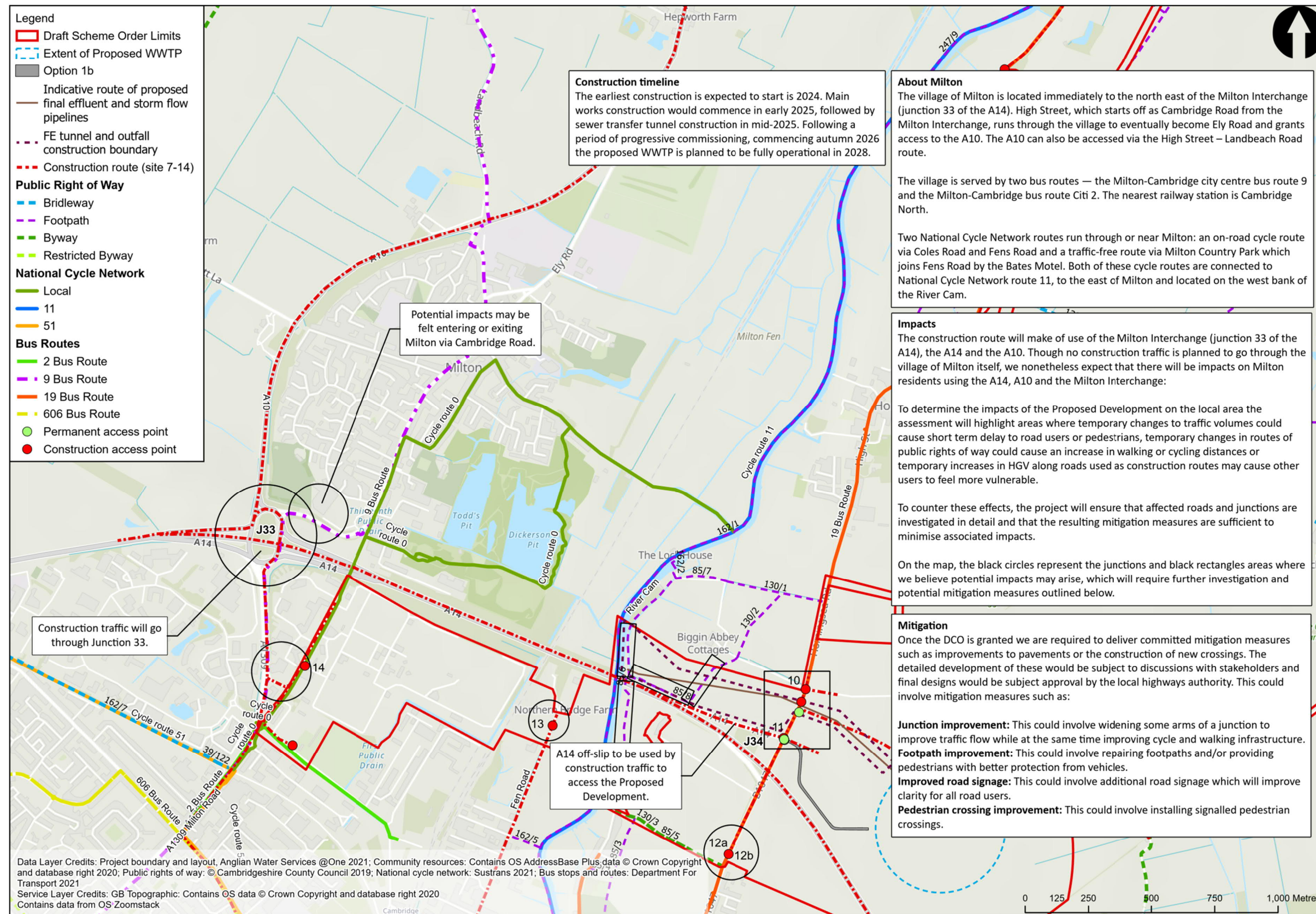


Figure 4 Milton: Transport baseline, construction impacts and proposed mitigation



## Chesterton

Figure 5 illustrates the transport network of roads, bus routes, cycle routes and PRow. The suburb of Chesterton is served by two buses: the Citi 2 bus route and bus route 114 Cambridge city centre-Addenbrookes. Bus 114 operates on weekdays only between 09:30 and 13:45, every 45 minutes or an up to an hour.

NCR 11 and NCR 51 run through Chesterton. Both cycle routes are often used recreationally<sup>14</sup> and in the case of route 51, provides a connection to other town and cities. The Jane Coston Cycle Bridge provides a connection between Chesterton and Milton and is connected to the wider proposed Waterbeach Greenway<sup>15</sup>.

The nearest railway station to Chesterton is Cambridge North, which is also in close proximity to the land required for the construction of the Transfer tunnel and southern extent of the Waterbeach pipeline. There is a level crossing located on Fen Road, south of Cambridge North railway station.

Footpath 162/1 and footpath 39/13 are located on the west bank of the River Cam and are connected to Fen Road. These sections of footpath form part of the Fen Rivers Way.

A newly built cycle way, the Chisholm Trail, crosses over the River Cam via the newly built Abbey-Chesterton Bridge and forms part of the wider cycle network.

Table 8 below summarises information we have collected in relation to traffic flows within the area of Chesterton. This table should be interpreted as traffic surveys have observed 500 cars and vans and 14 HGVs in the AM peak (08:00-09:00), and 275 cars and vans and 4 HGVs in the PM peak (17:00-18:00) on Green End Road going westbound.

*Table 8 AM peak (08:00-09:00) and PM peak (17:00-18:00) traffic flows in Chesterton*

| Road                     | AM peak (08:00-09:00) |     | PM peak (17:00-18:00) |     |
|--------------------------|-----------------------|-----|-----------------------|-----|
|                          | Cars/vans             | HGV | Cars/vans             | HGV |
| Green End Road westbound | 500                   | 14  | 275                   | 4   |
| Green End Road eastbound | 372                   | 17  | 314                   | 8   |
| Water Lane northbound    | 187                   | 6   | 155                   | 0   |
| Water Lane southbound    | 126                   | 7   | 188                   | 1   |

Source: Mott MacDonald

<sup>14</sup> More information on these cycle routes available at:  
<https://www.nationaltrust.org.uk/anglesey-abbey-gardens-and-lode-mill/trails/cycle-route-from-cambridge-city-centre-to-anglesey-abbey>

<sup>15</sup> More information on the Waterbeach Greenway available at:  
<https://www.greatercambridge.org.uk/transport/transport-projects/greenways/waterbeach-greenway>



