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Fenland District Council Local Plan Transport Assessment

Interim Report

Fenland District Council

28 July 2022

5210984-TA01

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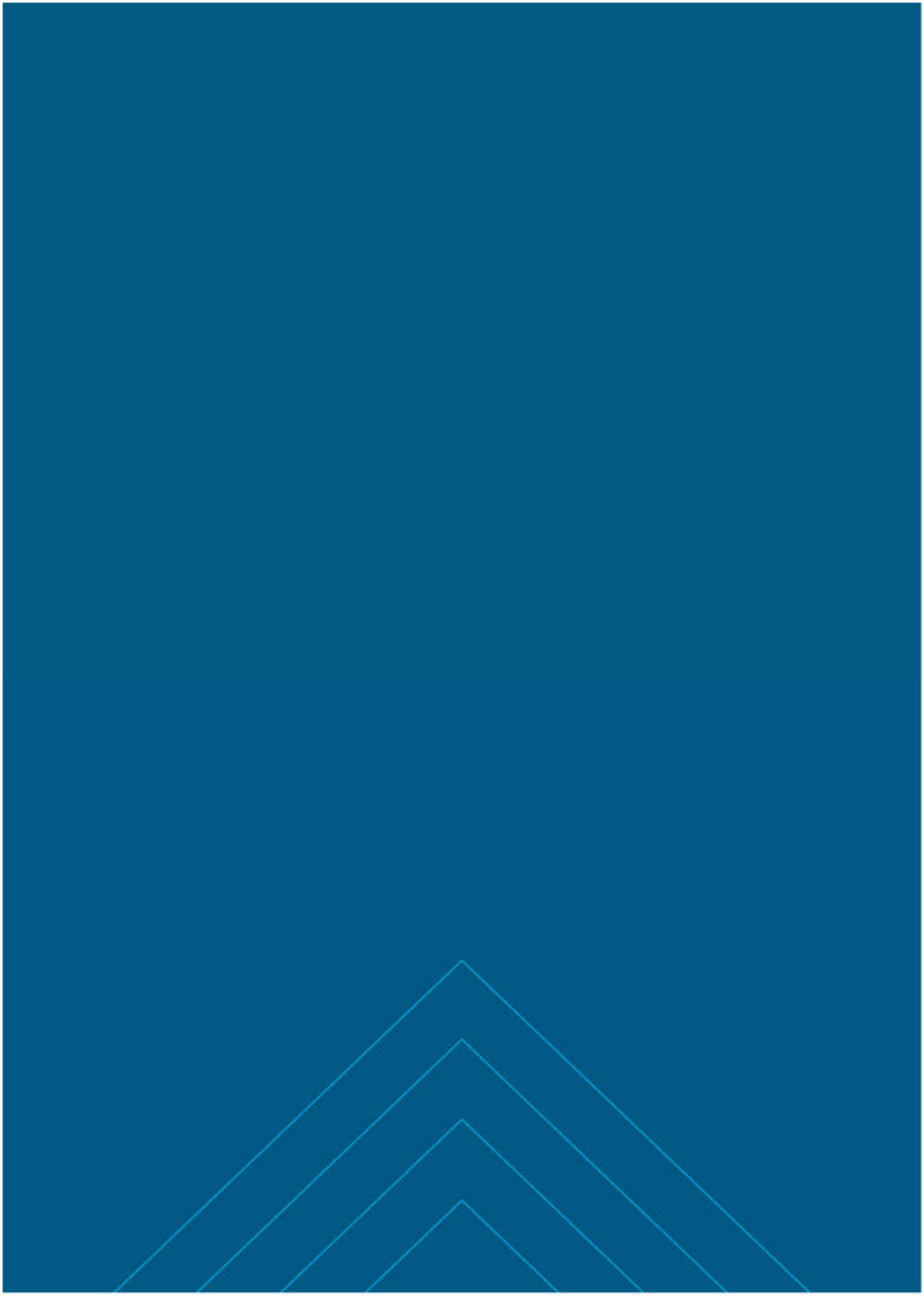


1. Introduction

1.1. Study Overview

Fenland District Council (FDC) has commissioned Atkins to develop a spreadsheet transport model (the Transport Model) for the Fenland District area, with an accompanying Transport Assessment (TA), to test growth options (GOs) to inform the emerging Local Plan for the Fenland District.

This Interim Note has been prepared to support the draft version of the Local Plan (August 2022) and a full Transport Assessment will be prepared alongside the submission of the Local Plan in 2023.

The overall approach to this study has used readily available data and information, and has used this data to construct the Transport Model which informs the accompanying TA aiming to assess the impact of the Local Plan GOs on the highway network for all modes of transport. The TA will also assess the implications of growth on active travel and public transport across the district. The Transport Model will provide FDC with evidence to inform the local plan and demonstrate where development can be located without having a detrimental impact on the local highway network.

1.2. The Growth Options

The Growth Options (GOs) are a series of options that are made up of either a quantum of housing in differing locations, or employment options in differing locations within the district. As part of the growth strategy for the emerging Fenland Local Plan, a number of growth options were considered by the council, there are five housing options and three employment options, they are summarised below.

Housing Growth Options

- Growth Option 1 (GO1) – This growth option is a baseline option and includes all housing sites with extant planning permission as of April 1st 2021, for sites with 5 or more dwellings. It should be noted here that GO1 would fall short of the growth requirement for the district.
- Growth Option 2 (GO2) – This growth option is a market town led option which Concentrates growth principally in the towns of Wisbech, March, Whittlesey and Chatteris, with limited growth in villages, allocating only the most suitable sites
- Growth Option 2a (GO2a) – This growth option increases the supply of housing land to encourage growth whilst omits some existing sites which have failed to demonstrate good delivery in the past.
- Growth Option 3 (GO3) – This growth option allocates more growth sites in villages and excludes sites of lesser suitability in market towns
- Growth Option 4 (GO4) – This growth option focuses on strategic growth of certain villages and builds upon GO3 by including more growth in Wimblington, Coates and Eastrea.

Employment Growth Options

- Employment Option 1 (EMPO1) – This growth option is a baseline option and includes all sites with planning permission for employment uses only.
- Employment Option 2 (EMPO2) – This growth option includes sites that have been deemed suitable for employment through the site assessment process. Existing industrial estates, business parks and employment clusters are also included within this option, in order to safeguard these locations for future employment growth
- Employment Option 2A (EMPO2A) – This growth option includes sites across the rural area to increase the supply of land for employment uses.

It should be noted here that GO2A and EMPO2A are the preferred growth option strategies of the council as included in the draft local plan.

1.3. Purpose of this Report

In order to test the Growth Options outlined above, transport evidence and information has been gathered from varying sources to inform a baseline for the study. This Interim Report sets out the transport evidence that has

been collected from numerous sources and informs the ongoing transport model build. With respect to the first phase of this study, a summary of the following sections is included within this report:

- Data Gathering:
  - Highway data;
  - Public Transport data; and
  - Active Travel data.
- Setting the Baseline:
  - Highway Assessment;
  - Public Transport Assessment;
  - Active Travel Assessment;
  - Planned and Committed Developments; and
  - Major Transport Improvements.
- Model Build and growth testing:
  - Base Model build;
  - Growth Options;
  - Iterations and mitigation tests; and
  - Identification of constrained junctions.

This Interim Report will also present how the base data links to the building, testing and outputs of the emerging Transport Model for the district.

1.4. Structure of Report

The remainder of this report is set out as follows:

- Section 2 – Data Gathering
- Section 3 – Setting the baseline
- Section 4 – Model Build and growth testing

2. Data Gathering

2.1. Highway Data

2.1.1. Traffic Counts and Junction Counts

The recent pandemic meant that no new data was collected within the duration of the pandemic, at present local transport conditions appear to have not returned to any 'normal' levels pre-pandemic. With this in mind, the collection of data that underpins this assessment has been from existing sources such as development TAs, Local Authority data and historic transport studies.

Figure 2-1 shows the locations of the traffic counts used in the analysis to identify highway conditions and pressure points within the local highway network in section 3. The counts include:

- 16 counts near March and along the A141 / Wisbech Road;
- 11 counts near Wisbech;
- Seven at Chatteris, and;
- Five around Whittlesey.

Figure 2-1 - Traffic count survey locations

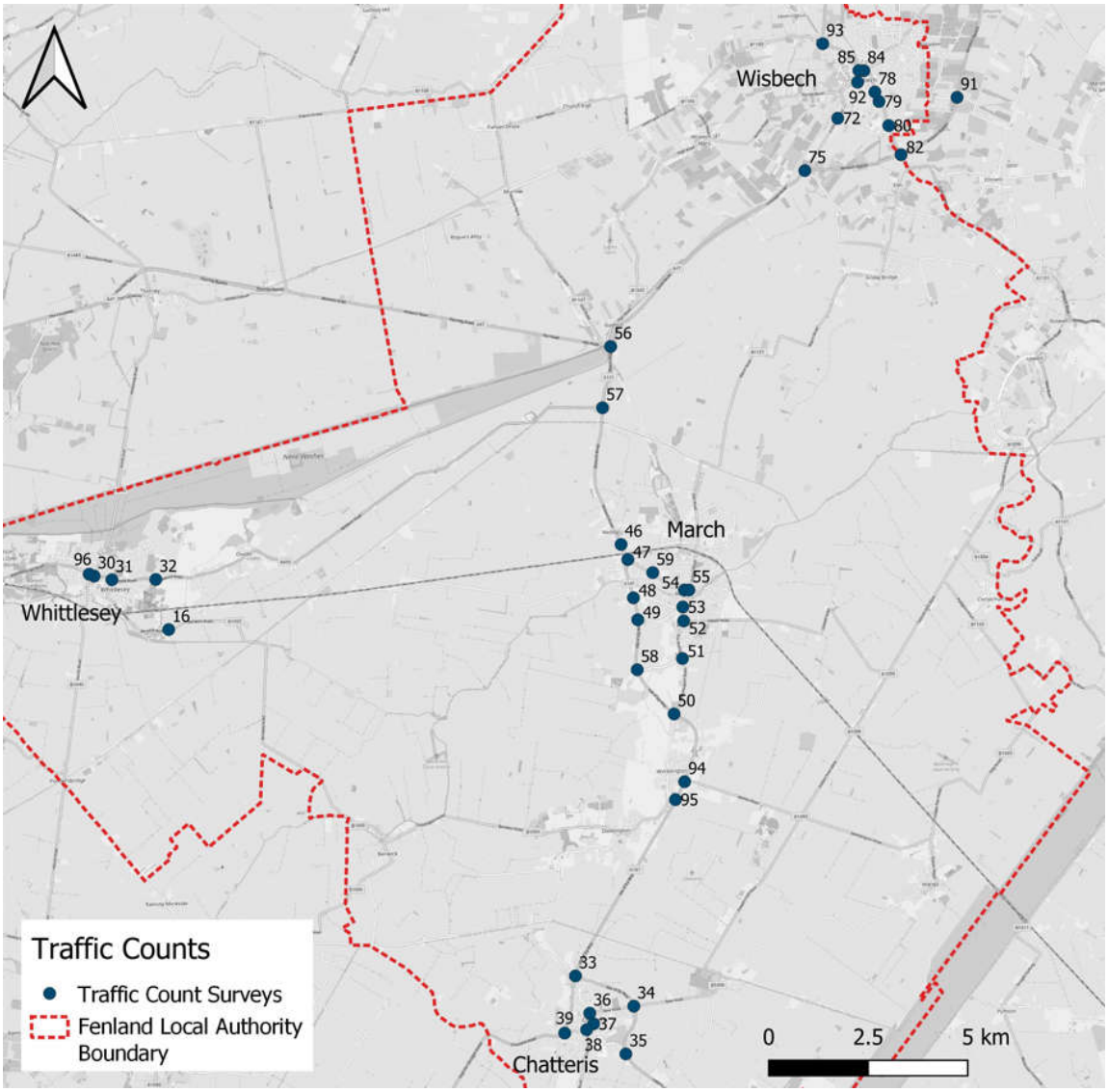


Table 2-1 summarises the sources of the traffic count data. The majority of the counts were obtained from traffic count surveys undertaken as part of TAs accompanying Planning Application submissions.

Table 2-1 - Traffic Count data sources and information

Source	Source / Data Type	Number of Traffic Counts Used	Year
TA supporting application: F/YR21/0981/F	Transport Assessment	7	2018
TA supporting application: F/YR21/0654/F	Transport Assessment	4	2018
DfT Road Traffic Statistics	DfT Counts	1	2018
TA supporting application: F/YR21/1497/F	Transport Assessment	12	2018
3052-TAD Wisbech JTC All Sites	Wisbech SATURN model update	10	2015/16
TA supporting application: F/YR17/1127/O	Transport Assessment	2	2017
TA supporting application: F/YR17/0304/F	Transport Assessment	1	2015
TA supporting application: F/YR17/0682/F	Transport Assessment	2	2017

In addition to the above traffic count survey data, junction capacity analysis from TAs were used to identify junctions which currently operate at or over operational capacity.

This data ranges in age, with the majority of the sources offering relatively recent data (i.e. less than five years old). There are a few sources where the data is older than five years, however it has not been possible to collect new data due to the impact of the pandemic.

Overall, the sources of traffic count data and junction capacity assessments offer reliable and valid data which can be used to understand the highway conditions. The majority of the data used for this study has been used to inform other projects and studies previously undertaken in Fenland.

2.1.2. Traffic Growth

The recent COVID pandemic has had the effect of reducing traffic flows across the UK and as a result there is a period of more than two years where there is a gap in what would be considered normal traffic conditions. The historical traffic data is therefore useful to understand how traffic has grown historically, and how that growth can be used in future traffic studies. As part of this assessment, the historic traffic data has been used to test and compare with TEMPRO growth factors derived from the national database. The analysis and comparison of these growth factor data sets is discussed further in this report.

2.1.3. Collision Data

Collision data was obtained from Cambridgeshire County Council (CCC) for the five-year period between 2017 and 2021. It should be noted that this five-year snapshot includes the COVID-19 pandemic which is generally not representative of usual traffic conditions, due to the lockdowns and travel restrictions which were introduced in the UK.

The analysis of collision data in section 3 looks for trends in the data such as trends in rising proportions of fatal or serious incidents during Covid in Fenland vs the more urban areas of Fenland, such as the market towns. The analysis also identifies clusters or hotspots of accidents in Fenland.

