

Essex Transport Strategy

Implementation Plan: Chelmsford

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1. Introduction

1.1 Chelmsford

Chelmsford is the 'county town' and since 2012 a city, with a population of 118,113¹. Located in the heart of Essex, the urban area includes key areas such as Broomfield, Springfield, Chelmer Village Great Baddow and Moulsham, plus smaller villages such as Little Waltham, Boreham and Writtle, and is bordered by the Green Belt to the south and west. Chelmsford also includes larger development areas to the north east of the urban area, namely Chelmsford Garden Community. A significant proportion (65%) of residents are aged 15 to 64, reflecting its popularity as a commuter hub for London due to its excellent transport links, Anglia Ruskin University, and also because it's a 'destination place' to live in its own right. The city is also home to a growing number of young professionals, families, and retirees and one-third of its workforce holds university degrees, supported by institutions such as Anglia Ruskin University.

Employment levels are slightly below the Essex average, with 75% of residents in work compared to 81% across the county.¹ The average income is also higher than the Essex average (£24,600 compared to £22,700). Despite this, unemployment is marginally higher at 2.8%, compared to the county average of 2.6%.²

Chelmsford is one of the least deprived local authorities in England with one of the lowest average proportion of households in poverty³ within Essex and life expectancy is 84.3 years⁴, above the Essex average of 83.3. However, there are pockets of deprivation in areas such as Melbourne, Marconi, Patching Hall and St Andrews, within Chelmsford's urban area.



The key transport ambitions for the city of Chelmsford are:

The key transport ambitions for Basildon are:

- To maximise the use of the transport network by reducing car use, reducing congestion and improving local air quality, by improving the affordability and convenience of sustainable transport options for everyone, improving reliability across the network for all users.
- Encouraging more daily activity in people's lives through walking and cycling options that cater for a wide range of needs and improve people's health
- Ensuring local people can access local education and skills opportunities and jobs sustainably in Chelmsford city centre, London, and at Stansted Airport.
- To support sustainable and economic growth through jobs and homes
- To improve safety on the transport network and enhance and promote a safe and secure travelling environment

1.2 Local travel

High car ownership and commuting cause traffic delays on Chelmsford's main roads during peak times. 18% of the Chelmsford population do not own a car or van⁵ which is higher than other areas in Essex indicating that walking, cycling and bus travel is a potentially more popular choice due to a more denser urban area, with 17% walking or cycling to work.⁶ However, high housing costs result in some workers living a significant distance from their workplace meaning the car is potentially the only practical choice for some. Chelmsford has a strong influence on the transport network in its surrounding area. Key roads such as the A12, A131, A130, A132, and A414 connect it to the national road network.

Chelmsford is well served by buses, both within and between key towns and cities in Essex. The bus station is located next to the railway station providing a key city centre transport hub. Chelmsford also has two Park and Ride facilities (Chelmer Valley and Sandon) which provide frequent services to the city centre and are both planned to expand their space provision. Plus, the existing bus-based rapid transit system, Chelmsford Area Rapid Transit (ChART), connecting north Chelmsford to the city centre and rail station.

However, despite having a high number of bus routes, services can be fragmented due to multiple operators and many buses are delayed in the same congestion as general traffic which makes the buses a less attractive option.⁷


The Chelmsford cycle network is comprehensive and well used. However, there are gaps in the network which present a barrier to cycling as well as signage, parking, maintenance and lighting improvements which are required along the routes.

The Great Eastern Main Line provides regular rail services between Chelmsford and London Liverpool Street and the East of England. The Elizabeth Line (Crossrail) now operates from Shenfield, just south of Chelmsford, and offers services to London and Heathrow Airport. This has opened opportunities in terms of additional capacity and quicker journeys to a wider choice of destinations through a simple change of trains at Stratford, which is contributing to the continued attractiveness of Chelmsford as a place to live and to do business. Beaulieu Park station, opening in 2025, will improve rail access, especially in north east Chelmsford. The city also has good connections to London Stansted and Southend

airports through frequent and affordable Airlink limited stop bus services.


Chelmsford in numbers

118,113 residents (2022)


 **75%** economically active (of working population, as of 2021)

 Life expectancy* is **84.3**

 **18%** are aged under 15

 **18%** are aged over 65

 Average income of **£24600**

 **18%** of households do not own a car/van (2021)

62% of residents **drive** to work

5% of residents **get the bus** to work

17% of residents **cycle or walk** to work

15% of residents get the **train or underground** to work

Top industries residents work in*



Retail



Education



Health



Business
Administration
and Support



Professional,
scientific &
technical

*Chelmsford District figures

2. Outcomes we want to achieve

2.1 Supporting people, health, wellbeing and independence

2.1.1 People have inclusive and affordable access to key services

Chelmsford's urban area is generally affluent, but areas such as Marconi, Patching Hall and St Andrews (Melbourne area), are among the most deprived. For those living in deprivation, affordability can be a key barrier to transport. Prior to the Government's current bus fare cap of £3, bus ticket prices in Chelmsford were the second highest in the county, at 30p above the county average⁸. Improving bus services and affordability to provide better access to employment and training for all is therefore a priority.

In 2021, just over one in 11 people (9%) were identified as disabled in Chelmsford⁹. Public transport must ensure it supports the needs of these people and is a priority in our plan.

2.1.2 Improving physical and mental health and wellbeing

Chelmsford has one of the lowest health risks in Essex and high life expectancy, with averages of 82 years for males and 84 for females, compared to the Essex average of 80 and 84 years¹⁰. Public transport and walking times to health services from Chelmsford city centre are generally 20 minutes or less. The area also has one of the lowest rates of depression in the county (14% in comparison to England's average of 16%, and Harlow average of 18%)¹¹.