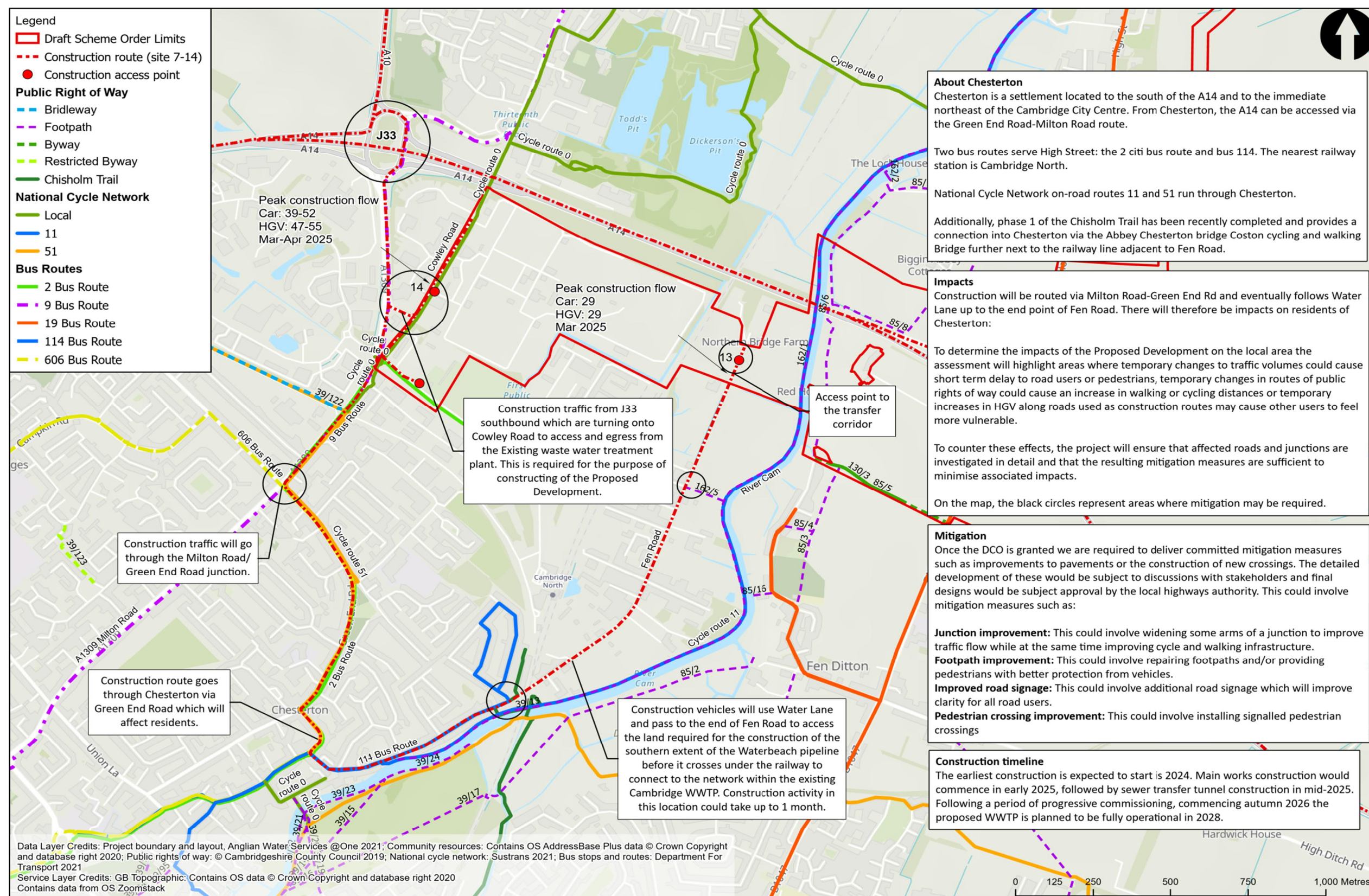


Figure 5 Chesterton: Transport baseline, construction impacts and proposed mitigation



## How will the construction of the proposed relocation of Cambridge Waste Water Treatment Plant affect users of traffic and transport infrastructure during construction?

The potential impacts to traffic and transport and the effects on people during the construction of the Proposed Development are discussed below. These do not take account of measures we will put in place to prevent and minimise impacts. Our proposed approach to mitigation is set out separately in *How will we manage our development activities to avoid, reduce or offset adverse changes to traffic and transport?*

### Preliminary modelling activities and impact types

Preliminary modelling has been undertaken<sup>16</sup> to understand how the proposed WWTP access arrangement could affect the surrounding road network, further detail on modelling method is provided in Appendix A.1 of this paper.

For the other construction access locations, a review of existing base line traffic flow and the indicative construction peak flow has been undertaken to determine the initial view of level of impact and where mitigation will be required.

The modelling and review has considered the construction access routes that will temporarily be used to provide access to the Proposed Development in construction (these are shown on the figure '*Construction and Access*' in the PEI Introductory Paper) and the potential interaction with existing users. As part of the technical appraisal process the way the road network will be impacted is described in the following ways (Table 9).

For readers of this paper not familiar with the way impacts are described they are a way of defining how changes from construction could affect a typical user of a route in terms of increase or decrease in journey time on that route, the likelihood of an increase or decrease in accidents, the level of comfort a user feels on a route and how vehicle volumes may be changed or added that affects a person's choice of routes.

Table 9 Definition of impacts

| Impact        | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Journey delay | <p>A temporary increase in vehicles on the road, including HGVs and light goods vehicles (LGV), may result in delays for all road users. These delays can be expressed in additional duration in minutes that people would experience when compared to the existing situation. Journey delay may result for example through:</p> <ul style="list-style-type: none"> <li>the use of temporary signals for safety reasons/to manage temporary lane closures</li> </ul> |

<sup>16</sup> Background information on our preliminary modelling is provided in the Preliminary modelling overview section in this paper.

| Impact                | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | <ul style="list-style-type: none"> <li>• temporary diversions to direct people away from areas of construction (this may be diversions to roads, pavements, and PRoW)</li> <li>• contribution to volume of traffic by the presence of construction traffic</li> <li>• temporary or permanent speed restrictions</li> </ul> <p>The severity of delay would be variable depending on the location and time of day/ season (i.e., some holiday periods may experience a disproportionate likelihood of delay compared to the rest of the year)</p>                                                                                                                                                                                                                                                                                                                                                                         |
| Accidents             | <p>An increase in HGVs on the strategic road network and local road network may lead to an increased likelihood of accidents and impact on all road users. These risks are assessed through combination of modelling outputs and through the completion of safety audits to understand how changes to the road and increased movement of vehicles may affect safety. This requires professional judgement based on an understanding of local factors they may have a bearing on accident potential, as per GEART (1993) guidelines.</p>                                                                                                                                                                                                                                                                                                                                                                                 |
| Fear and intimidation | <p>People using the roads, pavements, cycleway may have increased fear as a result of changes due to a number of matters. These may include but are not limited to the presence of other vehicles, changes to sight distances, the anticipation of pedestrians stepping into the road, the presence or absence of safety barriers, poor or different lighting, the width of the road, the absence of lane markings/ cat's eyes (road studs) /safe stopping places/ hard shoulder.</p> <p>The severity is difficult to categorise and would be variable depending on the site specific conditions, time of day/night, experience of the individual (in the case of cyclist, horse rider, motorist).</p> <p>Differentiation on the severity of the impact can be attributed to change in traffic or HGV movements however professional judgement should also be taken into account to consider local characteristics.</p> |
| Severance             | <p>The use of temporary traffic management measures on the strategic road network may result in a potential impact on severance to road users including pedestrians, cyclists, and equestrians. Severance is the term used to describe the effect of the presence of transport infrastructure or motorised traffic on the perceptions, behaviour, and wellbeing of people who use the surrounding areas) including for recreation) or need to make trips along or across that infrastructure or traffic.</p> <p>Differentiation on the severity of the impact can be attributed to change in traffic or HGV movements however professional judgement should also be taken into account to consider local characteristics.</p>                                                                                                                                                                                           |

Source: Guidelines for the Environmental Assessment of Road Traffic 1993 and Mott MacDonald



The types of impacts experienced in different locations within the study area for traffic and transport are indicated in figures below and are represented by highlighted areas (with a black bordered circle or rectangle) at junctions or on sections of the construction route.