2.2. Public Transport Data

Bus routes and frequencies were obtained from Datacutter and checked against operator websites. Transport mode share data was collected from NOMIS Census data 2011, with a focus on travel to work trips, and subsequently analysed for this report to inform travel patterns by bus in Fenland.

Vix data was requested to provide patronage and reliability information, however Atkins has been informed that this data is not currently available. This data would have been useful to understand current running times and dwell times of bus services allowing us to review travel times and delays across different routes. Without this data, assumptions on bus service provision and operation will need to be employed as part of this study.

2.3. Active Travel Data

This report has used the Propensity to Cycle Tool (PCT) to support this assessment. The PCT is a strategic nationwide (England and Wales) planning tool designed to assist transport planners and policy makers to prioritise investments and interventions to promote cycling. The PCT indicates where cycling is most common and where there is the potential for cycling infrastructure to be expanded. The PCT covers travel behaviour data for commuting and school travel and both are based on the 2011 Census, which is the most up-to-date and publicly available source on cycling levels at high geographic resolution nationwide. As Census data approximates origin and destination for a cycling trip, the PCT provides route-based estimates using the Cycle Streets routing algorithm.

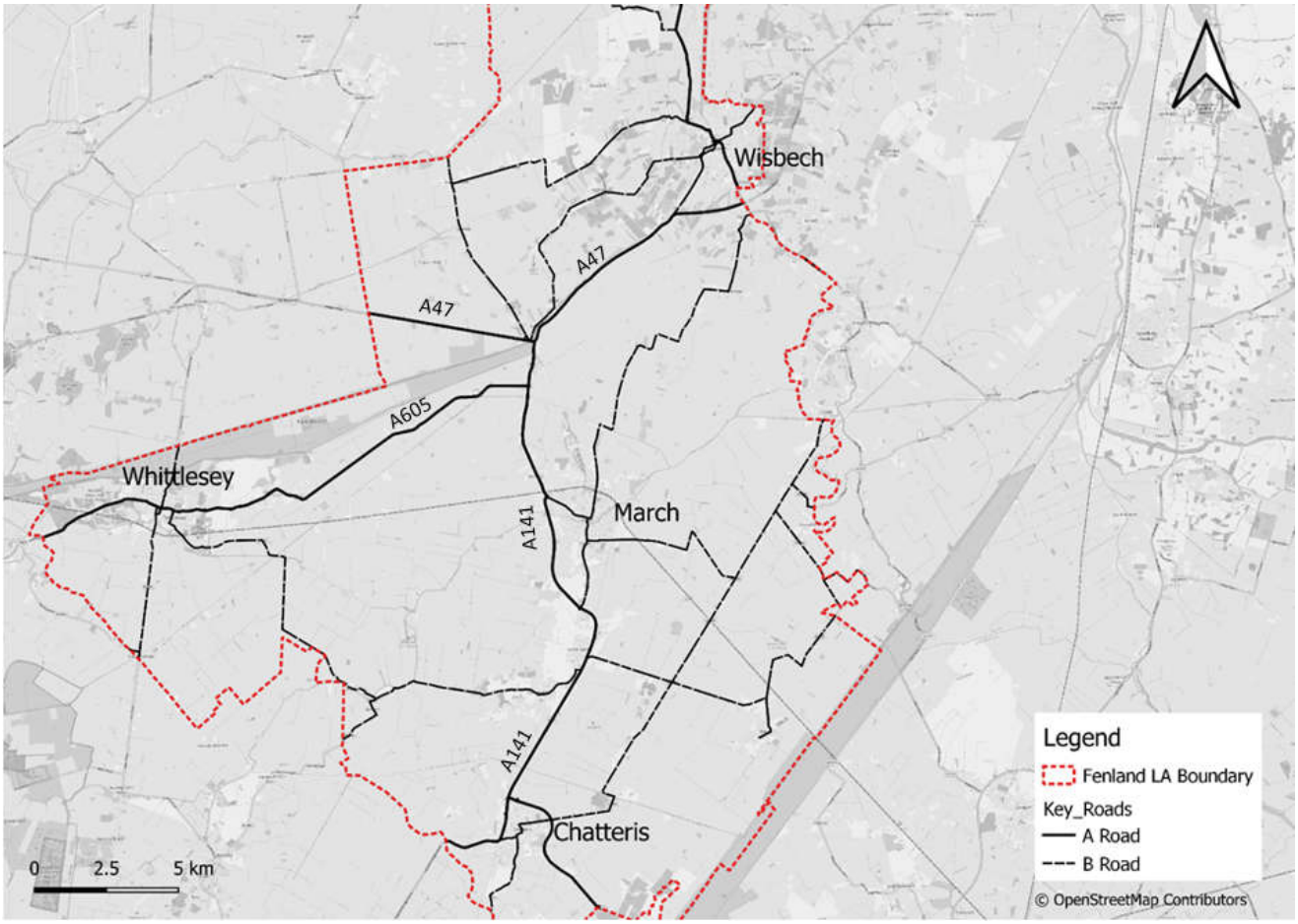
The PCT tool allows users to visualise results at area level (MSOA or LSOA), such as flows between areas, and aggregated on the route network.

3. Setting the Baseline

3.1. Highway Assessment

The Fenland District is made up of four market towns, Chatteris, March, Whittlesey and Wisbech, which are all interconnected with by local highway network, including the A47, A141 and A605. Figure 3-1 shows the key highway network in the District.

Figure 3-1 - Key Roads in Fenland



3.1.1. Identified 'Pressure Points' in Fenland

Using information gathered from previous TAs and local studies, junctions in Fenland have been assessed for capacity issues. Where a junction or intersection is currently experiencing capacity issues within the peak periods, these have been termed 'pressure points' on the network. A number of pressure points were identified through the assessment of existing traffic count survey data, junction capacity assessments contained in existing Transport Assessments and existing transport strategy documents and analysis. These locations have existing capacity issues which will likely worsen with increased development and traffic growth, without any mitigation.

Table 3-1 summarises existing pressure points that were identified in Fenland. Comments are included regarding the capacity of the junction, i.e. the Ratio of Flow to Capacity (RFC) as referred to below. This provides the primary measure of junction performance and is reported for each arm of a junction. An RFC of 0.85 or lower indicates that the specific arm is operating within capacity; an RFC between 0.85 and 1.0 indicates it is operating over practical capacity. An RFC of 1.0 indicates that traffic demand exceeds theoretical capacity.

Figure 3-2 shows the location of the identified 'pressure points' on the highway network within Fenland District. The labels shown on the map correspond to the 'Map ID' column in Table 3-1.

Figure 3-2 - Location of existing junction pressure points

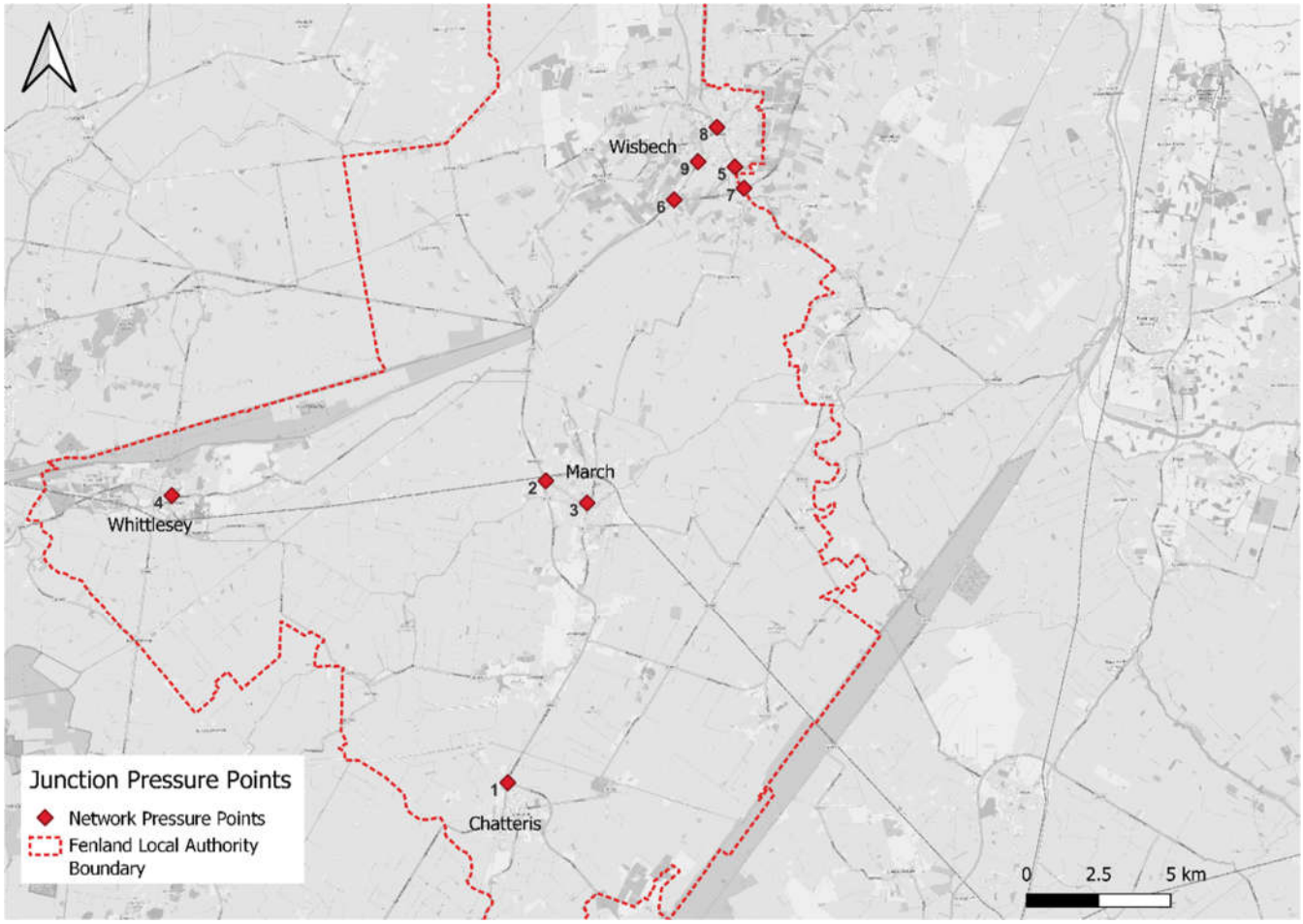


Table 3-1 – Existing junction pressure points

Map ID	Junction	Location	Comment	Transport Assessment or Planning Application or Study
1	A141 Isle of Ely Way / A142 Isle of Ely Way / Bridge Street / A141 Fenland Way / Doddington Road	Chatteris	This is a 5-armed roundabout junction. The junction operates within capacity in both peak hours, except the A141 Fenland Way which has a max Ratio of Flow to Capacity (RFC) of 0.90 in the AM peak hour in the 2021 baseline scenario.	WSP, Land at Wenny Road, Chatteris, Transport Assessment, June 2021 (F/YR21/0981/F)
2	B1099 Wisbech Road / A141 / Whittlesey Road (Peas Hill Roundabout)	March	The operation of this junction is generally within capacity in both peak hours, except for the A141 (S) arm which has a max RFC of 0.91 during the PM peak in the 2020 base year.	Milestone Transport Planning, Proposed Residential-Led Development, Land West of March, November 2021 (F/YR21/1497/O)

Map ID	Junction	Location	Comment	Transport Assessment or Planning Application or Study
3	B1099 Dartford Road/ B1101 Station Road/ B1099 Broad Street	March	This junction is operating slightly above capacity in the 2020 base year during the AM and/ or PM peak periods on some arms. The B1099 Broad Street Ahead Right Left has an RFC of 0.94 (AM) and 1.01 (PM) and the B1099 Dartford Road Left Ahead Right RFC is 0.91 (AM) and 0.99 (PM). The B1101 Station Road Right Left Ahead RFC is 0.94 during the AM.	Milestone Transport Planning, Proposed Residential-Led Development, Land West of March, November 2021 (F/YR21/1497/O)
4	A605 Eastrea Road/ Cemetery Road/ Blunt's Lane Roundabout	Whittlesey	One of the arms of roundabout (Arm 4 A605 W) operates with an RFC of 0.88 in the PM peak hour in the 2025 'background' scenario, marginally exceeding the threshold of 85% RFC.	ADC Infrastructure, Larkfleet Homes, Land at Bassenhally Farm, Whittlesey, Transport Assessment Addendum for Phase 4, 2020 (F/YR20/0861/F)
5	A1101 Churchill Road / Weasenham Lane	Wisbech	The A1101 Elm High Road (N) the RFC was 0.96 in the PM peak hour. The A1101 Elm High Road (S) RFC in 2020 was 0.89 in the AM peak hour. In the 2025 modelled outputs all arms of this junction operate above capacity in at least one of the peak hour periods.	Transport Assessment supporting documents (F/YR16/0792/F)
6	A47/B198 Cromwell Road Roundabout	Wisbech	Wisbech VISSIM Local Model Validation Report (LMVR)– Average queues in metres of 18 (equates to 3 vehicles) in AM peak and delays of up to 24 seconds in PM peak (worst peak period)	Wisbech Area Transport Study (WATS) - LMVR
7	A47/A1101 Elm High Road Roundabout	Wisbech	Wisbech VISSIM (LMVR)– Average queues in metres of 458 (equates to 76 vehicles) in AM peak and delays of up to 179 seconds in AM peak (worst peak period)	Wisbech Area Transport Study (WATS) - LMVR

Map ID	Junction	Location	Comment	Transport Assessment or Planning Application or Study
8	Freedom Bridge Roundabout	Wisbech	Wisbech VISSIM (LMVR)– Average queues in metres of 38 (equates to 6 vehicles) in AM peak and delays of up to 44 seconds in AM peak (worst peak period)	Wisbech Area Transport Study (WATS) - LMVR
9	B198 Cromwell/Weasenham Lane Signals	Wisbech	Wisbech VISSIM (LMVR)– Average queues in metres of 59 (equates to 10 vehicles) in AM peak and delays of up to 23 seconds in AM peak, in the PM peak the delay is recorded as 64 seconds.	Wisbech Area Transport Study (WATS) - LMVR

3.1.2. Traffic Growth

Growth factors have been taken from the TEMPRO database for the respective areas within the Fenland district. Growth factors for the main market towns and the district were derived, these factors were then used to factor historical traffic data from their surveyed years to a consistent base year of 2021 and the forecast year of 2040. It is noted that 2021 is still considered a 'non-typical' year as it was affected by the pandemic, but has been chosen as the base year in relation to the growth option testing linked to a 2021 setting for the growth options. As a point of comparison with existing traffic data sets from the Annual Cambridge Monitoring exercise, and derived traffic growth assumptions from that data, the comparison of the data indicates an average growth level of approximately 1% per year across the datasets; the TEMPRO growth factors therefore give a good indication of how traffic is likely to grow when assessing future year scenarios.