Despite Chelmsford having one of the best health scores in Essex, car use is high, and air pollution can be an issue. The county's highest levels of lead pollution are on the A12 from London¹².

Chelmsford city centre also has high levels of air pollutants such as nitrogen oxides and sulphur dioxide, mainly from diesel vehicles.

Chelmsford does however have one of the highest rates of cycling in Essex with 2.9% compared with an average of 2.1%¹³, possibly reflecting the availability of cycleways and a younger demographic. Due to this, and the high accessibility of key services and employment, there is great potential to promote walking and cycling, particularly for journeys under three miles, which has significant potential to enhance health outcomes. However, Chelmsford is still behind the national average of 3.1%.

2.1.3 The transport network is safe and feels safe for all users

While Chelmsford offers a high quality of life, it also experiences a significant number of road collisions. Between 2021 and 2023, eight people died on Chelmsford's roads, and 29% of traffic collisions were speed related¹⁴. Achieving Essex's ambition of zero road deaths and serious injuries by 2040 will require a collaborative plan, working with the police and other partners, such as National Highways, who have responsibility for roads such as the A12.

To encourage the use of active and sustainable travel, such as public transport, cycling and walking, it must not only be safe but also feel safe for users at all times. In Chelmsford bicycle theft rose by 55% between 2021 and 2022¹⁵, highlighting the need to improve the safety of transport facilities.

2.2 Creating sustainable places and communities

2.2.1 All places support the transport needs of all residents

Chelmsford has a well-connected transport network, but car use remains high, and pockets of deprivation persist. More affordable public transport and accessible safe direct cycling options will help residents access their essential needs and services. Reducing the reliance on Chelmsford's road network, and shifting journeys to public transport, walking and cycling, will also reduce journey times, particularly to work and school. Ensuring accessible transport options into and out of the city centre will benefit the residents and businesses of the city and the wider district, in terms of employment, trade, and accessing key services and education facilities.

2.2.2 Work with partners to design sustainable developments from the start

Chelmsford's population will continue to grow with people living longer and people moving to the area from other parts of the country.

This means we will need more homes. The adopted Chelmsford Local Plan provides for 21,843 homes for the plan period to 2036 with an annual requirement of 805 homes a year. As of April 2024, around 8,900 homes have been completed with a minimum of 12,940 homes still to build. A Local Plan Review has commenced to cover the period to 2041 based upon the new government target of 1,454 per year as set out in the new National Planning Policy Framework. All of this growth needs to be supported by appropriate transport infrastructure. As residents

become wealthier, we want to ensure that active and sustainable travel choices are available as a first choice over buying a car.

We want all developments to be designed sustainably, and we will work with Chelmsford City Council to prioritise locations for jobs and homes with good sustainable transport access to a wide range of services. This LTP is important to influence the process of Local Plan development and getting these plans right can bring in the right infrastructure. We will use the planning process, including funding from new development where possible, to improve transport options, benefiting both new and existing residents and businesses

There are also plans for new business parks and facilities across Chelmsford. Plans for new business parks include a large development at Beaulieu in northeast Chelmsford and a 45,000 sqm office and business space in the Chelmsford Garden Community. This growth will require planning to ensure new developments are connected to sustainable ways of travelling. The Local Plan Review to 2041 is to provide over 160,000 square metres of additional employment space.

We are working with Chelmsford City Council to prioritise the accessibility and sustainability of transport options for these new sites.

2.2.3 Transport has a reduced impact on the environment and adverse impacts on natural habitats are avoided

Chelmsford is home to diverse habitats and has a rich history, with over 1,000 listed buildings, 25 conservation areas and several parks. The Chelmer and the Can both run through the city, and both have high water levels and flood risk following significant rainfall. These features make the area vulnerable to extreme weather and rising

water levels. Active and Sustainable transport solutions must mitigate these risks to protect the local environment and heritage.

We will work jointly with local councils to improve air quality as set out in our Air Quality Strategy¹⁶. Measures will include encouraging the use of less polluting modes of travel (see LTP Policy 10), reducing congestion in Air Quality Management Areas through better traffic management (see LTP Policy 5) and better managing the movement of higher-polluting goods vehicles (see LTP Policy 6).

2.3 Connecting people, places and communities

2.3.1 The business potential of Essex is maximised

Chelmsford has a strong economy, good transport links and an educated population, which helps it support around 87,000 jobs and over 9,000 businesses, which is the highest of any district, borough or city authority in Essex. Over 50% of Chelmsford's workforce live locally¹⁷, with around 20% of workers commuting to London. Other popular destinations for Chelmsford residents to work are Basildon, Maldon, Brentwood and Braintree, where some 16% commute to work. Around 36% of Chelmsford's workforce lives outside the area, with over 13,000 people travelling from Braintree, Colchester, and Maldon districts daily.

Chelmsford, together with Colchester, record the most hours lost to traffic delays in Essex. With more jobs and housing coming forward through the Local Plan Review to 2041, the transport network needs to be reliable to ensure the safe, efficient movement of people and goods.

Reducing car use and shifting shorter journeys to public transport, walking, and cycling will improve

the reliability of the transport network, benefiting the movement of people and goods and helping to attract and retain businesses, while supporting remote working trends: currently 38% of Chelmsford's population work from home - the third highest in Essex.

To make sure business and employees continue to work in Chelmsford, the transport network should ensure reliable, comfortable journeys to work. Our plan will target this, focussing on the affordability, frequency, reliability, capacity and accessibility of public transport.