- the settlement of Waterbeach, supported by Figure 1
- the settlements of Horningsea and Fen Ditton, supported by Figure 2 and Figure 3
- the settlement of Milton, supported by Figure 4
- Chesterton, supported by Figure 5

### Sources of impact and locations

The following list identifies activities impacting the study area. This includes the use of the existing local and strategic road network for construction vehicle access.

- Construction movements which 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 transfer tunnel and the southern section of the Waterbeach pipeline (land to the west of Horningsea Road) to the area of land required for the proposed WWTP and landscaping.
  - movement of waste from the Proposed Development construction locations.
  - the movement of some materials to construction areas that are classed as dangerous loads<sup>17</sup> or that are classed as abnormal loads<sup>18</sup>. It is likely that abnormal loads will be required for access platforms, process tanks, and pipe bridges.
- 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, transfer tunnels and for temporary compound areas
  - temporary use of land for haul routes
  - open cut excavation crossing Horningsea Road to install final effluent pipeline
  - use of existing level crossings as part of the construction route (see figures for Waterbeach and Chesterton)

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<sup>17</sup> These range from those which are classed as highly dangerous (such as explosives, acid, or flammables) to everyday products such as paints and solvents found in the home and at work. When transported, these goods need to be packaged correctly as required in various international and national regulations for each mode of transport to ensure that they are carried safely to minimise the risk of an incident.

<sup>18</sup> Vehicles that meet one or more of the following aspects:

- a weight of more than 44,000kg
- an axle load of more than 10,000kg for a single non-driving axle and 11,500kg for a single driving axle
- a width of more than 2.9 metres
- a rigid length of more than 18.65 metres

- use of tall equipment such as cranes or elevated platforms within the aviation safeguarding zone.

Based on the above set of activities, the following general impacts would be likely to occur:

- disruption to some existing roads, PRow, footways, and cycleways as a result of the construction footprint of the Proposed Development.
- interface with the existing railway, the A14 and the River Cam navigation for works to pass new structures underneath these features.
- short term increase in tall equipment within the aviation safeguarding zone
- temporary restriction of the navigational width of the River Cam during works to construct the new treated effluent transfer pipeline outfall.

The effects on users of the local transport infrastructure are identified as:

- temporary increase in traffic volumes in some locations that could result in some travel delays to road users
- temporary increase in queueing at level crossings that could result in short term congestion and delays to road users
- temporary disruption to the PRow network that could result in increased journey lengths with longer and potentially less pleasant journeys for pedestrians and cyclists
- temporary increase in HGV movements in some locations that may result in other road or footway users feeling less comfortable using the route

Where an impact is defined as short, medium, or long term, this is based on the duration of the work. Short term is work taking up to six months, medium term is work taking over 6 months but less than 12. Long term is used to described works of over one year.

The specific impacts to traffic and transport resources used by people are outlined below by settlement.

#### [Waterbeach and Clayhithe](#)

Bridleway 247/10 and footpath 130/13 located on the west and east bank of the River Cam will require the use of controlled crossings for small intervals in the short term due to the construction of the Waterbeach pipeline.

Footpath 130/10 and 130/16, to the east Clayhithe will require the use of controlled crossings for short periods due to the construction of the Waterbeach pipeline.

Traffic increase associated with the Proposed Development on Bannold Road, Station Road, and Clayhithe Road would likely cause some medium term minor<sup>19</sup> impacts, such as an increase in walking or cycling distances, temporary increases in HGV along roads used as construction routes, and an increase in traffic which has the potential to cause other users to feel more vulnerable.

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<sup>19</sup> To be based on the Guidelines for the Environmental Assessments of Road Traffic (1993) with full assessment to be presented in the Environmental Statement.

### Horningsea and Fen Ditton

Footpath 130/10 to the east of Clayhithe, will require the use of controlled crossings for small intervals in the short term due to the construction of the Waterbeach pipeline.

Bridleway 130/8 and footpath 130/6, to the north of Horningsea, will require the use of controlled crossings in small intervals and some temporary realignment to the side of the area under construction for the short term the construction of the Waterbeach pipeline.

During the construction of new pipelines and transfer tunnels, and the associated use of the land for construction means that there will be disruption to PRow 85/6, on the east bank of the River Cam and south of Baits Bite Lock, where access will be possible through the use of controlled crossing points during the construction of the new outfall.

The Proposed Development will result in a series of construction works to the B1047 Horningsea Road, which will mean that there is likely to be traffic volume increases as a result of construction movements. Specific activities are:

- the construction of the new vehicular access road connecting the proposed WWTP to the existing signalised junction on B1047 Horningsea Road. It is expected that this would require temporary traffic control to complete works to the signalised junction and works to extend street lighting to the junction with Low Fen Drove Way
- construction of the final effluent transfer pipeline which will cross over B1047 Horningsea Road. The works to install the pipeline are expected to take up to nine months with short term temporary lane closures and temporary traffic control to allow safe construction on B1047 Horningsea Road
- construction of the proposed improvements to the shared pedestrian/cycleway on the western side of B1047 Horningsea Road, works to construct the new section of pavement on the western side of the B1047 Horningsea Road, and works to construct the new crossing island.

The specific locations of these impacts are shown in the figures for Horningsea and Fen Ditton, with locations highlighted by a black rectangle or circle.

In addition, there are locations along the B1047 Horningsea Road where construction traffic will access and egress land required for the construction of the Proposed Development.

The locations, as well as the associated construction work at each location, are detailed below:

- Site access point 10 - Low Fen Drove Way: construction vehicles would access and egress land to the south of Low Fen Drove Way to construct the access road. This is expected to take around four months.
- Plant crossing - south of Low Fen Drove Way: construction vehicles would use this point to cross over Horningsea Road from the final effluent transfer pipeline to the proposed WWTP to construct the final effluent pipeline and outfall. This work is expected to take around nine months, including some short term traffic signal control of Horningsea Road



- Site access point 11 - access - Junction 34: construction vehicles would access and egress land to the east of Horningsea Road to construct the proposed WWTP and landscaping. This is expected to take around 24 months.
- Site 12a - Horningsea Road south: construction vehicles would access and egress land to the west of Horningsea Road to construct the Transfer tunnel, shafts and Waterbeach pipeline. This is expected to take around 15 months.
- Site 12b - Horningsea Road south: construction vehicles would access and egress land to the east of Horningsea Road to construct the Waterbeach pipeline. This is expected to take around six months.

Traffic increases and temporary changes in road layouts associated with the construction work is likely to cause some medium to long term minor impacts such as an increase in walking or cycling distances, temporary increases in HGV along roads used as construction routes, and an increase in traffic which has the potential to cause other users to feel more vulnerable.

### Milton

Construction traffic for the Waterbeach pipeline will use the A10 via Junction 33 (the Milton Interchange) of the A14 to access its associated construction sites.

No direct impacts as a result of construction traffic movements to people living and working within Milton are identified because the A10 has sufficient capacity to accommodate these additional traffic movements.

There will be impacts to footpath users through Baits Bite lock on the eastern side of the River Cam due to the works on the final effluent transfer tunnel, as noted in the Horningsea and Fen Ditton section.

Further, there may be some impacts on users of the pedestrian and cycle bridge link to Cowley Road (see the Chesterton section of this paper).

Construction vehicles will use Junction 33 (the Milton interchange) of the A14 and the A10 to access different parts of the Proposed Development while it is being constructed, which includes:

- construction sites for the Waterbeach Pipeline
- construction works along Horningsea Road
- construction vehicles passing through Chesterton via Milton Road, Green End Road, and Water Street to access land at the end of Fen Road.