3.1.3. Accident Data

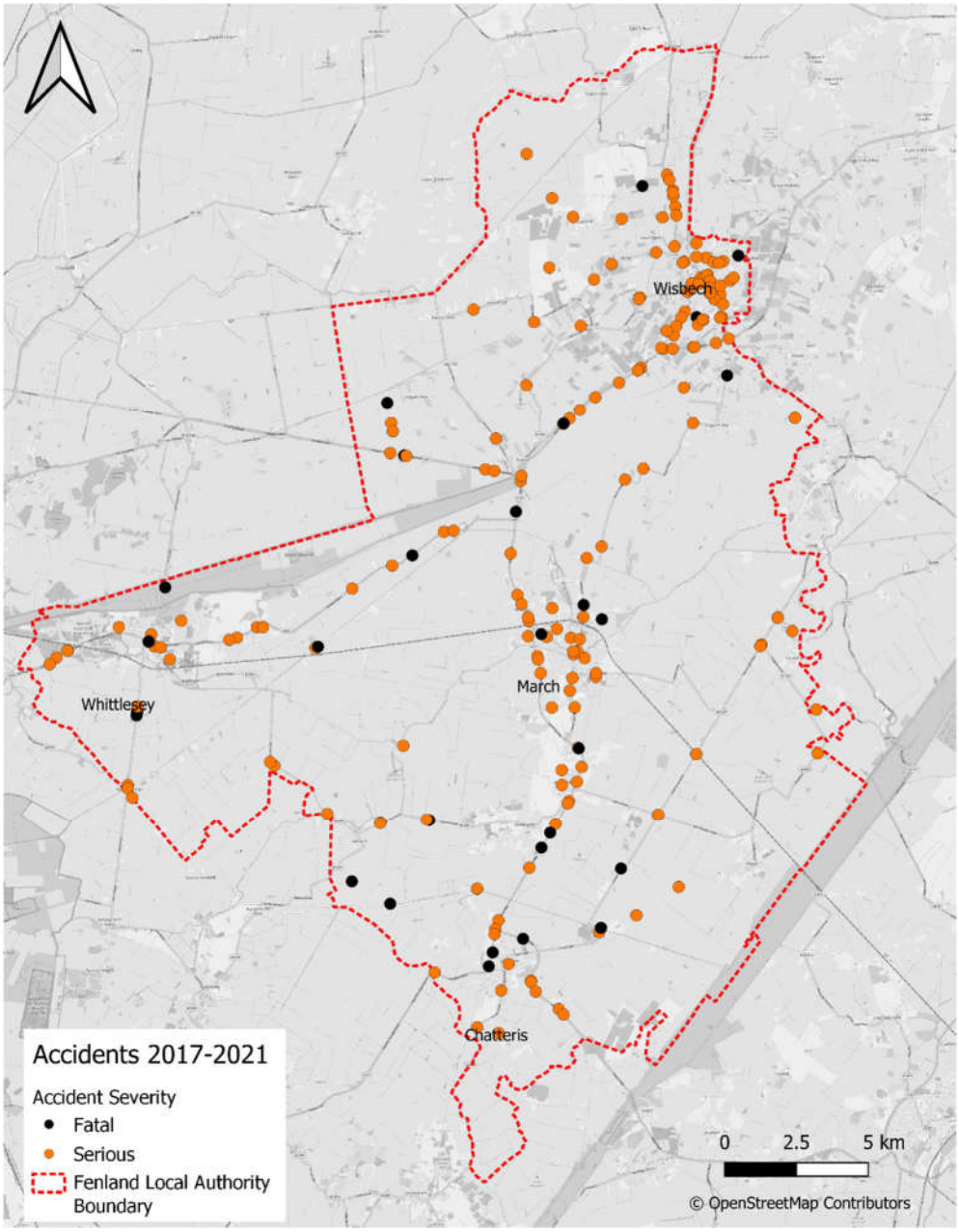
As stated above, the following accident data analysis has been based on data obtained from CCC for a five-year period between 2017 and 2021.

The total number of incidents reported within this timeframe in the Fenland Local Authority area is 890. This figure can be split by severity; as follows:

- 28 fatal accidents;
- 197 serious, and;
- 665 slight.

Figure 3-3 presents the severe and fatal accidents that occurred within the Fenland Local Authority boundary over the past five-year period, from January 2017 and December 2021.

Figure 3-3 – Severe and Fatal accidents in Fenland, 2017 to 2021



3.1.3.1. Trends in Accidents – Pre and Post Pandemic

The data shows that the number of accidents throughout Fenland has been steadily decreasing over time, with 214 accidents recorded in 2017 (24% of the total for this period) and 141 in 2021 (16% of the total for this period) indicating an 8% reduction in accidents. Table 3-2 shows the years of accidents in Fenland for both rural and urban areas, between 2017 to 2021.

Table 3-2 - Accidents in Fenland by year, 2017 to 2021

Year	Number of Accidents in Fenland			Percentage
	Rural	Urban	Totals	
2017	113	101	214	24%
2018	121	100	221	25%
2019	84	78	162	18%
2020	86	66	152	17%
2021	82	59	141	16%

The pandemic may have limited traffic flows due to prolonged lockdowns and travel restrictions in 2020 and 2021, however on the other hand it may have resulted in drivers driving less cautiously due to fewer vehicles being on the roads during this period, especially in rural areas. The sudden decrease in traffic flows can be associated with a significant decrease in slight accidents (-5% between 2019 and 2020), mostly associated with the market towns clusters.

However, the data for Fenland shows that, whilst the number of slight accidents reduced, the fatal accidents/year ratio went up by 3% between 2019 and 2021. In addition, the Fenland serious accidents/year ratio slightly increased by 3% between 2019 and 2020 but decreased between 2020 and 2021 (-3%). The split of accidents by year and severity is presented in Table 3-3.

Table 3-3 - Severity/Year ratio for accidents in Fenland, 2017 to 2021

Year	Fatal Accidents/Year		Serious Accidents/Year		Slight Accidents/Year	
2017	5	2%	39	18%	170	79%
2018	6	3%	43	19%	172	78%
2019	5	3%	37	23%	120	74%
2020	4	3%	43	28%	105	69%
2021	8	6%	35	25%	98	70%

3.1.3.2. Trends in Accidents – Urban to Rural Comparison

Accidents that occurred in urban and rural areas of Fenland have been analysed to compare the difference between the trends in those areas of Fenland.

Table 3-4 - Number of accidents in Fenland, for Urban and Rural areas - 2017 to 2021

Year	Fenland	% of Total	Urban - Fenland	% of Total	Rural - Fenland	% of Total
2017	214	24%	101	11%	113	13%
2018	221	25%	100	11%	121	14%
2019	162	18%	78	9%	84	9%
2020	152	17%	66	7%	86	10%
2021	141	16%	59	7%	82	9%
Total	890	-	404	-	486	-

Accident numbers have decreased an average of 9% between 2017 and 2021 across Fenland, with a 4% decrease in both rural and urban areas of Fenland.

Table 3-5 - Fatal & Serious Collisions by Area

Year	Fenland (Total)		Fenland Urban		Fenland Rural	
	Serious Collisions	Fatal Collisions	Serious Collisions	Fatal Collisions	Serious Collisions	Fatal Collisions
2017	39	5	16	1	27	4
2018	43	6	15	1	29	5
2019	37	5	17	0	20	5
2020	43	4	16	0	27	4
2021	35	8	14	4	25	4

When the severity of the collisions is considered, the data shows that in Fenland fatal accidents/year doubled in 2021 in comparison to 2020, across the Fenland district. The increase in fatalities appeared to be in the more urban areas of Fenland. It is worth noting here that this trend has been picked up in accident data from Cambridge and Peterborough, however it is worth noting that the absolute number of fatal or serious collisions decreased significantly more in these areas.

3.1.3.3. Accident Cluster Analysis

The following section identifies clusters of accidents occurring in the Fenland local authority area. As previously discussed, the majority of the clusters are found within the market towns, however there are a few clusters identified in the more rural areas. As expected, many of the clusters are identified at the busiest junctions and crossings. The maps below show the clusters identified in each area and have corresponding tables with a breakdown of the accidents by severity.

Figure 3-4 – Accident Clusters in Wisbech

Table 3-6 - Breakdown of accidents in Wisbech clusters

Cluster	Total	Fatal	Severe	Slight
1 – Freedom Bridge Roundabout	18	0	2	14
2 – A1101 Churchill Road / A1101 Elm High Road / Weasenham Lane / Ramnoth Road	7	0	3	4

Two clusters were identified in Wisbech, including Freedom Bridge Roundabout, where 18 collisions have occurred in the five-year period assessed. 12 of the 18 collisions involved 2 cars, 5 involved a car and pedestrian, and one involved a car and a motorcycle.

The other cluster at the A1101 / Weasenham Lane Junction includes 7 collisons; 5 involving 2 cars and the other 2 involving a car and a motorcycle. There were no pedestrians involved in any collisions in this location.

Figure 3-5 – Accidents clusters in March

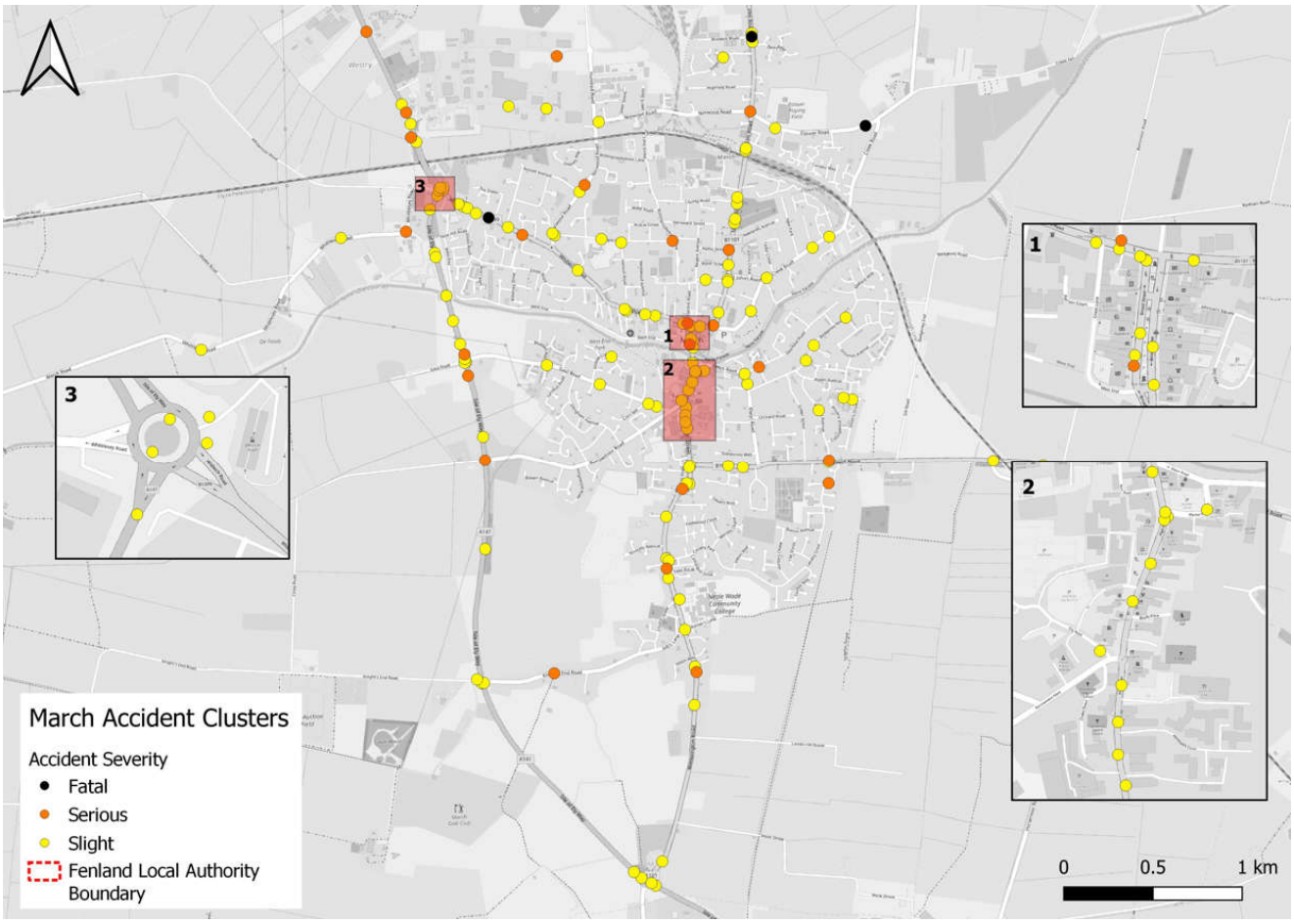


Table 3-7 - Breakdown of accidents in March clusters

Cluster	Total	Fatal	Severe	Slight
1 – B1099 Dartford Road/ B1101 Station Road/ B1099 Broad Street	12	0	2	10
2 – B1101 High Street	12	0	0	12
3 – Peas Hill Roundabout	5	0	0	5

Three clusters were identified in March, including two in the Town Centre, and one to the west at Peas Hill Roundabout.

Peas Hill Roundabout has 5 accidents reported over the time period between 2017 and 2021. All the collisions here involved cars, and no cyclists or pedestrians.

The clusters in the town centre show a higher rate involving pedestrians, a result of the higher presence of pedestrians in this area using local amenities. In cluster 1, 8 of the 12 accidents involved pedestrians, the other 4 involved two cars.

In cluster 2, along the High Street; 4 of the 12 collisions involved pedestrians, and 2 involved motorcyclists. The remaining 6 were between two cars.