2.3.2 People have inclusive and affordable access to employment, education and training

Chelmsford is one of the few areas in Essex with employment areas of over 6,000 jobs. These areas are also accessible by active and sustainable modes, including cycling, with average travel times of 30 minutes or less. Chelmsford is also home to key education institutions like Anglia Ruskin University, two grammar schools, and has the highest proportion of people holding degree level qualifications (along with Uttlesford).

Although Chelmsford has one of the best public transport networks in Essex – including an extensive network of Public Rights of Way – a significant number of residents still rely on cars. More affordable public transport is key to reducing this further.

Unemployment, while relatively low, has risen from 2.6% to 2.9%¹⁸, with around 3,000 people out of work in 2023. Efforts to improve the inclusivity of public transport and reduce the cost, will help people access more opportunities for employment, education and training.

2.3.3 The transport network has a secure and long-term future

We may see changes to our natural environment in the future that may mean heavier rainfall and hotter summers which will have an impact on the transport network. Preparing and adapting to these challenges will be critical and it is vital that this strategy does not make this worse.

This will have significant implications on our network and its ongoing maintenance. For example, flooding will reduce how long our network lasts, and severe weather will reduce the time available for repairs.

This is crucial – the network provides access to jobs, education and essential services and it is often the only way people can access their everyday needs, particularly in rural areas. It is vital that the network is maintained and fit for purpose, for all modes but we also need to look at ways to solve the problem such as improving the materials we use and reduce unnecessary travel.



Improving bus services, walking and cycling routes, and working to increase rail freight will all help with this, reducing the pressure on our network and ensuring its long-term future.



3. Our plan for Chelmsford

Our plan for Chelmsford focuses on supporting people, creating sustainable places, and connecting communities. Here's how we'll achieve the outcomes:

3.1 Chelmsford's Urban Area

Chelmsford has a strong working population, low levels of deprivation, and high levels of car ownership. It benefits from well-established bus, train, cycling and walking networks. The car does however remain the most popular mode of transport, particularly during the morning and evening commutes, resulting in high levels of delay on the roads. This plan aims to make buses, cycling, and walking more attractive options, enabling more efficient and healthier journey options to get to work.

As a result of high car use there is an extensive road network which is heavily used. Air quality may be a concern in some parts of the urban area particularly around key junctions such as the Army and Navy roundabout. Ensuring people can commute into Chelmsford is crucial to the city's economy, with 36% of the workforce living in other areas. With the continuing economic success in Chelmsford, a road network that has less delays will be important for people and businesses travelling around, into, and from Chelmsford. Targeted improvements to the transport network and services, alongside improvements to the local walking and cycling network, will make it easier and more seamless for residents and commuters to travel.

The electrification of Chelmsford's road infrastructure will also be important in improving the sustainability and the air quality of the area. This plan will look to expand electric vehicle

charging facilities for cars, public transport, and delivery vehicles at people's homes and key destination points. It will also support the ongoing e-scooter and e-bike trials, with an increasing focus on electric vehicles for deliveries, and cargo.

Chelmsford is a well-connected area but there are opportunities for further improvement, with opportunities to improve access to employment and education services. The Chelmsford Urban Area, Chelmsford Garden Village, local industrial estates, London, London Stansted Airport and Anglia Ruskin University, all offer good employment and education opportunities, and we want local people to benefit from them. We will work with London Stansted Airport and Anglia Ruskin University to ensure local people can gain access to their jobs and courses in early career stages, with active and sustainable links to and from the city.

With excellent connections to and from London, and elsewhere in the county, it is key to ensure all members of Chelmsford's population are able use them. However, affordability for bus and rail services remains a challenge for some residents, particularly in the city's more deprived areas, where travelling to London, or other parts of Essex, is often too expensive. We will focus on making these connections affordable for everyone.

The improvements required to develop more active and sustainable transport corridors must focus on offering affordable bus and rail passes, improving demand-responsive transport, enhancing rail services, and expanding walking and cycling routes taking advantage of the city's important green wedges along its river corridors. This will increase access to education,

employment, and training, for the city's residents and those living elsewhere in Essex.

The city has a high proportion of less active children (34%), and the highest percentage of people unwilling to walk for more than 10 minutes (26%). To reduce the use of private vehicles and encourage more active lifestyles, our plan will look to implement more walking and cycling facilities, building on the existing networks in Chelmsford and its green wedges. This plan will improve links to multifunctional green spaces, creating walking and cycling routes that connect parks and natural areas. Local policy and strategies should focus on improving access to green space and creating greener communities, especially in areas of deprivation or where there is poor or unequal access.

Such infrastructure must also feel safe for everyone to use at all times of day. This goes for public transport infrastructure too, including bus stops and railway stations. So, introducing sufficient lighting, shelter, seating and real time information are a priority.

The improvements needed to develop more sustainable transport options must also focus on making public transport more affordable. While the current £3 fare cap for buses provides cheaper bus travel for longer distance routes, we will continue to work with operators to seek more affordable bus and rail passes for those who find the cost a challenge to accessing work and other opportunities.

It should be noted that this implementation plan will need to be reviewed to reflect changes to Local Plans or other significant proposals.

3.2 North East Chelmsford and other key development sites

Chelmsford is expected to deliver over 12,900 homes by 2036, a large proportion of which is currently taking place in North East Chelmsford which includes Chelmsford Garden Village for around 10,000 homes. Here the Chelmsford Garden Community is currently constructing a new community together with associated infrastructure ranging from a new railway station, extended bus, walking and cycling links and a bypass (Chelmsford North East Bypass) to significantly improve and connect all parts of the transport network.

Chelmsford's Local Plan Review also proposes a further Garden Community in east Chelmsford which will need to provide comprehensive sustainable and active travel options to key destinations in Chelmsford.