Temporary traffic increase associated with the Proposed Development on the above roads would likely cause some medium to long term minor impacts, such as temporary increases in HGV along roads used as construction routes, and an increase in traffic which has the potential to cause other road users to feel more vulnerable.

## Chesterton

There is likely to be short term temporary impacts to users of the Chisholm Trail and of footway users where they cross Fen Road due to construction traffic.

People using Fen Road (motorists, walkers, cyclists, equestrians) would be likely to see impacts of around one month. Pedestrians, cyclists, and vehicles on Fen Road, Green End Road, Milton Road and Cowley Road will experience medium term impacts due to the construction traffic using this route, such as an increase in walking or cycling distances, temporary increases in HGV along roads used as construction routes, and an increase in traffic which has the potential to cause other users to feel more vulnerable.

The following sections provides more information on the proposed construction access routes to the Proposed Development.

### Impacts associated with construction of the preferred permanent access

#### Preferred Site Access to the Proposed WWTP

The preferred access to the proposed WWTP is via an additional arm to the existing signalised junction on B1047 Horningsea Road (known as Option 1b). The Alternatives section of the introductory document as part of the PEI sets out the access variations that have been considered from Horningsea Road. Option 1b was chosen after a range of possible vehicle access options were explored, including through engagement with stakeholders<sup>20</sup> (see Appendix A.2). Please refer to the Phase Three Community Consultation Leaflet for more information the selection of the permanent access to the proposed WWTP.

The proposed vehicular access will be constructed at the start of the construction phase to provide a dedicated access for construction and then operation. Before this permanent access is completed a temporary access will be required. The temporary construction access will be via Horningsea Road using the existing Low Fen Drove Way to access a temporary site compound. This temporary construction access will use the existing junction of B1047 Horningsea Road and Low Fen Drove Way in part. The access will be designed to segregate vehicles (delivery vehicles, private cars, and HGV) from pedestrians, cyclists, and equestrians. During this time, a temporary diversion of Low Fen Drove Way will be required to segregate pedestrians, cyclists, and equestrians.

As previously set out in the Horningsea and Fen Ditton section, this permanent access is shown in Figure 2. Temporary traffic management measures will be put in place during construction of the new access road. This could involve short term control by temporary signals on the B1047 Horningsea Road for safe construction activities. These in turn may result in journey delay to people using B1047 Horningsea Road.

Other temporary construction works on the B1047 Horningsea Road will involve short-term construction work of the treated effluent discharge outfall to the River Cam<sup>21</sup>.

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<sup>20</sup> A list of stakeholders is provided in Appendix A.2

<sup>21</sup> Treated effluent pipelines refer to pipelines that convey final effluent and storm flows to an outfall structure.

The short term works would require traffic-signal control of Horningsea Road. This is shown in Figure 2.

### Understanding traffic movements and impacts to users of the transport network

For the Proposed Development, we have undertaken preliminary traffic modelling<sup>22</sup> of the proposed WWTP access junction to understand how the proposed access arrangements could affect the surrounding road network.

For the other construction access locations, a review of existing base line traffic flow and the indicative construction peak flow has been undertaken to determine the initial view of level of impact and mitigation that will be required.

The construction routes are shown in each of the figures 1 to 5 with points labelled as Site access 1-15. These correspond to the locations of the construction site access points that vehicles access and egress for the duration of construction.

### Horningsea and Fen Ditton

Figure 2 and Figure 3 shows the routes that construction vehicles will take, indicating that no construction vehicles will go through either settlement, as agreed during our Phase 2 Consultation.

The expected duration for the construction vehicles along B1047 Horningsea Road is from 2024 to 2028. With the peak construction period for the Proposed Development expected in June 2025. The peak construction traffic period for the proposed WWTP is detailed in Table 10 below:

Table 10 Indicative construction vehicle movements during the June 2025 peak construction period

| Vehicle type | AM Peak (08:00-09:00) |           |       | PM Peak (17:00-18:00) |           |       | Peak Month daily traffic |           |       |
|--------------|-----------------------|-----------|-------|-----------------------|-----------|-------|--------------------------|-----------|-------|
|              | Arrival               | Departure | Total | Arrival               | Departure | Total | Arrival                  | Departure | Total |
| Cars and LGV | 32                    | 0         | 32    | 0                     | 96        | 96    | 125                      | 124       | 249   |
| HGV          | 18                    | 18        | 36    | 0                     | 0         | 0     | 121                      | 122       | 243   |
| Total        | 50                    | 18        | 68    | 0                     | 96        | 96    | 246                      | 246       | 492   |

Source: @One Alliance

During the peak construction period in June 2025, the preliminary traffic review indicates that a total of 68 vehicle movements<sup>23</sup> will occur in the AM peak (08:00-09:00). A total of 96 vehicle movements will occur in the PM peak (17:00-18:00).

Over the course of a day during the June 2025 peak construction period, 246 vehicles will arrive to the site and 246 vehicles will depart from the site, for a daily total of 492 vehicles.

<sup>22</sup> Background information on our preliminary modelling is provided in the Appendix A.1 of this paper.

<sup>23</sup> A vehicle movement is counted as one movement each time a vehicle enters or leaves the site.



### Waterbeach and Clayhithe

During the construction of the Waterbeach pipeline, peak construction vehicles movements will occur from April 2024 to August 2024 based on the Construction Timeline in the PEI Introductory Paper. Table 11 shows the Waterbeach pipeline construction routes and the daily average vehicle movements associated with construction.

The construction traffic through Waterbeach uses two routes, one using Denny End Road and Bannold Road the other Car Dyke Lane following through Cambridge Road, Station Road and to Clayhithe Road.

*Table 11 Indicative vehicle movements on construction routes for the Waterbeach pipeline*

| Route                            | Indicative peak predicted daily vehicle movements |      |               |      |                       | Peak Month             | Total Duration          |
|----------------------------------|---------------------------------------------------|------|---------------|------|-----------------------|------------------------|-------------------------|
|                                  | Arrival                                           |      | Departure     |      | Total daily movements |                        |                         |
|                                  | Cars/<br>vans                                     | HGVs | Cars/<br>vans | HGVs |                       |                        |                         |
| Ely Rd, Denny End Rd, Bannold Rd | 14                                                | 14   | 14            | 14   | 56                    | April 2024– May 2024   | April 2024 – April 2025 |
| Ely Rd, Car Dyke Rd, Station Rd  | 14                                                | 14   | 14            | 14   | 56                    | May 2024 – August 2024 |                         |

Source: Mott MacDonald

Table 11 illustrates the peak construction traffic going through Ely Road, Denny End Road, and Bannold Road, for an indicative one month duration. Then the route changes to Car Dyke Road and Station Road for around four-month duration. During this peak 14 cars/vans and 14 HGVs will arrive and leave the construction site on a daily basis.

The peak construction traffic will be during spring and summer 2024 with lower levels of construction movements in Waterbeach between 2024-2025 for the duration of the construction work.