Figure 3-6 - Accident clusters in Chatteris

Table 3-8 - Breakdown of accidents in Chatteris clusters

Cluster	Total	Fatal	Severe	Slight
1 - A141 Isle of Ely Way / A142 Isle of Ely Way / Bridge Street / A141 Fenland Way / Doddington Road Roundabout	10	0	2	8
2 – A142 Isle of Ely Way / B1098 New Road Junction	7	0	0	7

In cluster 1 in Chatteris, 3 of the accidents involved 2 cars, 3 involved a car and a motorcyclist, and one involved a car and pedestrian.

Located on the eastern edge of Chatteris on the A142, cluster 2 has no collisions involving pedestrians, cyclists, or motorcyclists. All the incidents involved two cars, except one in 2020 where there were 4 vehicles involved.

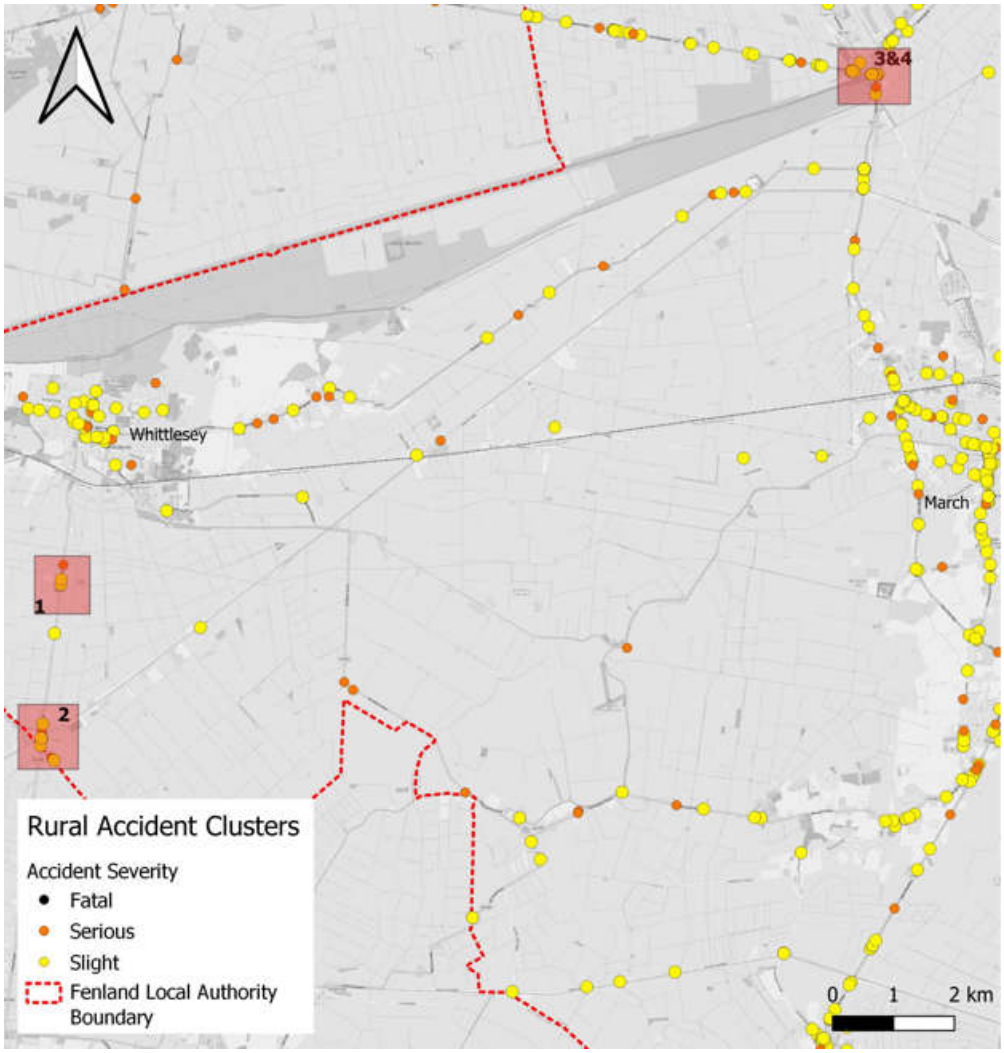
Figure 3-7 – Accident clusters in Whittlesey

Table 3-9 - Breakdown of collisions in Whittlesey clusters

Cluster	Total	Fatal	Severe	Slight
1 – A605 Syers Lane / A605 Whitmore Street / B1040 Orchard Street / B1040 Broad Street Roundabout	5	1	2	2

The cluster identified in Whittlesey is located on the roundabout linking the A605 and B1093. A fatal collision took place in 2021 with 2 cars and 1 pedestrian involved. In addition to this, another incident involving a pedestrian and a car took place in 2018 but was only slight in severity. The other three accidents involved 2 cars.

Figure 3-8 –Accident Clusters in Fen Road and Herne Road



In addition to the collision clusters identified within the market town settlements in Fenland, some clusters were also identified in more rural locations, specifically at two locations along Herne Road and Fen Road. There locations are shown in Another cluster was identified further south on the B1040, where there have been 7 collisions at the Glassmoor Bank junction at Pondersbridge; 2 involving 2 cars, and 2 involving a car and a motorcycle.

Table 3-10 – Breakdown of collisions in rural area clusters (Herne Road and Fen Road)

Cluster	Total	Fatal	Severe	Slight
1 – B1040 Herne Road	6	2	2	2
2 – B1040 Herne Road / Glassmoor Bank junction	7	0	1	3
3 – A47 Fen Road / A141 March Road Roundabout	7	0	1	6
4 – A47 Fen Road near Shell Garage	5	0	0	5

The first cluster was identified on the B1040 Herne Road, approximately 2km south of Whittlesey. There have been 6 accidents reported in this location, with 2 fatal accidents taking place within 200m of the other. Both of these fatal collisions involved 2 cars. The other 4 accidents involved cars, cyclists or motorcyclists. Another cluster was identified further south on the B1040, where there have been 7 collisions at the Glassmoor Bank junction at Pondersbridge; 2 involving 2 cars, and 2 involving a car and a motorcycle.

Two cluster were also identified along the A47 Fen Road, in very close proximity to each other, including at the Fen Road / March Road Roundabout, and 300m west of this roundabout at the Shell Garage. There have been 5 collisions near the Shell Garage, all involving either two or three cars. At the roundabout, 7 accidents have occurred during the five-year time period assessed. 6 of these involved between 2 and 4 cars, and the other a car and a motorcycle.

3.2. Public Transport Assessment

3.2.1. Buses - Routes and Timetables

Fenland District is served by several bus routes operated by Stagecoach East and First Buses. The coverage of the local bus network is mostly confined to major routes between market towns, with the majority of services being sporadic and limited in operation. There are some services which provide a good service such as the Excel services running between Peterborough and Wisbech, but they only run across the northern portion of the district. Some routes provide services to access other isolated residential areas, but generally the service coverage could be better. Figure 3-9 shows the key bus links between Fenland Market towns and the surrounding areas.

Figure 3-9 - Map of Key Bus Routes connecting Fenland

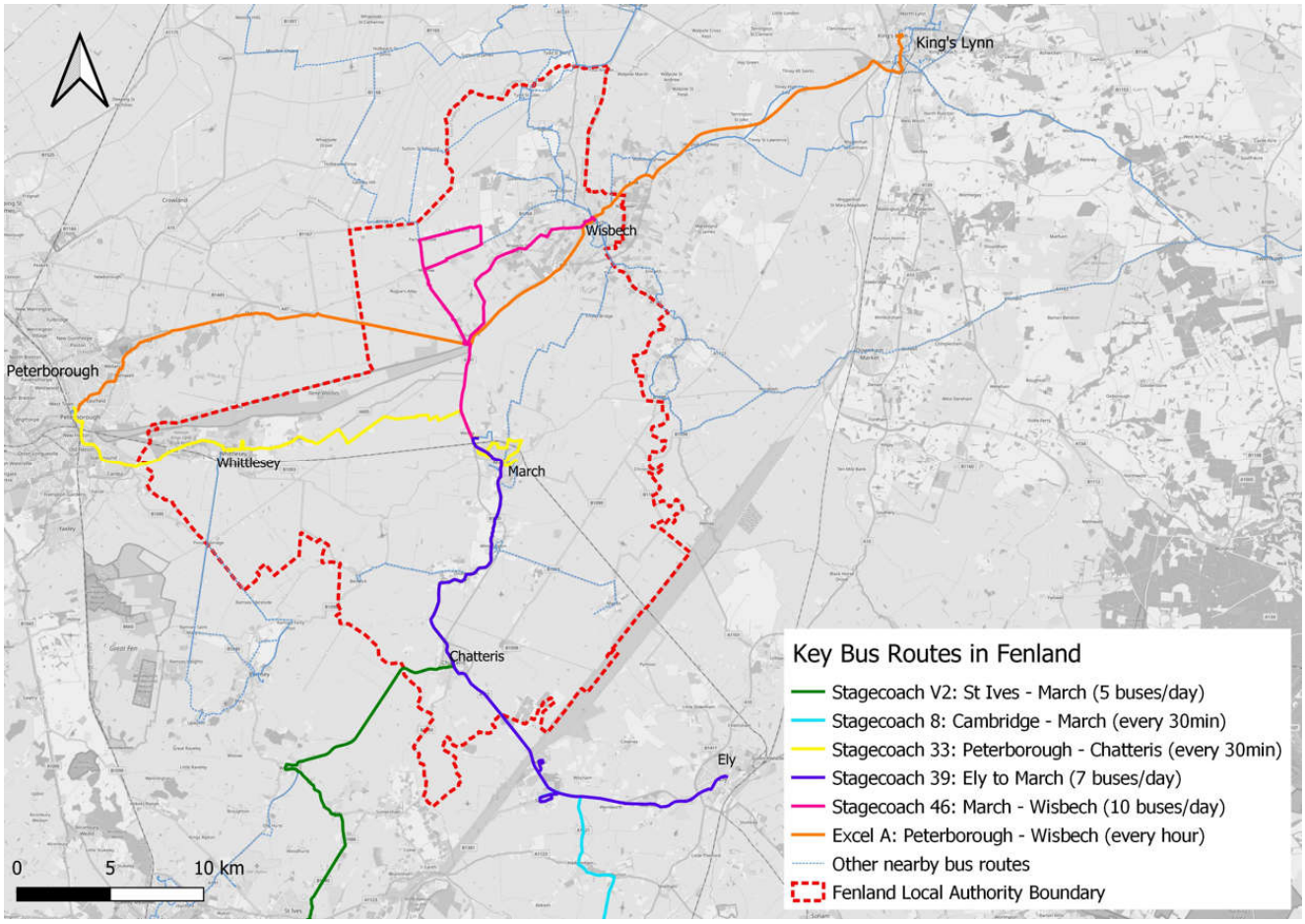


Table 3-11 provides a summary of the main bus services in Fenland and their frequency.

Table 3-11 - Main Bus Services in Fenland and Frequencies

Service	Bus Operator	Route	Frequency
46	Stagecoach East	Wisbech to March	10 services a day in each direction. No services on Sundays/Public Holidays.
V2	Stagecoach East	St Ives – Chatteris – Wimblington - March	4 services between March and Chatteris, 5 Services between Chatteris and St Ives, in each direction. . No services on Saturdays, Sundays, Public Holidays.
8	Stagecoach East	March – Doddington – Chatteris - Cambridge	1 service from March to Cambridge in the morning, 1 service returning in the evening.
31	Stagecoach East	Peterborough to Ramsey	9 services between Peterborough and Whittlesey with the reverse service.
33	Stagecoach East	Peterborough – Whittlesey – March - Chatteris	10 services between Peterborough and March, 2 services per day going to Chatteris.
39	Stagecoach East	Ely-Chatteris-March	7 services a day and every 2 to 3.5 hour frequencies in both directions. No service on Sundays
56	Stagecoach East Midlands	Wisbech – March - Wimblington - Manea	9 services from Wisbech per day, 7 of which alight at Wimblington and 4 services only stop at Manea. 3 services from Manea per day to Wisbech.
60	Go To Town	Wisbech – Downham Mkt – Swaffham – Three Holes	10 services (Mon to Sat) from Wisbech to Three Holes, 7 of those services stop at Upwell, in both directions. No Sunday services.
Excel A/B/C	First Bus	Peterborough — Wisbech – King's Lynn – Swaffham – Dereham - Norwich	Hourly Services for each route, in each direction. B and C services do not operate on Sundays/Public Holidays.

Note: All service information is as of the providers in their most recent timetabling, which is between Jan to June 2022

Table 3-11 shows some fairly regular bus services (i.e. Stagecoach 8, Stagecoach 33 and First Bus Excel A/B/C). It can be seen in Figure 3-9 that although there is no single route that connects all four market towns, it is possible, through interchanges, to reach all four market towns in the Fenland by bus, although for some of these services the services times are limited to early morning, late evening, and in some cases there are only two services per day. Market towns are roughly 10-12km apart from the closest neighbouring market town, which should take about 15 to 22 minutes to drive in neutral traffic conditions. This time and distance can be considered relatively short to travel between market towns and is a major factor for the lack of bus use, and bus providers laying on services too.

3.2.2. Rail

Manea, March and Whittlesea are all on the Ely-Peterborough Line and have rail stations both located on the edge of their respective towns. In contrast, and with respect to the district study, Wisbech and Chatteris do not have rail stations. Manea is the closest rail station to Chatteris, which is some 8.5miles away and can be accessed by the 56 bus service, cycling or by car. The 56 service has only 4 services a day to Manea. The closest station to Wisbech is March to the south. Details of Manea, March and Whittlesey stations are provided below.

March Railway Station

- 60 space cycle storage which is sheltered and secured;
- 83 space carpark (3 disabled spaces) with £5 peak daily tariff;

- Newly opened ticket office, waiting rooms, shop, toilets, accessible facilities;
- Taxi rank outside station;
- Approximately 1 mile from the centre of March, 20min walk;
- Bus stops within 200m of the station – the 33 service; and
- Approx. 15,000 people live within 2km of the station

Whittlesea Railway Station

- 10 cycle space storage;
- 10 car parking spaces, free of charge;
- Unstaffed station with a ticket machine;
- Approx. 0.6miles from the town centre, 13min walk;
- Bus stops are located in the town centre some 0.7miles, 14min walk; and
- Approx. 8,000 people living within 2km of the station.

Manea Station

- 112 car park spaces (due to open in September 2022);
- 8 Cycle Parking spaces;
- Ticket machines and help points;
- Approx.1 mile from centre of Manea, 21min walk;
- Bus stop located 0.7miles from the station in Manea, 14min walk; and
- Approx. 2,000 people within 2km of the station.