We know that new developments must be supported by appropriate transport infrastructure, a balanced mix of land uses, and community services if they are to meet the ambitions set out in this implementation plan and the overall strategy for Essex. For transport, this means a greater focus on more sustainable active and transport corridors, more cycling infrastructure, and accessibility improvements to existing bus or rail services to enable all residents to travel sustainably.

The presence of key rivers and conservation sites means Chelmsford is vulnerable to flooding and extreme weather. There are further opportunities to enhance active travel routes through Chelmsford's "green wedge" by creating greenways. their design will depend on their location and if they are for leisure or commuting and the need to balance active travel movements with biodiversity enhancements. This plan considers a wide range of sustainable transport options from public transport to walking and cycling to enable low-carbon travel choices.

Introducing more sustainable journey options will also require an improvement to the transport network's resilience and efficiency. Resilience must also focus on enduring extreme weather, high winds, heatwaves and flooding, posing risk to roads, bridges and paths. Our maintenance will ensure the network functions well and is accessible in the future. By using more durable materials, robust structures, and planning for more frequent floods, we will be able to keep our infrastructure in operation.

Scheme Details can be found in Appendix A.



Summary Map

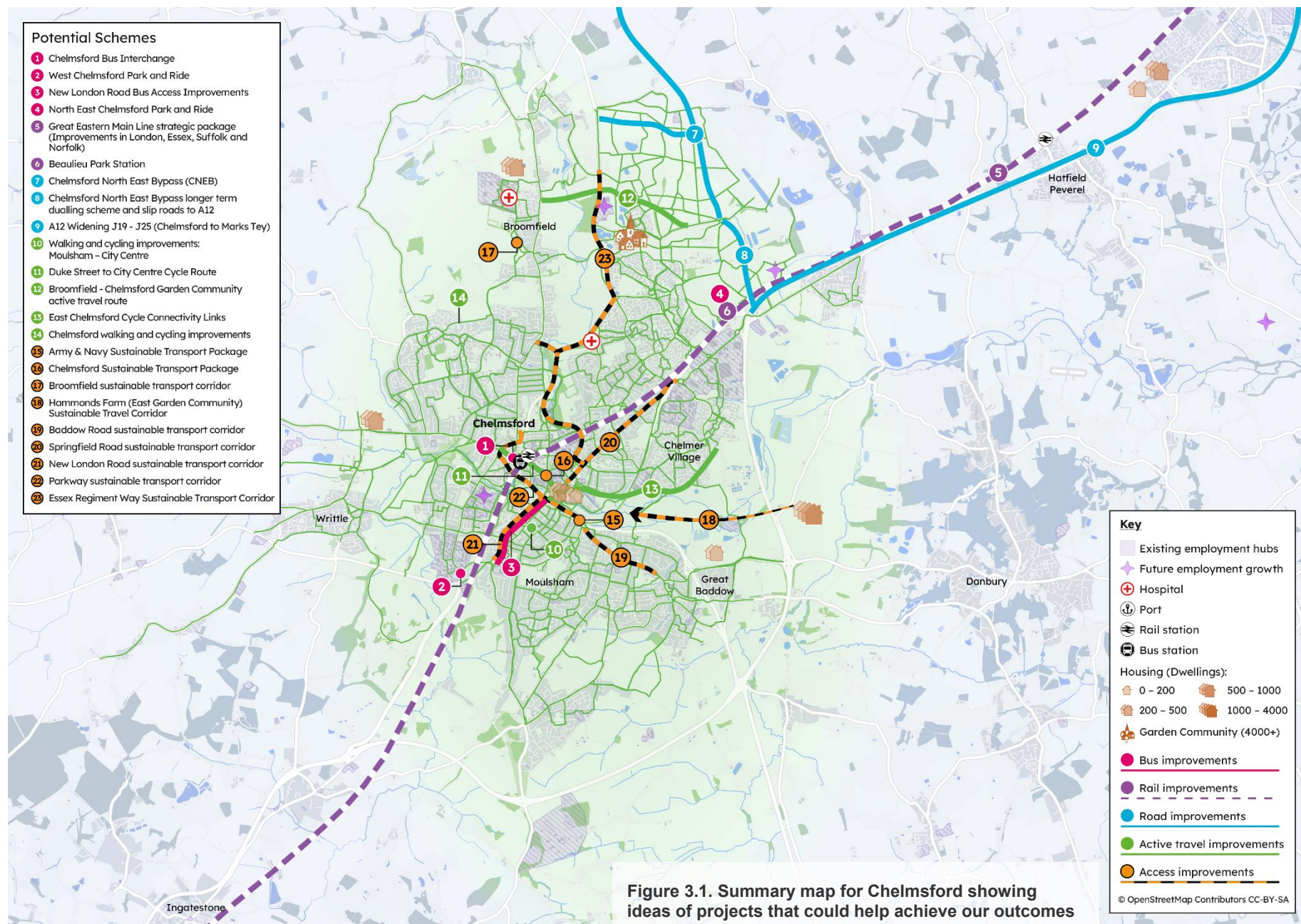
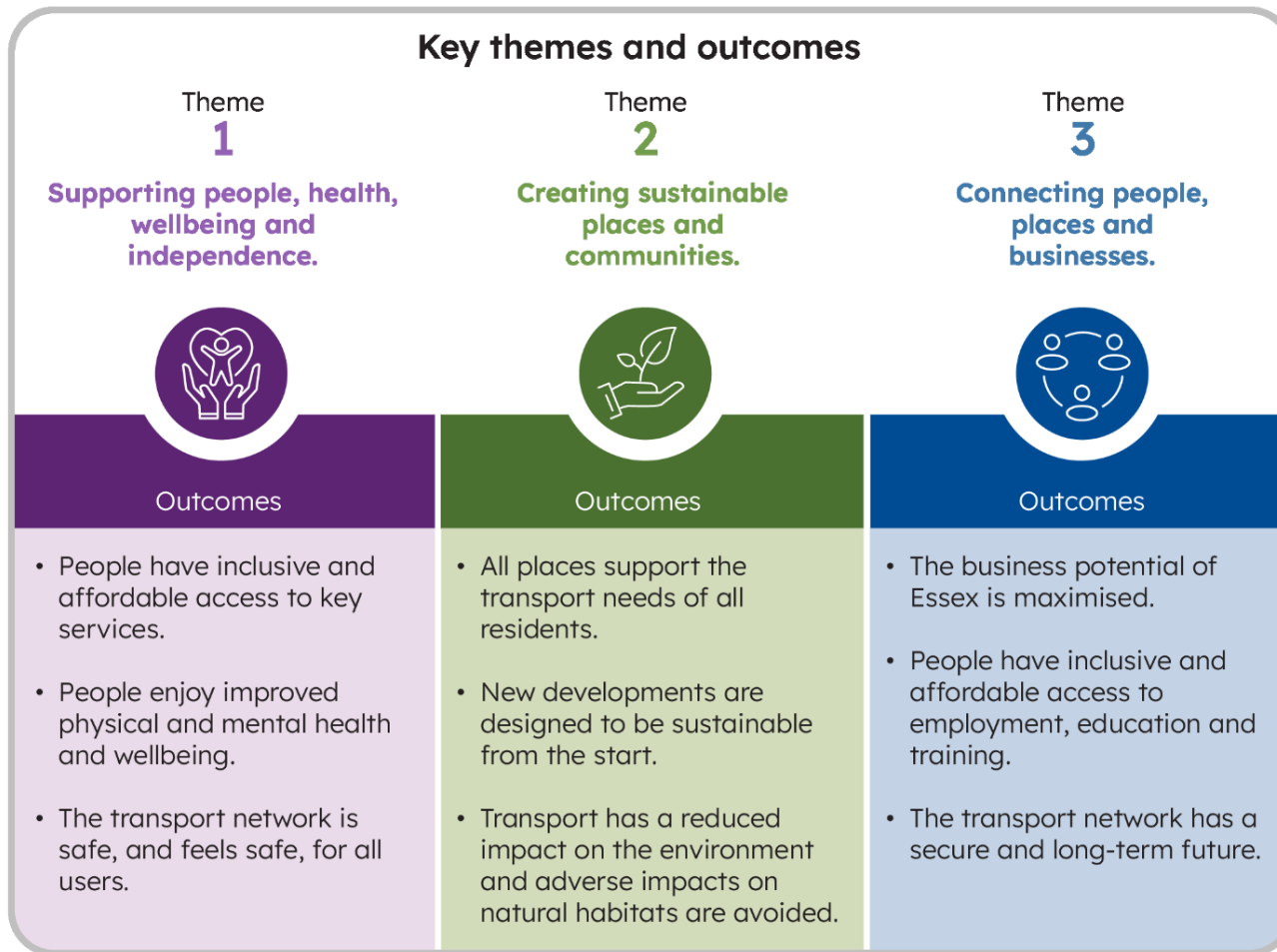