Figure 6 below provides an indicative hourly arrival and departure profile during the construction period:

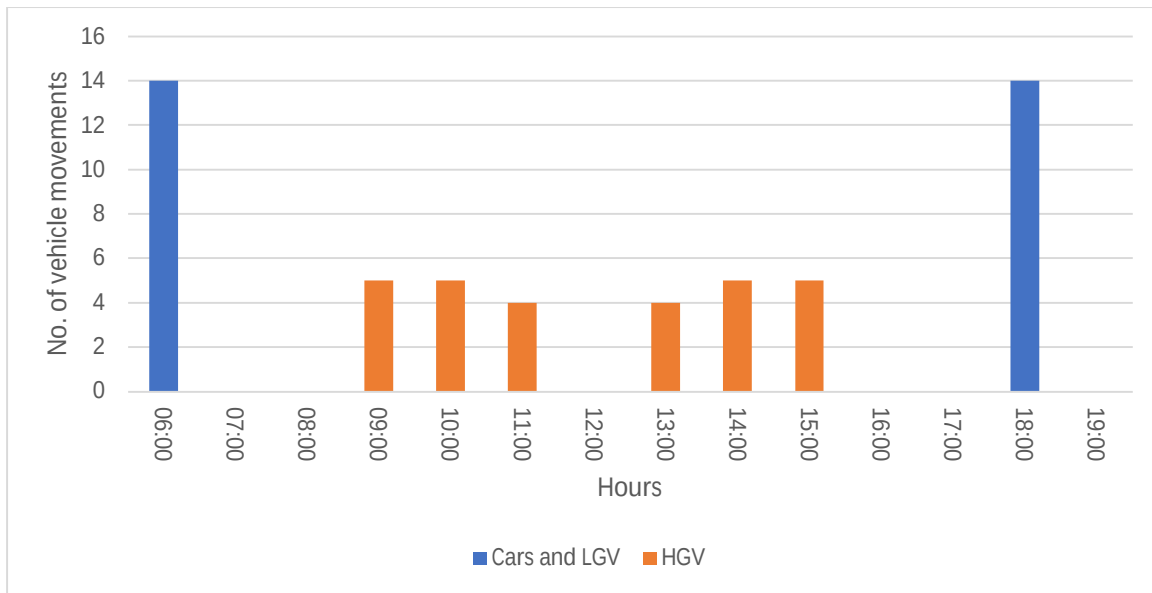


Figure 6 Hourly profile of vehicle movements during peak construction period

Source: Mott MacDonald

Cars are expected to arrive between 06:00-07:00 and leave between 18:00-19:00. HGVs are expected to arrive and depart between 09:00 and 15:00. Therefore, all construction traffic is expected to be travelling outside of peak hours.

### Milton

During the construction of the Waterbeach pipeline, construction vehicles will make use of the A10, heading north from Junction 33 (the Milton Interchange) of the A14. There will also be construction vehicles using the junction to access Milton Road to get to both Cowley Road and Fen Road construction access points. Also, there is likely to be some construction vehicles making a full turn around the roundabout to access the proposed WWTP site. The junction will have associated construction traffic across the duration of the Proposed Development construction period with the peak construction vehicle movements likely to take place during April 2024 to December 2024 based on the Construction Timeline in the PEI Introductory Paper. Table 12 shows the indicative peak vehicle movements associated with construction.

Table 12 Indicative construction vehicle movements during the April 2024 peak construction period

| Route                                                                                     | Indicative peak daily vehicle movements |      |           |      | Duration                       |
|-------------------------------------------------------------------------------------------|-----------------------------------------|------|-----------|------|--------------------------------|
|                                                                                           | Arrival                                 |      | Departure |      |                                |
|                                                                                           | Cars/vans                               | HGVs | Cars/vans | HGVs |                                |
| A10 northbound to Waterbeach from Junction 33 (the Milton Interchange) of the A14         | 18                                      | 11   | 18        | 11   | April 2024 – October 2024      |
| Fen Road, Milton Road, Green End, Cowley Road (in the direction of Cowley Road – Site 14) | 39                                      | 47   | 39        | 47   | September 2024 – December 2025 |

Source: Mott MacDonald

### Chesterton

During the construction of the waste water transfer tunnel, peak construction vehicle movements will occur between September 2024 and December 2025.

From November 2024 to December 2024, construction vehicles will travel along Cowley Road, Milton Road, Green End Road, and sections of Fen Road to reach construction site 13 at the end of Fen Road.

From September 2024 to December 2025, construction vehicles will also travel along Fen Road, Milton Road, Green End Road and Cowley Road to reach construction site 14 near Cowley Road and the existing Cambridge WWTP.

The indicative daily construction vehicle movements associated with construction sites 13 and 14 are detailed in Table 13. These vehicle movements are also shown in the figure for Chesterton.

Table 13 Indicative daily vehicle movements associated with construction sites 13 and 14

| Route                                                                                                           | Indicative peak daily vehicle movements |      |           |      | Duration                       |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------|------|-----------|------|--------------------------------|
|                                                                                                                 | Arrival                                 |      | Departure |      |                                |
|                                                                                                                 | Cars/vans                               | HGVs | Cars/vans | HGVs |                                |
| Cowley Road, Milton Road, Green End Road, Fen Road (In the direction of the northern end of Fen Road – Site 13) | 14                                      | 15   | 14        | 15   | November 2024 – December 2024  |
| Fen Road, Milton Road, Green End, Cowley Road (In the direction of Cowley Road – Site 14)                       | 39                                      | 47   | 39        | 47   | September 2024 – December 2025 |

Source: Mott MacDonald



## Once operational, how will the proposed relocation of Cambridge Waste Water Treatment Plant affect traffic and transport?

The potential impacts to traffic and transport and the effects on people during the operation of the Proposed Development are discussed below. These do not take account of measures we will put in place to prevent and minimise impacts. Our proposed approach to mitigation is set out below in *How will we manage our development activities to avoid, reduce or offset adverse changes to traffic and transport?*

Our preliminary assessment of traffic and transport impacts in operation concerns the following elements of the Proposed Development:

- reassignment of traffic from the existing Cambridge WWTP to the proposed WWTP which accounts for movements associated with the delivery of sludge for treatment as well as people travelling to and from work,
- the use of the strategic and local road network for occasional abnormal and hazardous loads, and
- changes to the B1047 Horningsea Road:
  - the proposed site access connecting to the existing signalised junction on the B1047 Horningsea Road
  - improvements to the eastern side of the B1047 Horningsea Road (the crossing island, the shared pedestrian/cycling access to the proposed WWTP and short section of shared pedestrian / cycleway to Low Fen Drove Way
  - the proposed permanent mitigation measures to the western side of B1047 Horningsea Road
  - proposed speed reduction from 60 to 40 mph.

This section provides an assessment of impacts to people using traffic and transport infrastructure as a result of the above.

### Redistribution of vehicle movements (reassignment)

Once the proposed WWTP is operational, the existing Cambridge WWTP and the existing Waterbeach WRC will stop operating. Operational traffic volumes from the proposed WWTP will be broadly similar to existing levels, however vehicles would travel along new sections of the road network. As part of the reassignment, associated traffic travelling between the existing Cambridge WWTP and the proposed WWTP will not need to use Cowley Road or Milton Road to access the proposed WWTP. Junction 33 (The Milton Interchange) of the A14 will be used for operational traffic needing to travel east from the proposed WWTP, but this would be expected to be lower than the current volume of operational vehicles using the junction to access Milton Road and the existing Cambridge WWTP.

Once operational, the proposed WWTP will be accessed from junction 34 of the A14 via and the using the permanent access road via the reconfigured signalised junction on the B1047 Horningsea Road. The preliminary assessment of impacts as a result of the reassignment of vehicular traffic to the proposed WWTP concludes that:

- operational vehicles that have been reassigned to the highway network may affect road capacity and safety, and may result in driver and pedestrian delay and increased journey times for pedestrians
- planned maintenance of the proposed WWTP may result in additional vehicle movements to the proposed WWTP which could result in short term driver and pedestrian delay (in particular if abnormal loads are required for the delivery of specialist equipment needed to complete maintenance)
- planned maintenance of other related assets may require vehicle movements which could result in short term driver and pedestrian delay and/or short-term closure of PRow depending on location of the maintenance work and the type of equipment that may be needed to complete these works.