The three stations described above all accommodate the same services running between Ely and Peterborough which connect to Stansted airport, changes at Ely for London services, and Liverpool and Birmingham through Peterborough station. All three stations have hourly services that run between Peterborough and Stansted Airport, with a service every other hour stopping at Ely. There are also two hourly services that run between Ipswich and Liverpool Lime Street.

3.2.3. Public Transport Mode Share

Public transport mode share in the market towns was assessed using Census 2011 travel to work data. Public transport mode share is low, when compared to car use (Table 3-12).

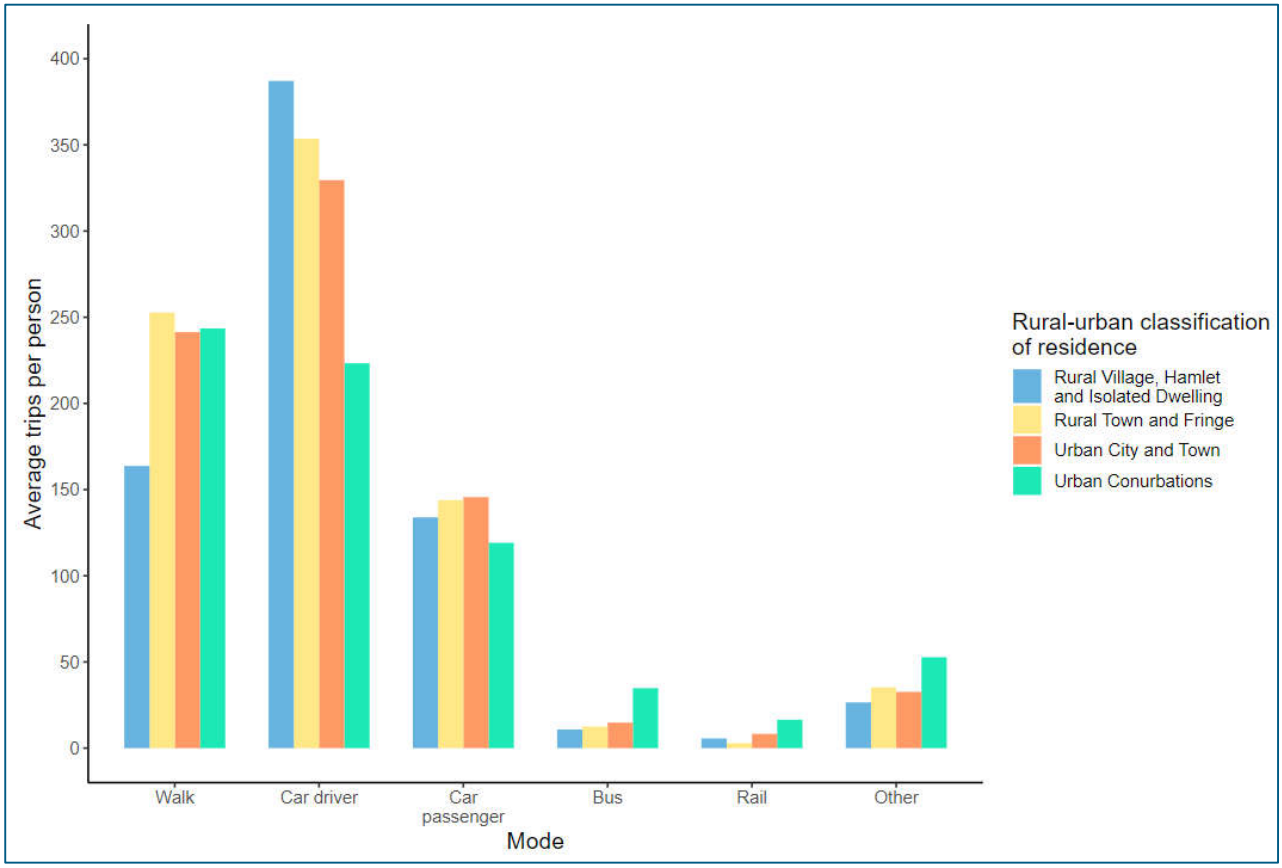
Table 3-12 – Train and Bus Public Transport Mode Share for work trips, compared to Car use

		Train	Bus	Car
Chatteris	Inbound	2.0%	2.6%	95.5%
	Outbound	0.3%	2.3%	97.4%
March	Inbound	3.9%	1.9%	94.2%
	Outbound	0.7%	1.9%	97.4%
Whittlesey	Inbound	1.9%	5.9%	92.2%
	Outbound	0.2%	2.0%	97.7%
Wisbech	Inbound	0.6%	3.8%	95.6%
	Outbound	0.3%	2.9%	96.9%

The data in the table above shows that public transport use is significantly lower than car use. This reflects the general pattern of more rural locations, where car travel is preferred to public transport. Although the data above is only for work trips, trips made by students would likely contribute as the highest users of bus, closely followed by the elderly for leisure purposes. This pattern would reflect the 2020 national survey data, which illustrates that 17 to 20 year-olds (male and female) travel by bus more than any other age group. Figure 3-10 presents a comparison of average trips made by mode across rural-urban classifications of residence. Although this graph is not specific to work trips, for each mode the pattern of mode share for the market towns largely

reflects the Rural vs. Urban patterns. The market towns in this report fall under the 'Rural Town and Fringe' category and therefore have some of the highest car trips in England, the lowest Rail use in England, but the highest walking trips across all residence types.

Figure 3-10 - Average trips per person, by mode and rural and urban areas, England 2020[1]



This national survey data largely reflects what can be seen in Table 3-12 with bus trips slightly higher than rail trips, but both having significantly lower rates than car trips for Rural Villages and Rural Towns. As can be expected for Urban conurbations, where public transport is not only well established, but preferred as a more efficient mode of travel to car due to traffic.

3.3. Community Transport

Within the Fenland District there are several schemes that people can use if they do not have access to modes of transport due to lack of services, disability, or other factors. The Fenland Community Transport schemes include the following:

- Dial-a-ride (FACT Community Transport) – This works on a membership scheme and is booked by the user in advance. Accessible mini-buses on a timetable and set route are used to pick up users.
- Group hire – this service is run by FACT Community Transport and can be used for days out or simple trips to local destinations
- Community car schemes – These schemes are for are for people who have difficulty using public transport or have no access to public transport. They offer organised door-to-door lifts for people who have no other way of making essential medical or social journeys. There are community car schemes in Chatteris, Wimblington, Whittlesey and Wisbech.

[1] National Travel Survey: 2020 - GOV.UK (www.gov.uk)

3.4. Active Travel Assessment

Active travel is a term used to describe journeys made by walking or cycling (electric or push) and even scooting, which is outside the scope of this report.

When comparing active travel to public transport use for the region, walking trips are generally higher than cycling trips across all market towns (Table 3-13) and active travel trips also tend to be higher than public transport trips (Table 3-12).

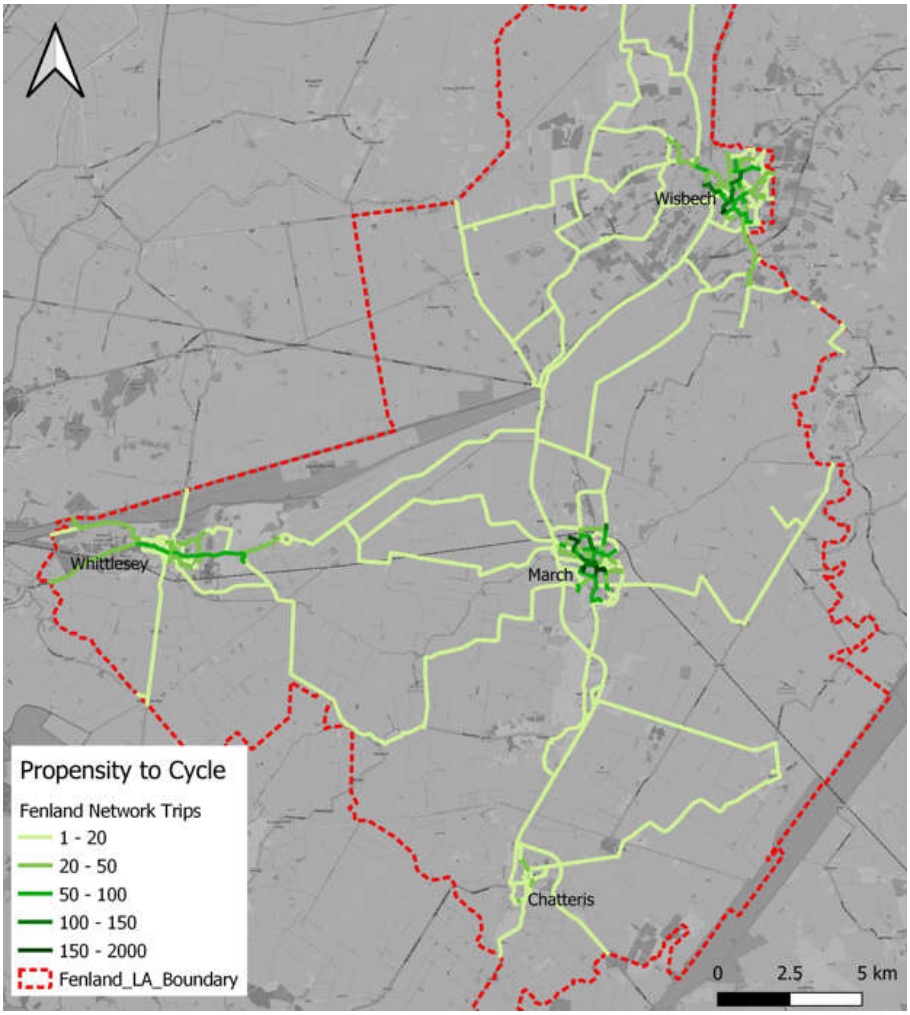
Table 3-13 - Cycling and Walking work trips across all Market Towns

Town	Direction	Cycle	Walk
Chatteris	Inbound	124	324
	Outbound	109	312
March	Inbound	806	742
	Outbound	787	753
Whittlesey	Inbound	225	348
	Outbound	178	326
Wisbech	Inbound	585	1729
	Outbound	610	1600

The PCT tool was used in the cycling analyses to produce the following figures, as mentioned in section 2.3, the PCT tool indicates where cycling is most common and where there is the potential for cycling infrastructure to be expanded. The tool covers travel behaviour data for commuting and school travel and both are based on the 2011 Census, which is the most up-to-date and publicly available source on cycling levels at high geographic resolution nationwide.

Figure 3-11 shows traffic flows along the Fenland cycle route network, expressed in daily trips. Cycle traffic volumes appear higher within the four market towns and lower across rural areas, with very low daily trips between market towns.

Figure 3-11 – Propensity To Cycle Fenland Route network



The level of cycling differs between market towns. Wisbech and March (Figure 3-12 and Figure 3-13) have higher levels than Whittlesey (

Figure 3-14), which in turn has even higher levels of cycling than Chatteris (Figure 3-15). All market towns experience the highest levels of cycling in and around their respective town centres. Wisbech and March experience good levels of cycling in their town centres, with many streets experience 100-150 daily trips, and some over 150 daily trips. Chatteris has the lowest daily trips from all market towns, with only a few streets experiencing cycling and only reaching a high of 20-50 cycle trips per day.