Figure 3.1. Summary map for Chelmsford showing ideas of projects that could help achieve our outcomes

Appendix A. Scheme list

The table below sets out some ideas of projects that could help achieve our outcomes and solve some problems identified in this Implementation Plan. These projects have emerged from a prioritisation exercise and represent ideas from a snapshot in time and are not guaranteed to be funded as part of LTP4. As funding and circumstances change so will our priorities for schemes.



*	Weak Alignment
**	Medium Alignment
***	Strong alignment

Project	Description	Impact	Supporting People			Sustainable Place			Connecting People		
			Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Outcome 9
Chelmsford Urban Area											
Springfield Road sustainable transport corridor	To encourage sustainable transport along this key bus corridor with the provision of bus priority measures where possible.	Improved public transport, walking and cycling options in the area. Reduced congestion and improved bus journey times.	***	***	**	**	*	***	***	**	**
Parkway sustainable transport corridor	To encourage sustainable transport use along this key corridor in the central zone of Chelmsford.	Reduced congestion and improved bus journey times. Parkway also acts as a barrier between areas of the city centre and communities, such as the High Street and Moulsham Street. Resultantly, air quality will improve as seen in Cambridge and Norwich	***	***	**	**	**	***	**	*	*
Walking and cycling improvements: Moulsham – City Centre	To encourage walking and cycling between Moulsham and the city centre.	Improved walking and cycling options in the area.	**	***	**	*	*	**	**	**	**
Army and Navy Sustainable Transport Package	<ul style="list-style-type: none">A package of measures to reduce congestion and improve sustainable transport provision through:A new roundabout layoutImproved walking, cycling and bus measures in the vicinity of the roundaboutExpansion of Sandon and Chelmer Valley Park and Ride	Improved public transport, walking and cycling options in the area. Reduced congestion and improved bus journey times. Keeps the network moving.	**	***	**	***	*	**	***	**	*