### [Abnormal or hazardous loads](#)

#### [Abnormal loads](#)

There may be the need for occasional abnormal loads to access the proposed WWTP (such as for maintenance of structures within the proposed WWTP). The movement of abnormal can result in short term local disruption such as delays resulting from slow moving vehicles. The movement of abnormal loads will be controlled by existing regulations.

#### [Hazardous loads](#)

As with all waste water treatment facilities there is a requirement for deliveries of substances required to support treatment processes some of which may be classed as hazardous. The transportation of goods by road involves the risk of traffic accidents. If the goods are dangerous, there is also the risk of incidents, such as spillage, leading to hazards such as fire, explosion, chemical burn, or environmental damage.

### [Changes to the B1047 Horningsea Road](#)

The introduction of a fourth arm to the existing signalised junction has been subject to preliminary modelling. The increase in delay to traffic movements is indicated to be minor and would not result in significant impacts to journey times.

The proposed and committed changes to the footway/cycleway along and to the B1047 Horningsea Road are expected to result in the following impacts once the Proposed Development in operation:

- Committed changes
  - improved road safety for pedestrians and cyclists using the footway/cycleway along the B1047 Horningsea Road as a result of the widening of the A14 off-slip road crossing point to 3 metres
  - pedestrian island and crossing point on Horningsea Road (linking the existing footway / cycleway on the west side of Horningsea Road with the proposed WWTP

- construction of a footway/cycleway on the east side of Horningsea Road. from Low Fen Drove Way to the proposed crossing point on Horningsea Road,
- Proposed changes (actions we have identified that would be subject to further discussion with stakeholders such as the local highway authority)
  - improved attractiveness of the B1047 Horningsea Road to pedestrians and cyclists as a result of speed control measures
  - very minor increase in journey duration (for motorists) as a result of speed restrictions
  - improved overall walking and cycling comfort as a result of the widening of the footway/cycleway along the western side of Horningsea Road
  - the provision of new active travel connections to the existing PRow network.

There will be no changes to traffic and transport in Waterbeach and Clayhithe once construction has been completed.

## How will we manage our development activities to avoid, reduce or offset adverse changes to traffic and transport?

In developing our mitigation, we have carefully considered the issue of construction traffic impacts and physical disturbance to traffic and transport infrastructure (pathways, roads, cycleways, PRow, and the River Cam navigation). It is recognised that this is of particular concern for people that live or work near to roads that may be affected by the Proposed Development.

The PEI Introductory Paper sets out how the Development Consent Order (DCO) would secure mitigation, and this includes the use of a Code of Construction Practice (COCP) and plans that the appointed contractor(s) would be required to prepare and implement.

Collectively the CoCP, the Construction Traffic Management Plan (CTMP) and the workforce travel plan encompass the control measures that would be applied during construction of the Proposed Development.

An outline of our CoCP and an outline CTMP are included within the PEI. These provide a consistent approach to the management of construction activities including the management of construction vehicle movements to minimise disruption to traffic and transport.

The traffic and transport management measures will evolve through a project community liaison officer who will continue to talk to representatives from local highways authorities and people living and working close to the Proposed Development. In this way we intend to maintain open communication lines to provide up to date information about our activities and to discuss specific day-to-day issues around construction traffic management.

Once the DCO is granted we are required to deliver committed mitigation measures such as improvements to pavements or the construction of new crossings. The detailed development of these would be subject to discussions with stakeholders and final designs would be subject approval by the local highway authority.

### In construction

The following sets out general details in relation to primary, secondary, and tertiary mitigation in construction and then provides specific details by different settlements within the study area for Traffic and transport. A full set of mitigation measures can also be found in Section 5 of the outline CTMP.

### Primary mitigation (inherent in the design and management of worksites)

During the construction of the Proposed Development, different mitigation measures will be used to eliminate, minimise, isolate, and control impacts. In response to the Phase Two Consultation comments, these primary measures will include:

- sequencing the proposed WWTP access road construction so that it can be used for the remainder of the construction phase,



- reducing peak construction vehicle movements by implementing construction methods such as pre-casting of project components and on-site storage of materials,
- no construction vehicle movements or deliveries will take place outside of the hours set out in the CoCP. Deliveries will be scheduled and arranged accordingly to prevent any inconvenience, as far as it is reasonably practicable, to the community and other road users,
- design of temporary connections to the road network to enable construction vehicle manoeuvres and maintain walking and cycling routes. These will also include suitable control measures, such as traffic signal control or site operatives controlling crossings of access points,
- selecting construction access routes to avoid the local communities as far as reasonably practicable, and
- design of temporary diversion routes for PRoW to minimise the impacts associated with the construction of the treated effluent transfer pipelines and the impacts of construction vehicles on existing transport routes. For disrupted PRoW, this would involve installing gates at locations where the construction site for the treated effluent transfer pipelines intersects with PRoW. These gates would only be shut for a short duration when construction traffic operates.

#### Secondary mitigation (management process to minimise impacts)

The outline CTMP included within the PEI forms the overall traffic management strategy for construction traffic, both for deliveries and the workforce. The final CTMP will be developed in coordination with Cambridgeshire County Council.

Measures to control wildlife hazard are discussed in Environmental Information Paper: Biodiversity.

#### Tertiary mitigation (impacts controlled by a licence or formal agreement)

Some of our construction activities are also subject to other permits and legal requirements. Additional controls include the following regulatory requirements:

- obtaining a Basic Asset Protection Agreement<sup>24</sup> (BAPA) from Network Rail for works to pass underneath the railway
- obtaining permits from the Cam Conservators for works that temporarily affect the navigation on the River Cam
- obtaining permits from Cambridge Airport operators (should the airport remain in operation in its current location) for the use of tall equipment within the aviation safeguarding zone
- obtaining approval from Cambridgeshire County Council for changes to traffic speed limit

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<sup>24</sup> An agreement with Network Rail for straightforward, low risk work, on the controlled railway infrastructure.

### [Mitigation by settlements](#)

The following sections set out specific mitigation measures by settlements close to Proposed Development in addition to general measures within the outline CTMP.

#### [Waterbeach and Clayhithe](#)

To manage construction traffic at the junction of Denny End Road and Bannold Road, temporary traffic management measures would be in place to manage pedestrian movements and vehicle speeds along the construction route.

To manage vehicles at the various level crossings there will be agreed mitigation through a separate agreement with Network Rail.

To manage footpath access crossed by the construction of the Waterbeach pipeline, there will be gates to prevent pedestrian and construction traffic interacting. Pedestrian access along the PRow will be maintained, with gates on used on the occasion that construction traffic needs to cross the footpath.

#### [Horningsea and Fen Ditton](#)

There will be temporary traffic signal control where construction vehicles cross over Horningsea Road from east to west to access the final effluent pipeline and its construction site. Pedestrians and cyclists will be temporarily diverted around works areas.

While a short section of Low Fen Drove Way is used to enable construction of the permanent vehicular access, pedestrians, cyclists, and horse riders will be temporarily diverted to an adjacent protected route.

Users of footpath 85/6 and 130/2 will be managed where the footpath crosses the construction area by the use of gates to prevent pedestrian and construction traffic interacting.