Figure 3-12 – Propensity To Cycle Network for Wisbech

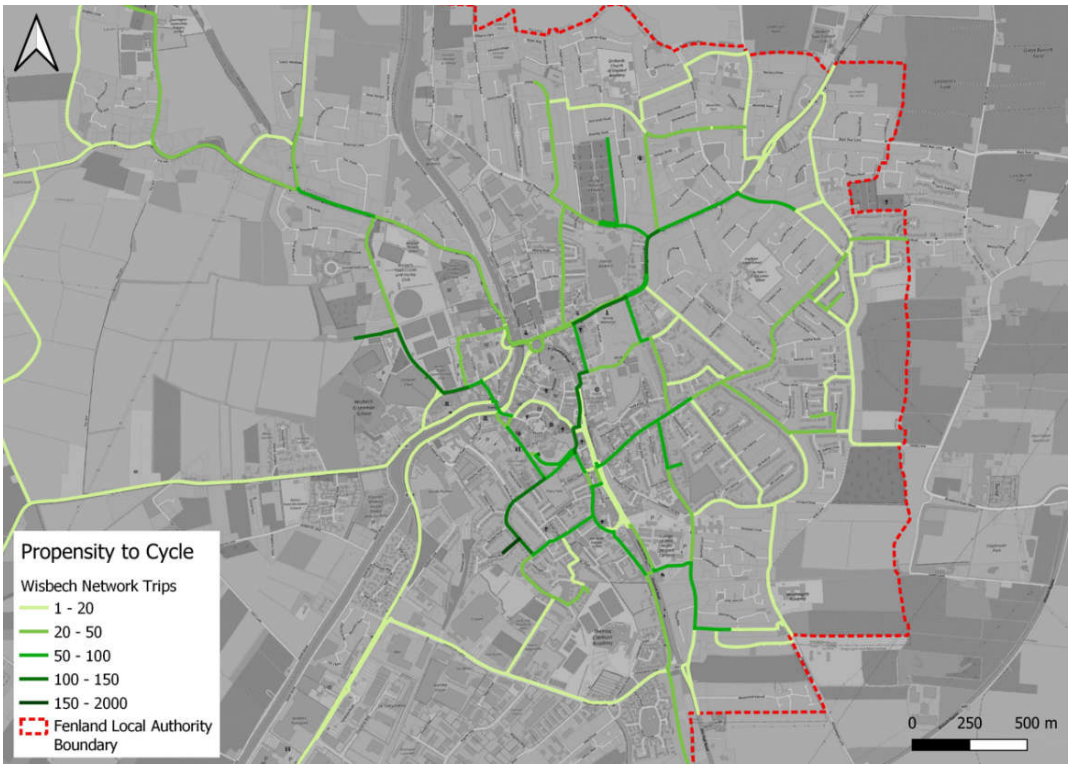


Figure 3-13 – Propensity To Cycle network for March

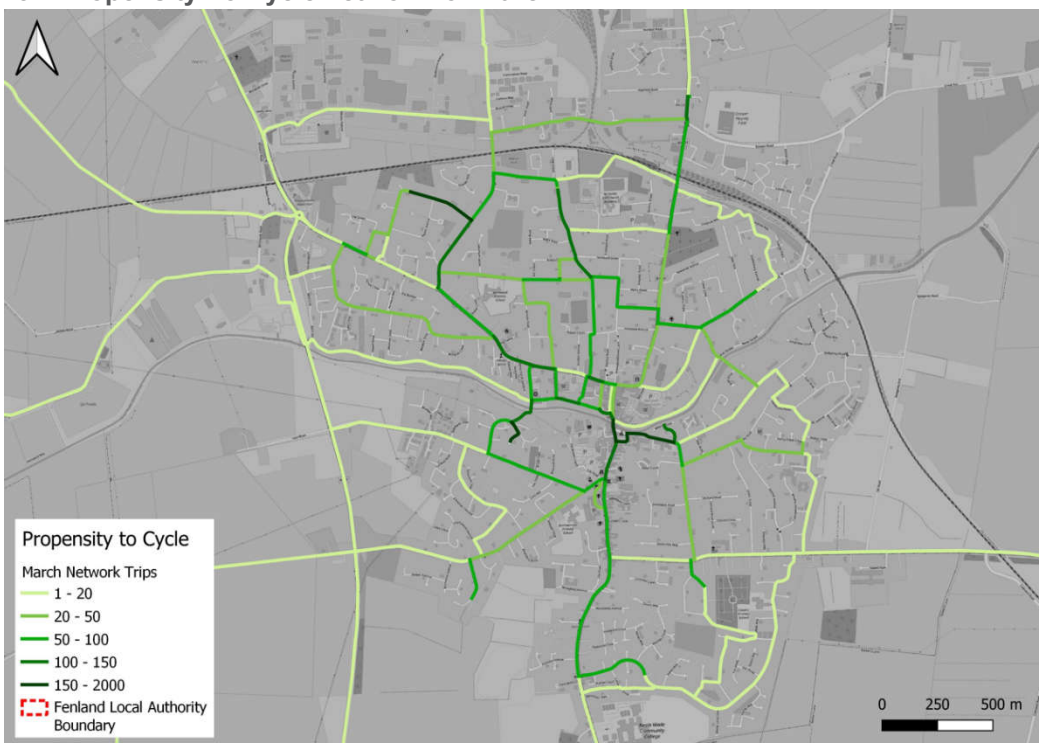


Figure 3-14 – Propensity To Cycle tool for Whittlesey

Figure 3-15 – Propensity To Cycle tool for Chatteris

In summary, Wisbech and March experience highest levels of cycling in Fenland, particularly through the town centre for market town standards. Whittlesey has relatively low levels of cycling, 50-100 daily trips straight through the town centre. Chatteris has very low levels of cycling, with levels not going beyond 1-20 cycle trips a day on most routes.

Cycling between market towns is very low and does not reach levels over 1-20 trips per day along any given route between any market towns. These low levels could be related to a combination of factors such as distance and the lack of good quality links between the towns. In relation to the distance between the market towns, they vary across the district, For example, the distance from Chatteris to March is approximately 12km, from Whittlesey to March 18km and March to Wisbech 16km. It should also be noted that 5km is generally considered to be an acceptable cycling distance for most groups of people and takes about 15 minutes travelling 16-20km/ph on flat ground in good weather. Cycling 10km (such as between Chatteris and March) should take 25-30 minutes at a similar pace. Travelling 20km should take around 60 minutes – so to journey between other market towns will take slightly less than an hour. This distance and long time required to journey between market towns could contribute to the low cycling levels on these routes.

3.5. Growth Option Developments

This section sets out the makeup of the GOs in terms of residential and commercial development. Within each GO, there are committed and planned developments, which are described as follows:

- Planned developments are defined as those developments that are aspirational and included the growth options; and
- Committed developments are defined as those developments already with planning permission.

As discussed in the introduction the GOs represent differing combinations of development scenarios and/or in different locations. The current draft site allocations trajectory shows the housing capacity as allocated in the draft local plan would aim to deliver **8,775** dwellings. Removing the sites with extant planning permission gives a housing total of **3,677**, this comprises the GO1 scenario.

Housing Growth Options

- Growth Option 1 (GO1) – is the baseline scenario which, if delivered, will fall short of the levels of housing required for the district, this scenario would deliver **3,677** dwellings.
- Growth Option 2 (GO2) – This growth option would aim to deliver approximately **10,800** dwellings which would be more focused around the main market towns.
- Growth Option 2a (GO2a) – This growth option would aim to deliver approximately **9,300** dwellings using released land and omitting sites which have performed poorly previously from a delivery point of view.
- Growth Option 3 (GO3) – This growth option would aim to deliver approximately **10,700** dwellings, allocating more growth sites in villages and excluding sites of lesser suitability in market towns
- Growth Option 4 (GO4) – This growth option would aim to deliver approximately **11,800** dwellings, which would be more focused on strategic growth of certain villages and would build upon GO3 by including more growth in Wimblington, Coates and Eastrea.

Employment Growth Options

- Employment Option 1 (EMPO1) – This growth option is a baseline option and would aim to deliver 45.34ha
- Employment Option 2 (EMPO2) – This growth seeks to provide 399.43ha of employment space across the district, with 41,7ha already with planning permission, 209.7ha allocated within the local plan and 148ha of space submitted for consideration.
- Employment Option 2A (EMPO2A) – This growth seeks to provide 253.8ha of employment space across the district, with 41,7ha already with planning permission, and 148ha of space submitted for consideration. There is an option for 209.7ha which is allocated within the local plan as ‘Broad Employment Locations’

3.6. Major Transport Improvements

The following list shows the major transport improvements that have either been implemented or are due to be implemented within the Fenland District:

- A47 Guyhirn Roundabout
  - National Highways recently completed a project at this junction to increase the size of the roundabout by creating two lanes on all approaches
  - The aim of this is to reduce congestion, improve journey times and increase safety

- Fenland Stations Regeneration
  - The Fenland Stations Regeneration Project is a programme to upgrade the stations of Manea, March and Whittlesea, including:
    - New waiting shelters at Manea and Whittlesea;
    - Car parking provision, taxi bays and bus stops at Manea and Whittlesea;
    - Redesign of platform buildings at March; and
    - Improved cycle parking at all stations.
- Wisbech Access Strategy
  - The Wisbech Access Strategy is a package of individual transport schemes that aim to improve the transport network in Wisbech;
  - The following locations are being considered for improvement:
    - Freedom Bridge Roundabout;
    - Bus Station;
    - Operation of Cromwell Road including A47 Roundabout;
    - Operation of Elm High Road including A47 Roundabout;
    - Weasenham Lane and Ramnoth Road Junction;
    - New River Crossing;
    - Western Link Road;
    - Southern Access Road; and
    - A47 Broad End Road Junction.
- March Area Transport Study
  - The March Area Transport Study is an ongoing project to identify options for transport improvements in March. It is currently at an advanced phase of business case development.
  - The recommended option identified in the OBC will deliver the following improvements:
    - A141 / Peas Hill Roundabout (60m ICD), in conjunction with the development of a developer funded roundabout at Hostmoor Avenue;
    - A141 / Twenty Foot Road Signals;
    - Broad Street / Dartford Road / Station Road Mini Roundabout, with one lane in each direction on Broad Street;
    - Development of a Northern Industrial Link Road (NILR); and
    - High Street / St Peter's Road Traffic Signal Improvements.
- Whittlesey Kings Dyke Crossing
  - The Whittlesey Kings Dyke crossing opened to general traffic on the 12th July 2022, the project has been fifty years in the planning and provides a much needed bypass of a level crossing on the main Greater Anglia Rail Line.

4. Growth Option Testing and Impact

4.1. Base Model Build

The base model has been constructed using the data outlined in this report, and due to the high concentration of Growth Options (GOs) being largely located within or around the market towns in the district, the transport impacts of growth have been assessed separately for each market town in the form of diagrammatic spreadsheet models. Each model uses specific data to that market town to assess the impact of growth on the local junctions, which are subsequently identified as being impacted by the traffic growth and are modelled using industry standard software. This analysis has used 2011 Census data to distribute trips generated from the developments across the network with the assignment of these trips being based on the lowest travel time between destinations. An overview of the data underpinning the model build is given below:

- The model includes 40 junctions within Fenland

- Base traffic data collected from varying sources (as discussed previously)
- Traffic growth factors have been derived from the DfT TEMPRO database for the Fenland Area, these growth factors were then used to factor base traffic to the base year of 2021 and plan year of 2040
- 2011 census data was used to derive mode share, work trip destinations for car drivers from market towns, in-commuting and out-commuting, distribution and assignment for all new development
- Trip rates were derived from two sources, locally approved Transport Assessments for both residential and commercial developments, and the TRICS database for B2 and B8 use classes
- Discounting traffic between commercial and residential developments, where two GOs have been tested with each other, for example GO2 and EMPO2, there is double counting of traffic movements and so factors have been applied to the traffic to account for this 'double-counting'
- Discounting for mode shift – Where FDC seek to improve bus services, active travel routes, internet provision, more space within new housing for working at home, all of which serve to reduce travel by car, a discount has been made for traffic being generated by residential developments. This discount includes travel planning, flexi-working and an assumption of improvements to all of the above.

The underlying data and assumptions will be discussed in more detail within the Transport Assessment, which will support the submission version of the Local Plan.

4.2. Selection of Growth Options to Test

The Growth Options set out in the introduction and in **Error! Reference source not found.** and **Error! Reference source not found.** are the growth options to be tested for the Local Plan TA. However, as agreed with FDC, this interim note focuses on the council's preferred GOs of GO2A and EMPO2A. The forthcoming TA will include a summary of the tests involving the other GOs.

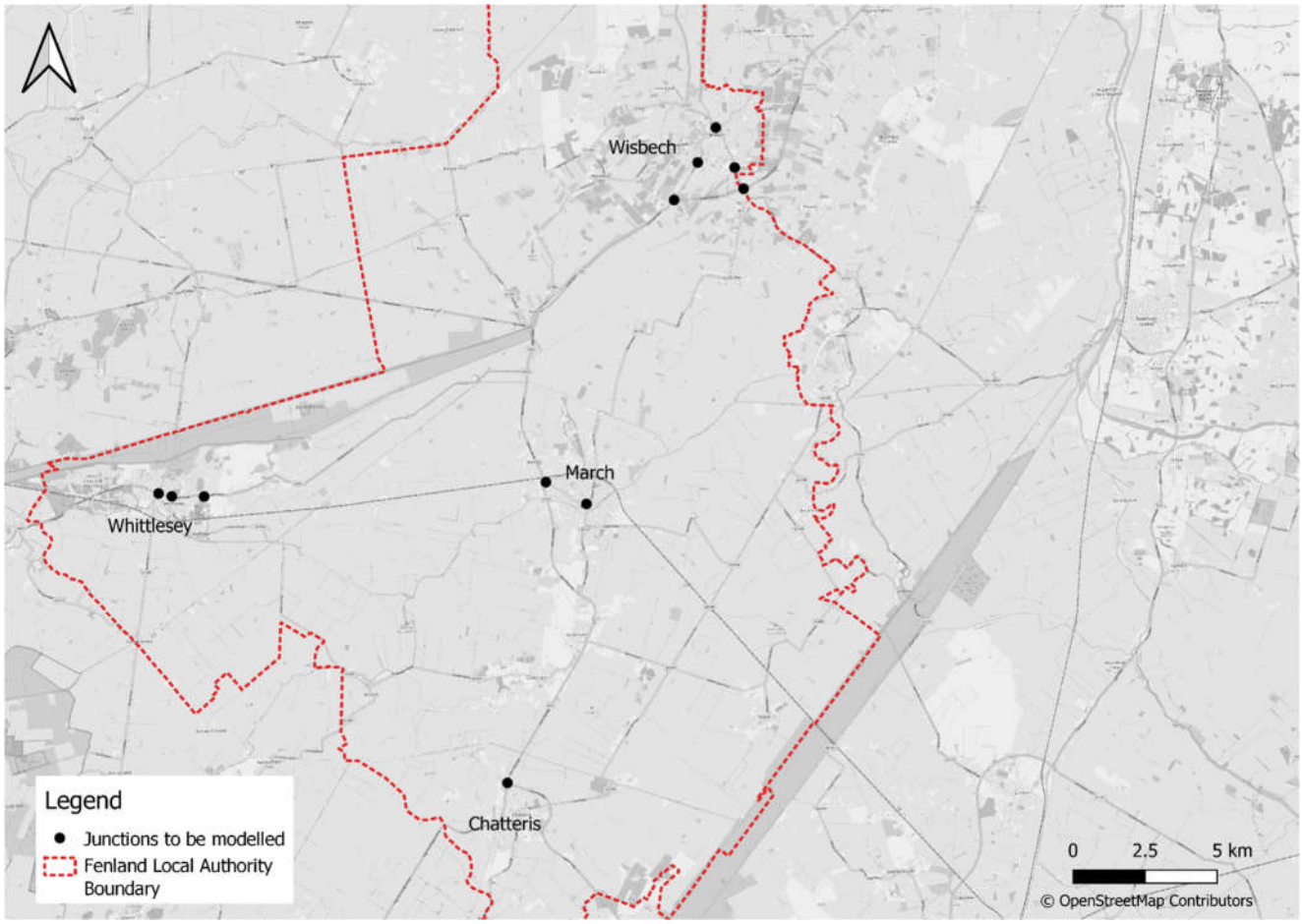
4.3. Identification of Potential Junctions to Test

As discussed in section 3.1.1, and identified during the early analysis work, the following junctions have been identified which will require modelling to be undertaken to fully understand the impacts of the GOs on the performance of the network. These junctions have been identified by reviewing previous Transport Assessments and other studies where these junctions have been shown to have existing capacity issues or are reaching capacity. For some of these junctions, adding more traffic to them will inevitably cause capacity and operational issues. These junctions have been identified as key junctions to test and model with respect to the GOs for the local plan.

- A141 Isle of Ely Way / A142 Isle of Ely Way / Bridge Street / A141 Fenland Way / Doddington Road
- B1099 Wisbech Road / A141 / Whittlesey Road (Peas Hill Roundabout)
- B1099 Dartford Road / B1101 Station Road / B1099 Broad Street
- A605 Eastrea Road / Cemetery Road / Blunt's Lane Roundabout
- A605 Syers Lane / Broad Street / A605 Whitmore Street / Orchard Street
- A1101 Churchill Road / Weasenham Lane
- A47 / B198 Cromwell Road Roundabout
- A47 / A1101 Elm High Road Roundabout
- Freedom Bridge Roundabout
- B198 Cromwell/Weasenham Lane Signals

The locations of these are presented in Figure 4-1.