Project	Description	Impact	Supporting People			Sustainable Place			Connecting People		
			Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Outcome 9
Baddow Road sustainable transport corridor	To encourage sustainable transport along this key bus corridor, in a location where air quality issues have been recognised due to congestion, with the provision of active travel (walking and cycling) improvements and bus priority measures where possible.	Improved public transport, walking and cycling options in the area. Reduced congestion and improved air quality and bus journey times.	**	***	**	**	*	***	*	*	**
Chelmsford walking and cycling improvements	Delivery of identified strategic walking and cycling routes in Chelmsford	Improved walking and cycling options in the area.	**	***	**	*	*	**	**	**	*
Broomfield Road sustainable transport corridor	To encourage active (walking and cycling) and sustainable transport along this key bus corridor within the mid-zone of Chelmsford, where the focus is on cycling and bus use, with the provision of cycle lanes and bus priority measures where possible. Broomfield Hospital is also located at the northern end of the corridor which is a key health and employment destination. The corridor also includes Broomfield Hospital L	Improved public transport, walking and cycling options in the area. Reduced congestion and improved air quality and bus journey times.	**	**	*	**	*	**	**	**	*
New London Road Sustainable Transport Corridor	To encourage active (walking and cycling) and sustainable transport along this key bus corridor within the mid-zone of Chelmsford, where the focus is on cycling and bus use, with the provision of	Improved public transport, walking and cycling options in the area. Reduced congestion and improved air quality	*	*	**	**	*	*	***	*	**

Project	Description	Impact	Supporting People			Sustainable Place			Connecting People		
			Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Outcome 9
	cycle lanes and bus priority measures extensions where possible. Parking in the southbound carriageway contributes to this disruption by narrowing the carriageway and interrupting the traffic flow.	and bus journey times.									
Chelmsford Bus Station Interchange	This key sustainable transport gateway to Chelmsford requires capacity improvements at the bus station, improved interaction between the bus and railway station to make it more attractive and safer and improved cycle parking and cycling connection opportunities.	Improved public transport, walking and cycling options in the area. Reduced congestion and improved air quality and bus journey times.	**	*	**	**	**	**	*	**	***
GEML Strategic Package (Improvements in London, Essex, Suffolk and Norfolk)	Package of improvements to the GEML.	Improved train journeys with quicker and more reliable journeys to services, employment and leisure further afield.		*		*	**	**	***	*	*
West Chelmsford Park and Ride	New park and ride to the west of Chelmsford.	To remove general traffic from the road network at the outskirts of the city centre, serving those coming from the west of Chelmsford, therefore improving journey times and air quality in the city centre.	*	*	*	**			*	**	

Project	Description	Impact	Supporting People			Sustainable Place			Connecting People		
			Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Outcome 9
North East Chelmsford Park and Ride	New Park and Ride to the north east of Chelmsford	To remove general traffic from the road network at the outskirts of the city centre, serving those coming from the north east of Chelmsford, therefore improving journey times and air quality in the city centre.									
New London Road Bus Access Improvements	Bus access improvements on New London Road	Improved public transport, walking and cycling for the area	***	***	*	***	*	**	**	***	*
Essex Regiment Way Sustainable Transport Corridor	The provision of a sustainable transport corridor along Essex Regiment Way, south of the Chelmer Valley Park and Ride site, to support sustainable growth in Broomfield and Chelmsford Garden Community in north east Chelmsford. To ensure good journey times for Park and Ride buses and other buses using the corridor, an improved environment for cyclists (with the provision of developer funded cycle lanes) and to encourage modal shift from car to Park and Ride or other sustainable modes.	Improved public transport, walking and cycling options in the area. Reduced congestion and improved air quality and bus journey times.	***	***	**	**	***	***	**	***	*
City Centre (via Anglia Ruskin University and	Cycle improvements along this key corridor identified within the Local Cycling and Walking	Improved walking and cycling options in the area.	**	***	**	*	*	**	*	**	**

Project	Description	Impact	Supporting People			Sustainable Place			Connecting People		
			Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Outcome 9
Springfield to Beaulieu walking and cycling route	Infrastructure Plan between the city centre and Beaulieu.										
Broomfield Road walking and cycling route	Cycle improvements along this key corridor identified within the Local Cycling and Walking Infrastructure Plan between the city centre and Broomfield Hospital. This is linked to the Broomfield Road sustainable transport corridor proposal.	Improved walking and cycling options in the area.	**	**	**	*	*	**	*	**	**
Duke Street to City Centre Cycle Route	Cycle improvements along this route, located within the central zone of Chelmsford, identified within the Local Cycling and Walking Infrastructure Plan connecting a number of cycling corridors and specifically to the city centre bus and railway station.	Improved walking and cycling options in the area.	**	***	**	*	*	**	*	**	**
North East Chelmsford and other key development sites											
Beaulieu Park Station	A new station on the Great Eastern Main Line to support sustainable growth Chelmsford and specifically serving the north east Chelmsford Garden Community.	Reduced congestion in the city centre, improved journey times.	**	*	*	*	***	**	***	**	**
Chelmsford North East Bypass (CNEB)	<ul style="list-style-type: none"> New link road between the A12 Boreham junction and the A131 to the north east of Chelmsford. With potential to be expanded in the future In conjunction with Beulieu Park station, the bypass supports the sustainable 	Keeping the network moving and supporting housing growth in north Chelmsford.	*	*	*	*	*		**	*	**

Project	Description	Impact	Supporting People			Sustainable Place			Connecting People		
			Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Outcome 9
	<p>delivery of over 14,000 new homes.</p> <ul style="list-style-type: none"> Phase 1A – to connect with Beaulieu Parkway relief road in the south providing connectivity to the A12 at Boreham Interchange via Generals Lane Bridge. To the north, the CNEB will join with the Northern Radial Distributor Road being delivered as part of the Chelmsford Garden Community and will connect through to the Wheelers Hill roundabout on the A130 Essex Regiment Way. This phase will use HIF monies and will also deliver Beaulieu Park station in full enabling the delivery of around 6,000 homes by 2036. A new bridge north of Beaulieu Parkway will allow for the continuation existing of mineral extraction at Bulls Lodge and serve as a new east-west vehicle, cycle and pedestrian route post extraction. Phase 1A is planned to commence in early 2025 with completion in Spring 2026. Phase 1B and 2 – to connect to the A131 at Chatham Green unlocking the remaining housing growth across Chelmsford including Great Leighs and Broomfield and in Braintree district at Great Notley. ECC continue to 										