#### [Milton](#)

In the area of Milton, the A10 passing to the west would be used temporarily as a construction access route for the Waterbeach pipeline. There are no mitigation measures specific to this area as the A10 has sufficient capacity to accommodate these vehicle movements.

#### [Chesterton](#)

Based on the information available on the existing traffic flows and short-term increase in vehicles as a result of the proposed access route, there are no specific mitigation measures identified as being required in this location. This is due to roads being appropriately sized for construction vehicles and low level of predicted construction movements.

Please refer to the Community Information Paper series and Environmental Information Paper: Recreation for more information on impacts and mitigation measures for local communities and recreational activities.

## In operation

The design of the access option has been subject to modelling to inform the design so that it integrates with the existing signalised junction. The proposed WWTP access road intends to facilitate the safe movement of HGVs, vehicles, cyclists, and pedestrians. In recognition of the potential impacts to the B1047 Horningsea Road, a series of embedded measures are proposed:

- design of the access so that it restricts the movement of operational vehicles to cross over the B1047 Horningsea Road between the two signalised junctions with the A14 slip roads
- includes a segregated access for the movement of pedestrians and cyclists accessing the proposed WWTP
- improvements to the existing shared pedestrian/cycleway by increasing with width of the route and the separation of the route from the carriageway of the B1047 Horningsea Road.
- provision of an additional safe crossing location on the B1047 Horningsea Road for people who may wish to access the recreational features on the site or Low Fen Drove Way.

Temporary mitigation that may be put in place during construction will also be reviewed to determine if permanent improvements (such as junction improvements, footpath improvements, clearer road signage and pedestrian crossing facilities to minimise severance to communities and disruption to pedestrians, cyclists, and equestrians) are necessary.

## Primary mitigation (inherent in the design and management of worksites)

Figure 7 provides an overview of the proposed permanent mitigation measures for the B1047 Horningsea Road and the preferred access option.

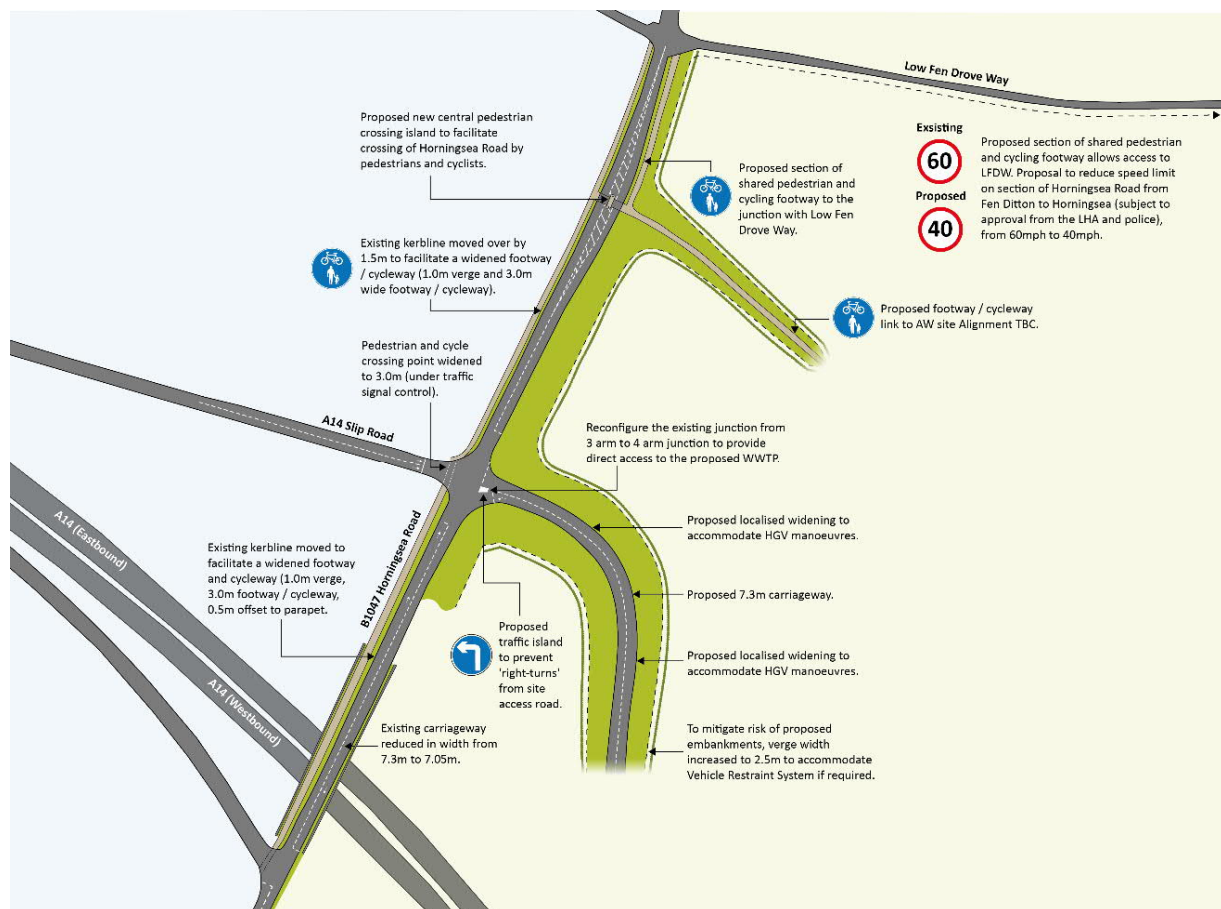


Figure 7 Proposed permanent mitigation measures for the B1047 Horningsea Road and preferred access option

Source: Mott MacDonald

As part of the design of the access option to the proposed WWTP on the B1047 Horningsea Road and Junction 34 of the A14, a set of permanent improvements are proposed along the B1047 Horningsea Road. To mitigate the effects of the operation on the section of the B1047 Horningsea Road close to the access point, specific improvements to the road layout will include:

- Committed changes
  - footway/cycleway provision along the eastern side of Horningsea Road between the proposed footway/cycleway site access and Low Fen Drove Way
  - the implementation of a crossing island to facilitate crossing of Horningsea Road by pedestrians and cyclists
- Proposed changes (actions we have identified that would be subject to further discussion with stakeholders such as the local highway authority)
  - proposals for the implementation of speed control measures to reduce the speed limit from 60mph to 40mph on Horningsea Road and Fen Ditton
  - cycleway improvements along Horningsea Road which will also further improve wider connectivity across the local cycle network, especially via the



Fen Ditton / Horningsea Cycleway. This will involve moving the existing kerb line by 1.5 metres to facilitate a widened footway/cycleway to improve comfort levels for pedestrian and cyclists on the west side of Horningsea Road and provide separation between the cycleway and the main carriageway.

### Secondary mitigation (management process to minimise impacts)

Secondary mitigation measures during the operation phase are the development and implementation of operational management plans and staff travel plans. These are summarised in Table 14 below.

Table 14 Secondary mitigation measures during operation

| Document                      | Purpose                                                                                                                          |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Operational management plans  | Details the overall traffic management strategy for operational traffic                                                          |
| Outline Framework travel plan | Details operation work and programme, site access requirements for staff, staff travel patterns and expected workforce locations |

Source: Mott MacDonald

The outline Framework Travel Plan would be produced to promote and encourage sustainable transport to the site, this will be developed according to the following principles:

- Reduce the overall need to travel
- Where travel is essential promote sustainable transport options as the main modes of travel for staff and visitors to the Waste Water Treatment Plant
- Reduce vehicle carbon emissions by supporting growth in electric cars and reducing single occupancy car travel to and from work
- Ensure all staff and visitors are made aware of the Travel Plan measures
- Ensure continued progress in improving sustainable transport usage through continued management and review of the Travel Plan

### Tertiary mitigation (inherent in the design and management of worksites)

Abnormal loads would be subject to a mandatory permits and obligatory advance warning to relevant stakeholders such as the police, the highway authorities and bridge and structure owners such as Network Rail.