Figure 4-1 - Junctions to be modelled



Initial analysis of the impact of the GOs on these identified junctions has been undertaken for the peak periods. The results are expressed as percentage increases on the peak period flows for each GO combination and are presented in Table 4-1.

Table 4-1 - Percentage increase in total junction flow (vehicles) for each growth scenario

Area	Junction	AM							
		2040 Do Nothing Total Traffic	Do Min (GO1+EMPO1)	GO2+EMPO2	GO2+EMPO2A	GO2A+EMPO2	GO2A+EMPO2A	GO3+EMPO2	GO4+EMPO2
Chatteris	A141/A142/Bridge Street/Doddington Road	3,126	21%	56%	99%	56%	99%	58%	58%
March	Peas Hill Roundabout	2,784	10%	63%	19%	59%	73%	62%	65%
March	Dartford Road / Broad Street / Station Road	1,928	5%	13%	13%	11%	12%	12%	12%
Whittlesey	A605 Eastra Road / Cemetery Road / Blunts Lane	1,968	5%	41%	39%	35%	33%	32%	47%
Whittlesey	A605 / B1040	2,395	5%	33%	31%	29%	27%	26%	38%
Wisbech	Churchill Road / Weasenham Lane	2,576	4%	30%	30%	28%	29%	30%	32%
Wisbech	A47 / Cromwell Road	2,839	7%	26%	28%	24%	26%	25%	27%
Wisbech	A47 / A1101	3,892	3%	17%	19%	15%	17%	16%	19%
Wisbech	Freedom Bridge Roundabout	2,949	7%	22%	23%	27%	27%	27%	24%
Wisbech	Cromwell Road / Weasenham Lane	1,842	12%	37%	37%	44%	45%	44%	37%
Area	Junction	PM							
		2040 Do Nothing Total Traffic	Do Min (GO1+EMPO1)	GO2+EMPO2	GO2+EMPO2A	GO2A+EMPO2	GO2A+EMPO2A	GO3+EMPO2	GO4+EMPO2
Chatteris	A141/A142/Bridge Street/Doddington Road	2,636	22%	60%	108%	59%	107%	62%	59%
March	Peas Hill Roundabout	3,385	7%	45%	56%	41%	52%	44%	43%
March	Dartford Road / Broad Street / Station Road	2,038	3%	10%	11%	7%	7%	9%	10%
Whittlesey	A605 Eastra Road / Cemetery Road / Blunts Lane	2,104	4%	36%	34%	31%	29%	28%	28%
Whittlesey	A605 / B1040	2,633	4%	27%	25%	24%	22%	22%	21%
Wisbech	Churchill Road / Weasenham Lane	2,336	4%	28%	29%	26%	27%	30%	22%
Wisbech	A47 / Cromwell Road	2,983	6%	22%	24%	20%	22%	21%	19%
Wisbech	A47 / A1101	3,490	3%	17%	19%	15%	16%	17%	14%
Wisbech	Freedom Bridge Roundabout	3,500	5%	17%	17%	19%	20%	18%	14%
Wisbech	Cromwell Road / Weasenham Lane	2,050	10%	30%	30%	35%	35%	34%	28%

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The percentage increases indicate differing levels of impact on the junctions which will be tested through individual junction models. The forthcoming Transport Assessment will outline the junction model tests, with some initial selected model testing for the GO impact presented below.

4.4. Initial Model Testing and Mitigation

Existing junction models were obtained from existing studies and assessments within the district. The models included Junctions 9 models for the roundabouts and LinSIG models for signalised junctions. The junctions for which models were obtained are listed below:

Table 4-2 - Junction Model Checklist

Area	Junction	Model Obtained/Built?	Software Type
Chatteris	A141/A142/Bridge Street/Doddington Road	Y	Junctions 9
March	Peas Hill Roundabout	Y	Junctions 9
March	Dartford Road / Broad Street / Station Road	Y	LinSIG
Whittlesey	A605 Eastra Road / Cemetery Road / Blunts Lane	Y	Junctions 9
Whittlesey	A605 / B1040	Y	Junctions 9
Wisbech	Churchill Road / Weasenham Lane	Y	LinSIG
Wisbech	A47 / Cromwell Road	N	*Junctions 9*
Wisbech	A47 / A1101	N	*Junctions 9*
Wisbech	Freedom Bridge Roundabout	N	*Junctions 9*
Wisbech	Cromwell Road / Weasenham Lane	Y	LinSIG

Note: Three junction models are yet to be obtained (July 2022).

Traffic Matrices were produced from the Fenland Model to test the combinations of GOs on the junctions listed above. The following table provides a summary of the modelling and whether mitigation for each GO combination has been tested. The purpose of the summary to is to give an early indication of the impacts of the traffic on the junctions and if localised mitigation can be implemented to accommodate the traffic growth on the junctions. It should be noted that at the time this Interim Report was prepared, it has not been possible to complete junction modelling or mitigation testing for all junctions.

Table 4-3 - Initial Junction Model Results Summary

		Base	DN	G02A/EMPO2A 2040		Proposed Mitigation
Area	Junction	2021	2040	AM	PM	
Chatteris	A141/A142/Bridge St/ Doddington Rd	N	N	Y	Y	Further Investigation required
March	Peas Hill Roundabout	N	Y	Y	Y	The March Area Transport Study includes projects for Peas Hill roundabout and the neighbouring Hostmoor Avenue including a large roundabout and signalised junction These projects are currently in detailed design stage.
March	Dartford Rd / Broad St / Station Rd	Y	Y	Y	Y	The March Area Transport Study and Future High Streets Fund projects are delivering this scheme which has to be fully open by March 2024.
Whittlesey	A605 Eastra Rd / Cemetery Rd / Blunts La	Y	N	Y	Y	Potential Part-time signals – further investigation required
Whittlesey	A605 / B1040	N	N	Y	Y	Potential mitigation through mode choice/mode shift
Wisbech	Churchill Rd / Weasenham La	X	X	X	X	The Wisbech Access Strategy includes a project to create a roundabout at the current stagger junction in this location. The detailed design phase and land assembly is close to completion. The scheme is also being reviewed by National Highways as part of potential plans to improve A47.

Wisbech	*A47 / Cromwell Rd*	X	X	X	X	*The Wisbech Access Strategy includes proposals to enlarge the A47/Cromwell Road. These proposals form part of the medium term approach for this strategy*
Wisbech	*A47 / A1101*	X	X	X	X	The Wisbech Access Strategy includes a project to create a larger roundabout at this location. The detailed design phase and land assembly is close to completion. The scheme is also being reviewed by National Highways as part of potential plans to improve A47
Wisbech	*Freedom Bridge Roundabout*	X	X	X	X	*The Wisbech Access Strategy includes a series of mini-projects in this location to facilitate growth in the Local Plan. These proposals form part of the medium term approach for this strategy*
Wisbech	Cromwell Rd / Weasenham La	Y	Y			Further Investigation required

Note: Y = are there capacity concerns at this junction, N = capacity at this junction is within operational capacity, X = further testing required

As shown above, there are a number of committed upgrades and schemes that will enhance capacity at the local junctions within some of the market towns, to accommodate growth in traffic, facilitate all movements through these areas and improve upon substandard junctions. Three junctions currently have no proposed upgrade plans, the Chatteris A142/A141 roundabout and the two roundabouts in Whittlesey, a summary of the modelling of these junctions is presented below:

4.4.1. Chatteris A141/A142/Doddington Road/Bridge Street Roundabout

Preliminary testing of this roundabout has indicated that with background growth applied within the district, the roundabout is likely to operate within capacity in the AM and PM peak 2040 scenarios. Testing the preferred GO combination of GO2A and EMP02A shows that the roundabout capacity will be exceeded in the peak periods, specifically on the A141 South arm, and the A141 North arm in the AM peak period, and the A141 South arm/ Bridge Street Arm in the PM peak period. In most of the scenarios we have tested, the A141 South arm shows capacity issues. In general, the capacity issues appear to be related to certain arms with other arms showing reserve capacity of 10% to 20% capacity. We are undertaking ongoing testing which includes options on how the capacity issues may be mitigated. These tests will be reported in the forthcoming TA.

4.4.2. Whittlesey – Orchard Road/A605 Roundabout

Preliminary testing of this roundabout has indicated that with background growth applied within the district, the roundabout is likely to operate within capacity in the AM and PM peak 2040 scenarios. The modelling of this roundabout has indicated capacity concerns in the PM peak period where the capacity exceeds 100% for the GO2a and EMP02A test. The modelling of this junction is ongoing, which includes mitigation testing where a number of different options will be tested. It is considered that the capacity concerns indicated by the modelling could be mitigated by implementing other schemes which serve to reduce vehicular traffic, such as active travel schemes, improved bus services and reducing HGVs through the town. This further testing will be captured in the forthcoming TA.

4.4.3. Whittlesey – Blunts Lane/ A605/ Cemetery Road Roundabout

Preliminary testing of this roundabout has indicated that the roundabout operates at present with some capacity concerns within the peak period. With background growth applied within the district, the roundabout is likely to operate within capacity in the AM and PM peak 2040 scenarios. The modelling of the impact of the GO2A with EMP02A indicates that the roundabout is likely to exceed capacity within the peak periods on the A605 East and Cemetery Road arm. Some potential mitigation measures for this junction will be tested, these include part time signals which may offer some balancing of capacity at this junction. This will be tested further and included within the forthcoming TA.

4.4.4. Summary of Modelling to date

The early junction analysis has shown that the preferred GOs will impact on the junctions highlighted above, however mitigation measures are already proposed and in the later stages of planning for the majority of these junctions. The junctions highlighted where there are no planned works are being tested further and a summary of these tests will be included within the forthcoming TA. Furthermore, good quality walking and cycling links to

key local destinations, improvements to bus services can all serve to reduce the need to travel by car thus reducing impact on local junctions.

4.5. Impact on Key Strategic Routes

The impact of the preferred growth scenario on key routes in and out of Fenland has been calculated. This is based on the trip generation and distribution work for both GO2A and EMPO2A. Changes in peak hour flow has been calculated for the following key routes:

- A47, north of Peterborough;
- A47, northwest of Wisbech;
- A1101, north of Wisbech;
- A605, west of Whittlesey;
- A141, south of Chatteris; and
- A142, south of Chatteris.

Figure 4-2 - Locations with flow change calculated

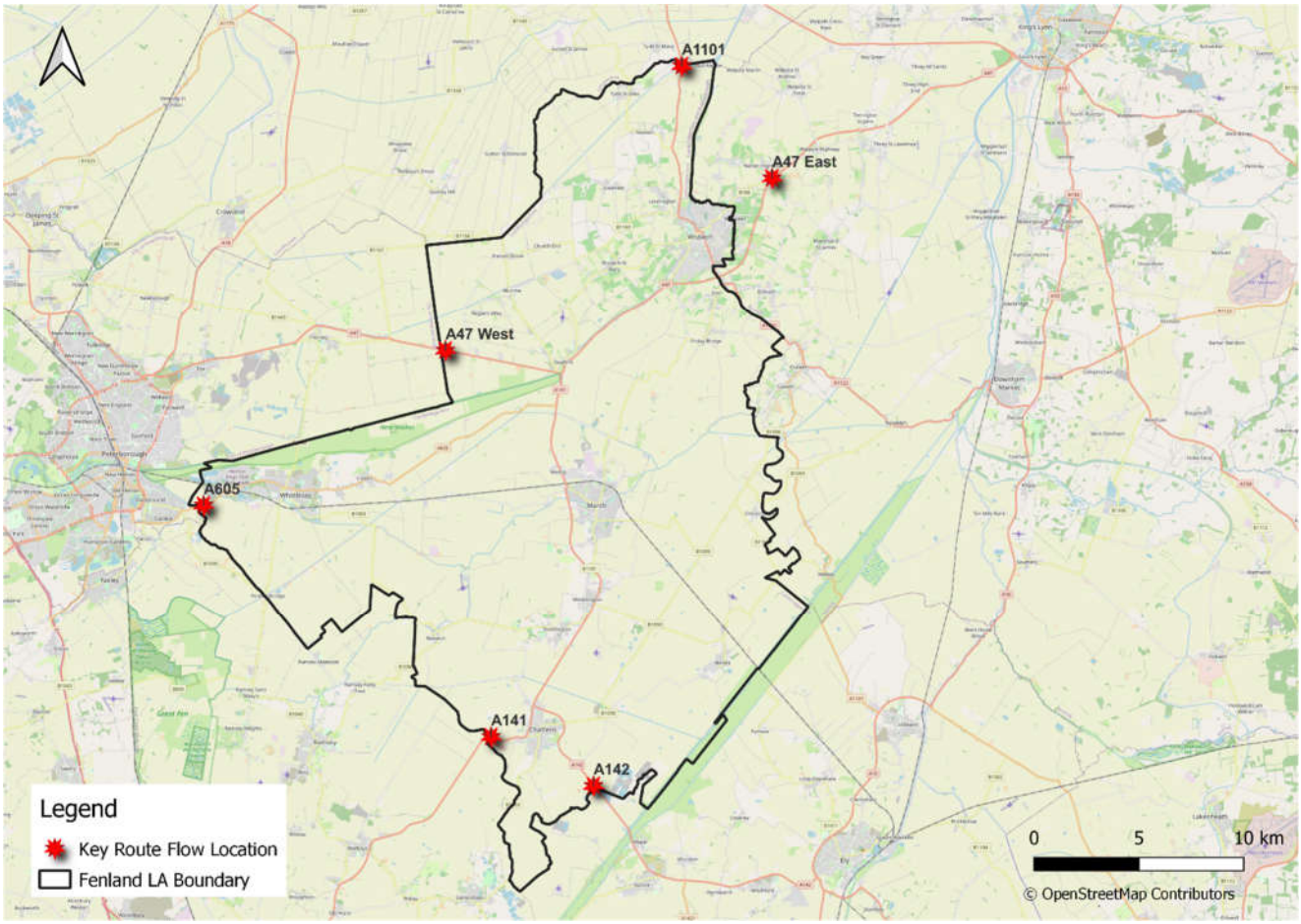

Table 4-4 shows the impact on key routes by direction and by peak hour.