Project	Description	Impact	Supporting People			Sustainable Place			Connecting People		
			Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Outcome 9
	proactively seek funding for these later phases, including potential developer contributions.										
Chelmsford North East Bypass longer term dualling scheme and slip roads to A12	Longer term plan to dual the Chelmsford NE bypass and provision of slip roads to access A12 directly from A130.	Keeping the network moving and supporting housing growth in north Chelmsford.			**	**	*		**	*	**
Broomfield – Chelmsford Garden Community active travel route	A direct high quality route for cycling and scooting between Broomfield Hospital and the Chelmer Valley Park and Ride site (and Chelmsford Garden community and beyond)	Improved walking and cycling options in the area.	**	***	**	*	***	**		**	**
East Chelmsford Cycle Connectivity Links	Identified as a Chelmsford City Council (CCC) priority, the provision of a new and improved cycle link between the city centre and the East Chelmsford development sites as identified in the adopted Local Plan.	Improved walking and cycling options in the area.	**	**	**	*	*	**	*	**	**
Hammonds Farm (East Garden Community) Sustainable Travel Corridor	A package of measures to ensure sustainable growth at the new garden community to the east of Chelmsford as proposed in the Chelmsford Local Plan Review (2036 – 2041). These measures will need to be delivered by developers.	Improved public transport, walking and cycling options in the area. Reduced congestion and improved air quality and bus journey times.	***	**	**	***	***	***	*	***	*
A12 Widening J19 - J25	The A12 Chelmsford to A120 widening scheme aims to improve	Keeping the network moving, improved			*	**		**		**	

Project	Description	Impact	Supporting People			Sustainable Place			Connecting People		
			Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Outcome 9
(Chelmsford to Marks Tey)	traffic flow and reduce congestion by widening the A12 between junctions 19 and 25 (Boreham to Marks Tey) from two to three lanes in each direction. This includes online widening, bypasses at Rivenhall End and Kelvedon, and junction improvements. The project also includes the removal of existing junctions and the creation of new all-movement junctions.	economic outlook for Essex by improving journey times and making the road more reliable for freight movements.									

Appendix B. Addressing the Challenges

Appendix B outlines the challenges outlined in this implementation plan, identifies some high level activities that we could do to address these and the potential schemes we could do to address these challenges. For scheme descriptions, please see Appendix A and the core text to understand why these schemes can address the challenges.

Those schemes in bold with an asterisk are ***Countywide Initiatives – they are not in the map above**

B.1 People Theme

Outcome	Challenge	High Level Activity	Schemes to address these challenges
People have inclusive and affordable access to key services	Pockets of deprivation in the Chelmsford urban area	<ul style="list-style-type: none"> Raise awareness of the impacts of individual travel choices and alternatives consistent with our ‘Safer, Greener, Healthier’ approach Encourage digital innovation, such as new apps that enable the delivery of essential services, such as healthcare, in ways that are less dependent on travel Support the rollout of faster broadband and ongoing improvements to 5G mobile coverage in rural and deprived areas Implement our Bus Service Improvement Plan Explore opportunities to expand our Demand Responsive Transport network in rural areas Design, build, operate and maintain transport infrastructure so that it is accessible, easy and safe to use for everyone Work with the bus and rail industries to secure further improvements to the accessibility of public transport and passenger assistance on buses, trains and at bus and rail stations Use travel planning to promote active travel choices across all sizes of development and major existing generators of traffic Provide training and promote free initiatives to increase people’s confidence and participation in cycling 	<ul style="list-style-type: none"> Springfield Road sustainable transport corridor Parkway sustainable transport corridor Walking and cycling improvements: Moulsham – City Centre Expansion of plus bus schemes and new cross county ones* Integrated ticketing across modes*
	High levels of car ownership	<ul style="list-style-type: none"> Raise awareness of the impacts of individual travel choices and alternatives consistent with our ‘Safer, Greener, Healthier’ approach Encourage digital innovation, such as new apps that enable the delivery of essential 	<ul style="list-style-type: none"> Chelmsford sustainable transport package Springfield Road sustainable transport corridor Parkway sustainable transport corridor Baddow road sustainable transport corridor Army and Navy sustainable transport package