Under the environmental permit the imports of waste, including sludge from other sewage treatment would be considered as a Directly Associated Activities (DAA) and the movements of hazardous loads within the proposed WWTP would be subject to risk assessment as part of the permitting application. Spills from accidents within the proposed WWTP would be managed according to operating control plans also required to be in place as part of our permit. The transport of hazardous loads on the local and strategic road network would be subject to regulations governing the transport of dangerous goods.

## What might the likely significant effects to traffic and transport be in relation to the proposed relocation of Cambridge Waste Water Treatment Plant?

Taking into account the mitigation measures we are including within our proposal for the construction and operation phases our preliminary assessment indicates that there will be no Likely Significant Effects remaining to traffic and transport.

In developing the Proposed Development, the preliminary traffic modelling of the proposed WWTP access road indicates that there is no significant effect on journey time and delay in construction and operation. Mitigation will be put in place to minimise the interaction of pedestrians, cyclists, and HGVs to reduce the likelihood of incidents and collisions between road users and HGVs.

During construction, there will be short periods of time when the B1047 Horningsea Road will be traffic-signalled controlled to enable the safe construction of a section of the final effluent pipeline, the proposed WWTP access and improvements to the shared footway/cycleway. No significant delays are expected to people using the B1047 Horningsea Road as a result of these temporary works and associated temporary signals.

In the short term, the footway/cycleway to the western side of B1047 Horningsea Road will require a diversion in place whilst the footway/cycleway improvements are constructed. There is not expected to be significant delay to users of the B1047 Horningsea Road however there may be less pleasant journeys for all road users due to construction work.

Throughout construction access to the PRow will be maintained through the use of gated construction routes points. During operation new permanent connections will be created at:

- Horningsea Road crossing point
- Low Fen Drove Way: a new footpath is proposed to be built across and around the proposed WWTP connecting to Low Fen Drove Way
- A new section of bridleway connecting Low Fen Drove Way to byway 85/14 Station Road in Stow-cum-Quy

## References

Preliminary Baseline Data (Traffic Counts carried out on 4<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> of December 2021)

Preliminary modelling for Horningsea Road proposed access, LinSig modelling output files

Department for Transport. (2020). Road Traffic Statistics. Available:

<https://roadtraffic.dft.gov.uk/#6/55.254/-6.053/basemap-regions-countpoints>.

Greater Cambridgeshire Partnership. (2021). Greater Cambridge Greenways. Available:

<https://www.greatercambridge.org.uk/transport/transport-projects/greenways>.

Conservators of the River Cam. (2021). Conservators of the River Cam. Available:

<https://www.camconservancy.org/>.

Cambridge City Council. (2012). Cambridge Airport Air Safeguarding Zones Heights for Referral. Available: <https://www.cambridge.gov.uk/media/2756/cambridge-airport-air-safeguarding-zones.pdf>.

Sustrans. (2021). Route 51. Available: <https://www.sustrans.org.uk/find-a-route-on-the-national-cycle-network/route-51/>.

Sustrans. (2021). Route 11. Available: <https://www.sustrans.org.uk/find-a-route-on-the-national-cycle-network/route-11/>.

WSP. (2018). Waterbeach New Town East - Transport Assessment. Available:

[https://www.greatercambridgeplanning.org/media/1756/es\\_appendix\\_81\\_-\\_transport\\_assessment\\_volume.pdf](https://www.greatercambridgeplanning.org/media/1756/es_appendix_81_-_transport_assessment_volume.pdf).

Waterbeach Cycling Campaign. (2020). Response to Waterbeach Cambridge Consultation 2020. Available: <http://www.waterbeachcc.com/index.html>.

Urban Civic and RLW. (2022). Waterbeach New Town . Available:

<http://www.waterbeach.co.uk/>.

South Cambridgeshire District Council. (2021). Decision details S/2075/18/OL - Waterbeach (Land adjacent to Waterbeach Barracks and Airfield Site). Available:

<https://scambs.moderngov.co.uk/ieDecisionDetails.aspx?AllId=87494> .

South Cambridgeshire District Council. (2021). Decision details S/0559/17/OL - Waterbeach and Landbeach (Waterbeach Barracks and Airfield Site, Waterbeach, Cambridgeshire).

Available: <https://scambs.moderngov.co.uk/ieDecisionDetails.aspx?Id=11063> .

South Cambridgeshire District Council. (2021). Decision details S/0791/18/FL - Waterbeach (Land between Cody Road and Railway). Available:

<https://scambs.moderngov.co.uk/ieDecisionDetails.aspx?AllId=74679>.

Greater Cambridgeshire Partnership. (2021). Chisholm Trail. Available:

<https://www.greatercambridge.org.uk/transport/transport-projects/chisholm-trail>.

National Trust. (2021). Cycle route from Cambridge to Anglesey Abbey. Available: <https://www.nationaltrust.org.uk/anglesey-abbey-gardens-and-lode-mill/trails/cycle-route-from-cambridge-city-centre-to-anglesey-abbey>.

Greater Cambridgeshire Partnership. (2021). Waterbeach Greenway. Available: <https://www.greatercambridge.org.uk/transport/transport-projects/greenways/waterbeach-greenway>.

GOV UK. (2021). Transporting abnormal loads. Available: <https://www.gov.uk/esdal-and-abnormal-loads>.

IEMA. (1993). Guidelines for the Environmental Assessment of Road Traffic



## Appendices

### A.1. Preliminary modelling background information

The proposed WWTP access options, set out in this paper and the Alternatives paper, have had a preliminary capacity analysis using the industry standard software of either Junctions 9 (PICADY) or LinSig (Version 3) to anticipate if the proposed junction designs would be predicted to operate within capacity.

Junctions9 software measures performance as the ratio of flow to capacity (RFC). An RFC value greater than 1 means that a turning movement has a higher level of traffic flow than its theoretical capacity. As a result, queues may occur. An RFC below 0.85 is considered acceptable as there is still scope to accommodate for future growth.

LinSig is a computer software package for the assessment and design of traffic signal junctions either individually or as a network comprised of a number of junctions. It is used by traffic engineers to construct a model of the junction or network which can then be used to assess different designs and methods of operation. LinSig v3 software measures performance as degree of saturation (DoS). A DoS value greater than 100% means that a lane movement has a higher level of traffic flow than its theoretical capacity. As a result, queues may occur. A DoS below 90% is considered acceptable as there is still scope to accommodate future growth.

Survey data has been used to inform the base years and TEMPro 7.2 growth factors for Cambridgeshire has been applied to the base flows. The growth factors aim to reflect all planned growth in the area and is suitable at this stage to help develop understanding of changes in traffic volumes. Further development of this approach will be carried out in the as the scheme design progresses.

## A.2. List of consulted stakeholders

Access options 1a, 1b, 2, and 3 were explored including through engagement with stakeholders. The following stakeholders responded with comments to our Phase 2 Consultation:

- National Highways
- Cambridgeshire County Council
- East Cambridge District Council
- National Trust
- Urban & Civic
- Natural England
- Save Honey Hill Group
- Horningsea Parish Council
- Cambridge Past, Present & Future
- Stow-Cum-Quy Parish Council