Table 4-4 - Traffic flow change (Vehicles/hr) on key routes in and out of Fenland District (2040)

Location of Flow Change	Inbound		Outbound	
	AM (0800-0900)	PM (1700-1800)	AM (0800-0900)	PM (1700-1800)
A47 West of Guyhirn	207	215	273	208
A47 East of Wisbech	335	141	82	142
A1101 North of Wisbech	35	44	56	36
A605 East of Whittlesey	311	135	377	229
A141 South of Chatteris	1543	1040	1279	1542
A142 South of Chatteris	461	415	527	474

4.6. In–Commuting and Out-Commuting from Growth Options

The following tables show a likely level of traffic that would commute both in and out of Fenland for work purposes. The destinations included in the table are Cambridgeshire, Peterborough, Huntingdonshire and Kings Lynn. The Census data indicates that the split of out-commuting trips to Cambridgeshire is approximately a third each to Cambridge City, South Cambridgeshire and East Cambridgeshire.

Table 4-5 – In-Commuting Trips for each GO and EMPO Scenario

Location	GO1		GO2		GO2A		GO3		GO4		EMPO1		EMPO2		EMPO2A	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Cambs	19	46	149	364	149	364	154	375	161	393	49	23	241	112	489	229
Peterborough	36	87	195	475	158	385	155	379	217	529	48	23	328	151	355	164
Hunts	15	37	117	286	114	278	115	281	127	310	36	17	189	87	363	169
King's Lynn and West Norfolk	15	37	60	147	55	135	64	155	66	161	29	13	114	56	132	64

Table 4-6 - Out-Commuting Trips for each GO and EMPO Scenario

Location	GO1		GO2		GO2A		GO3		GO4		EMPO1		EMPO2		EMPO2A	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Cambs	62	23	489	181	489	181	503	187	528	196	26	45	131	237	265	475
Peterborough	117	43	638	237	517	192	509	189	710	263	26	45	179	325	193	350
Hunts	50	19	384	142	373	138	378	140	416	154	19	33	103	188	197	353
King's Lynn and West Norfolk	50	18	197	73	182	67	209	77	216	80	16	29	61	103	70	121

Note: When combining the GOs with EMPOs traffic is discounted in order to remove any double counting errors.

The out-commuting scenarios are based on census data of work-based trips travelling to and from the Fenland District to those neighbouring local authority areas. Further analysis will be contained within the Transport Assessment of the predicted in- and out-commuting levels.

4.7. Active Travel Impact

The forthcoming Transport Assessment will capture a full suite of active travel impacts each potential GO is likely to generate. For the purpose of this Interim Note, the active travel impact from the preferred GO2A has been assessed and is presented below for the different areas with respect to walking, cycling and other trips.

Table 4-7 - Increased Active Travel Trips by Journey Purpose for GO2A

		AM		PM		Daily	
Area	**Journey Purpose**	**Cycle**	**Walk**	**Cycle**	**Walk**	**Cycle**	**Walk**
Chatteris	**Commute**	25	66	36	95	76	199
	Education	39	825	3	73	117	2476
	Other	14	187	30	404	42	560
March	**Commute**	135	125	195	179	406	374
	Education	61	1293	5	114	183	3880
	Other	22	293	48	634	66	878
Whittlesey	**Commute**	22	34	31	49	66	101
	Education	20	425	2	38	60	1276
	Other	7	96	16	208	22	289
Wimblington/ Doddington	**Commute**	12	32	17	46	35	95
	Education	32	679	3	60	96	2036
	Other	12	77	25	166	35	230
Wisbech	**Commute**	19	55	27	79	56	164
	Education	12	264	1	23	37	793
	Other	4	60	10	130	13	179
Fenland Rural	**Commute**	8	16	12	23	25	49
	Education	37	185	3	16	111	554
	Other	13	89	29	192	40	266

Note: The daily active travel trips have been calculated using a factor derived from active travel surveys undertaken in other Local authority Areas.

The assessment of the increase in active travel trips from the GO2A option has been derived from National Census Data and National Travel Survey datasets. The splitting of the trips by journey purpose gives a reasonable indication of what trip making might be made by walking and cycling from the respective housing sites given the level of infrastructure provision and emerging proposals to upgrade or introduce cycle and walking infrastructure.

It is expected these figures to be higher once a mode shift has been applied, this mode shift is expected to be brought about by the following:

- Implementation of the planned active travel improvements outlined in the Fenland Cycling, Walking and Mobility Aid Improvement Strategy 2021.
- Implementation of Travel Plan strategies for individual sites and across the District.
- Implementation of excellent walking/cycling-led design across all new sites.
- Active Travel Promotion across the district.

The Active Travel Impact will be explored further in the Transport Assessment.

4.8. Public Transport Impact

The forthcoming Transport Assessment will cover the public transport impact in greater detail for all GOs, but for the purpose of assessing the preferred GO2A, the following table indicates the likely increase in public transport use across the market towns and rural area.

Table 4-8 - Likely Increase in Public Transport Use from GO2A

Area	Journey Purpose	AM		PM	
		Bus	Train	Bus	Train
Chatteris	Commute	18	0	26	0
	Education	330	0	29	0
	Other	28	0	61	0
March	Commute	19	39	27	57
	Education	517	0	46	0
	Other	44	29	95	63
Whittlesey	Commute	21	7	30	10
	Education	170	0	15	0
	Other	14	10	31	21
Wimblington/ Doddington	Commute	10	0	15	0
	Education	271	0	24	0
	Other	8	0	17	0
Wisbech	Commute	6	1	9	2
	Education	106	0	9	0
	Other	9	0	19	0
Others	Commute	12	0	17	0
	Education	628	0	55	0
	Other	9	0	19	0

Note: The bus use for the 'journey purpose: education' includes school transport, i.e., transporting secondary students to school.

Table 4-8 shows a likely increase in rail and bus use if GO2A is implemented, National Census data for current levels of bus use was used as a factor to calculate the proposed use, these calculations also include the increase in provision for school transport. It is considered that if mode shift targets are applied to the figures in Table 4-8, an additional 10% to 15% patronage could be expected on top of these figures. This mode shift would occur by a number of factors being implemented across the district, such as Travel Planning, improved pedestrian and cycle links to transport hubs, increase in provision of bus services and improvements to rail facilities and services. The Public Transport impact will be explored further in the Transport Assessment.

4.9. Modelling Impact Summary

The initial testing and running of the models have indicated where GOs are likely to have greater impacts and therefore where mitigation may be required with respect to upgrading and improving junctions, roads and active travel corridors. The focus of the modelling undertaken to date was the Council's preferred GO02A and EMP02A, in order to support the draft local plan in implementing these preferred GOs, the following improvements would need to be made:

Table 4-9 – GO2A and EMP02A Impact and Mitigation Matrix

Area	Junction	Scale of Improvement		Proposed Mitigation
		Minor	Major	
Chatteris	A141/A142/Bridge St/ Doddington Rd		✓	Further Investigation required
Chatteris	Wenny Road/A142	✓		Further Investigation required
Chatteris	A141/Huntingdon Road	✓		Further Investigation required
March	Peas Hill Roundabout		✓	Improvements covered by MATS (see table 4.3)
March	Dartford Rd / Broad St / Station Rd	✓		Improvements covered by MATS (see table 4.3)
March	Wimblington Rd/March Rd/A141	✓		Further Investigation required
Whittlesey	A605 Eastra Rd / Cemetery Rd / Blunts La	✓		Potential Part-time signals – further investigation required
Whittlesey	A605 / B1040	✓		Potential mitigation through mode choice/mode shift
Wisbech	Churchill Rd / Weasenham La			Improvements covered by WATS (see table 4.3)
Wisbech	*A47 / Cromwell Rd*			Improvements covered by WATS (see table 4.3)
Wisbech	*A47 / A1101*			Improvements covered by WATS (see table 4.3)
Wisbech	*Freedom Bridge Roundabout*			Improvements covered by WATS (see table 4.3)

It is considered that along with highway mitigation, improvements will need to be made to bus services and active travel routes that have been identified through local studies, which can be brought forward and delivered as soon as funding becomes available. The likely impact indicated by the modelling draws in questions regarding the need to provide more highway capacity versus improving buses and active travel corridors. Some junctions which only require minor amendments could be mitigated by improving bus provision and active travel improvements.

The Transport Assessment will provide a well-balanced discussion that looks to describe how the severity of each impact could effect the delivery of the GOs highlighted within the study and how several different approaches to improvement the local transport environment can mitigate perceived impacts.

5. Conclusions and Next Steps

This Interim Report has presented the baseline situation which underpins the current Fenland District Transport Model build and has identified some of the pressure points identified to date through the study. A spreadsheet model was constructed to assist with determining how the GOs will generate and distribute trips onto the network. The model is undergoing tests of the impact of the GOs on modes of transport such as public transport/ walking/ cycling and from a highways impact point of view, on identified junctions where additional pressure is likely to be experienced.

To date, the study has concluded that the highway network including several junctions are likely to be impacted by the implementation of the local plan emerging preferred GOs. GO2A and EMP02A scenarios are likely to have capacity and performance impacts on several junctions across the District, table 4.9 shows where some of those junctions have planned improvements to mitigate the growth, leaving the main junction of concern as the A141/A142/Doddington Road roundabout in Chatteris; this junction will need a major improvement in order to support the local plan GOs.

This Interim note has also highlighted the current level of bus provision across the district, which is sporadic and confined to major routes, it is considered that a robust approach to improving bus provision across the district, connecting people to where they want to go, like rail stations, workplaces, shops, can be just as effective as providing highway improvements. It is concluded that the Council should consider a robust approach to Public Transport alongside costly highway improvements.

Active travel impacts is likely to occur through the provision of more housing and employment, the district has a strategy for improving links within market towns and some links between villages and towns. It is considered

that more can be done to improve walking, cycling links between housing and destinations, as an alternative to costly highway improvements.

The Transport Assessment will draw on all the work undertaken to date regarding highway improvements, active travel and bus provision so a balanced view on how a swathe of improvements across modes of transport can all support the delivery of a robust, sustainable local plan.

5.1. Next steps – Transport Assessment

A Transport Assessment is currently being compiled to capture the current modelling analysis and results and will support the Council with their Local Plan. The TA will provide some indications of how the identified junctions which have not got planned improvements, might be improved to mitigate the preferred GO. The Transport Assessment is expected to cover the following further detailed work:

- The baseline situation
- The Fenland Model build
- The GO testing for all scenarios
- The impact of the GOs and EMPs; and
- The results of proposed mitigation tests.

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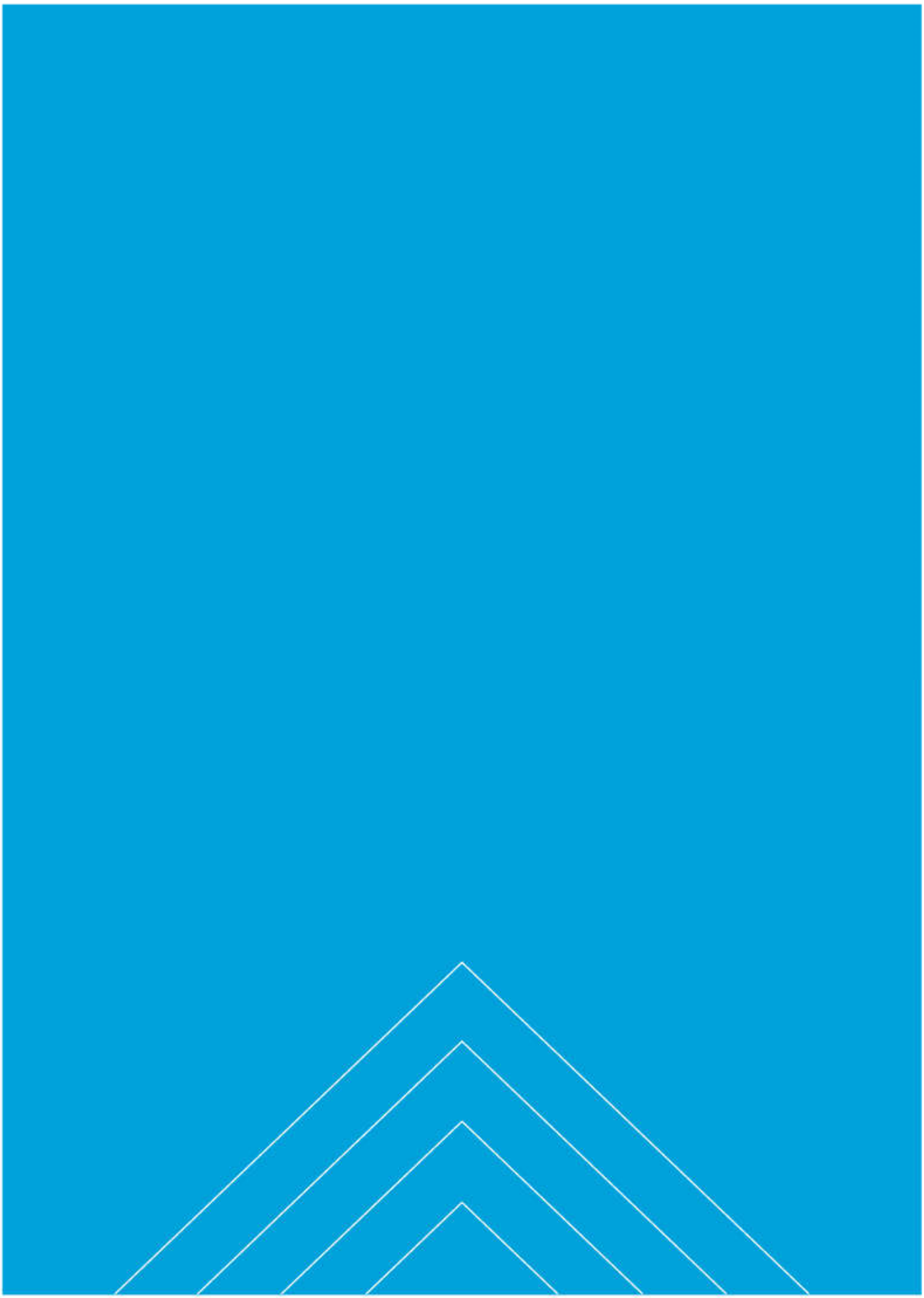

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