Outcome	Challenge	High Level Activity	Schemes to address these challenges
		<p>services, such as healthcare, in ways that are less dependent on travel</p> <ul style="list-style-type: none"> ▪ Implement our Bus Service Improvement Plan ▪ Explore opportunities to expand our Demand Responsive Transport network in rural areas ▪ Design, build, operate and maintain transport infrastructure so that it is accessible, easy and safe to use for everyone ▪ Work with the bus and rail industries to secure further improvements to the accessibility of public transport and passenger assistance on buses, trains and at bus and rail stations ▪ Travel information will make use of new technology and be available in a range of formats for everyone to access ▪ Support the introduction of multi operator and fully integrated smart ticketing for transport services in Essex ▪ Use travel planning to promote active travel choices across all sizes of development and major existing generators of traffic ▪ Provide training and promote free initiatives to increase people's confidence and participation in cycling 	<ul style="list-style-type: none"> ▪ Broomfield sustainable transport corridor ▪ Chelmsford bus station interchange ▪ New London Road sustainable transport corridor ▪ New London Road bus access improvements ▪ West Chelmsford Park and Ride ▪ North East Chelmsford Park and Ride ▪ Walking and cycling improvements: Moulsham – City Centre ▪ Chelmsford walking and cycling improvements ▪ Expansion of plus bus schemes and new cross county ones* ▪ Integrated ticketing across modes* ▪ Use of mobile apps and web information (supporting traditional information way finding) to encourage use of public transport* ▪ Better access to rail stations* ▪ Bus stop improvements* ▪ Cycle hire* ▪ NCN package – urban* ▪ ATF major* ▪ Safer School Streets* ▪ Cycle quietways in residential areas* ▪ Provision of cycling equipment in new development*
	A significant proportion of disabled people in the city require accessible public transport	<ul style="list-style-type: none"> ▪ Design, build, operate and maintain transport infrastructure so that it is accessible, easy and safe to use for everyone ▪ Work with the bus and rail industries to secure further improvements to the accessibility of public transport and passenger assistance on buses, trains and at bus and rail stations ▪ Travel information will make use of new technology and be available in a range of formats for everyone to access 	<ul style="list-style-type: none"> ▪ Broomfield sustainable transport corridor ▪ Better access to rail stations* ▪ Bus stop improvements* ▪ Expansion of plus bus schemes and new cross county ones* ▪ Integrated ticketing across modes*
	High levels of child inactivity	<ul style="list-style-type: none"> ▪ Develop and deliver long-term plans to improve our cycling and walking networks by 	<ul style="list-style-type: none"> ▪ Broomfield – Chelmsford Garden Community active travel route

Outcome	Challenge	High Level Activity	Schemes to address these challenges
People enjoy improved physical and mental health and wellbeing		<ul style="list-style-type: none"> considering our Local Cycling and Walking Infrastructure Plans ▪ Widen access to Essex Pedal Power, which provides free bikes and a support service for our most disadvantaged communities ▪ Implement our Green Infrastructure Strategy to deliver better quality and more accessible multipurpose green spaces and links for everyone ▪ Work with landowners and other partners to ensure that public rights of way are well maintained and easy to use ▪ Improve access to, and raise awareness of, the green spaces, facilities and activities available to the public 	<ul style="list-style-type: none"> ▪ Walking and cycling improvements: Moulsham – City Centre ▪ Chelmsford walking and cycling improvements ▪ Cycle hire* ▪ Cycle training and bike maintenance workshops* ▪ NCN package – urban* ▪ ATF major* ▪ Safer School Streets* ▪ Cycle quietways in residential areas*
	Affordability of bikes may be a barrier to active travel	<ul style="list-style-type: none"> ▪ Develop and deliver long-term plans to improve our cycling and walking networks by considering our Local Cycling and Walking Infrastructure Plans ▪ Widen access to Essex Pedal Power, which provides free bikes and a support service for our most disadvantaged communities 	<ul style="list-style-type: none"> ▪ Cycle hire*
	Poor air quality in the city centre and near major roads	<ul style="list-style-type: none"> ▪ Develop and deliver long-term plans to improve our cycling and walking networks by considering our Local Cycling and Walking Infrastructure Plans ▪ Widen access to Essex Pedal Power, which provides free bikes and a support service for our most disadvantaged communities ▪ Implement our Green Infrastructure Strategy to deliver better quality and more accessible multipurpose green spaces and links for everyone ▪ Work with landowners and other partners to ensure that public rights of way are well maintained and easy to use 	<ul style="list-style-type: none"> ▪ Springfield Road sustainable transport corridor ▪ Parkway sustainable transport corridor ▪ Chelmsford sustainable transport package ▪ Army and Navy sustainable transport package ▪ Baddow road sustainable transport corridor ▪ New London Road sustainable transport corridor ▪ Essex Regiment Way sustainable transport corridor ▪ Broomfield Road sustainable transport corridor ▪ West Chelmsford Park and Ride ▪ North East Chelmsford Park and Ride ▪ Walking and cycling improvements: Moulsham – City Centre ▪ Chelmsford walking and cycling improvements ▪ City Centre to ARU to Springfield walking and cycling route ▪ Broomfield Road walking and cycling route

Outcome	Challenge	High Level Activity	Schemes to address these challenges
		<ul style="list-style-type: none"> Improve access to, and raise awareness of, the green spaces, facilities and activities available to the public 	<ul style="list-style-type: none"> Duke Street to City Centre cycle route Promotion of synthetic fuels* Roll out of EV infrastructure* NCN package – urban* ATF major package* Safer school streets* Cycle quietways in residential areas*
The transport network is safe, and feels safe	Road collisions are prevalent across in Chelmsford and a significant proportion are related to speeding	<ul style="list-style-type: none"> Follow a safe systems approach in designing and maintaining our highway network Collaborate with partners, such as the police and Safer Essex Roads Partnership, to improve safety Work in partnership to create safe environments around schools Provide cycle training to develop or improve people's skills and confidence to cycle safely within Essex 	<ul style="list-style-type: none"> Chelmsford walking and cycling improvements Safer school streets* Bridges and subways across the A12*
	Bike theft is increasingly becoming an issue in Chelmsford	<ul style="list-style-type: none"> Follow a safe systems approach in designing and maintaining our highway network Collaborate with partners, such as the police and Safer Essex Roads Partnership, to improve safety Collaborate with the police and public transport operators to reduce crime and the fear of crime when travelling on the transport network Design new and improved infrastructure and promote well-designed neighbourhoods so that they feel safe and secure to use 	<ul style="list-style-type: none"> Chelmsford bus station interchange (includes provision of cycle parking) Cycle hire* Roll out of shared mobility initiatives* General issues around cycle infrastructure*

B.2 Place

Outcome	Challenge	High Level Activity	Schemes to address these challenges
All places support the	High levels of car use and congestion and	<ul style="list-style-type: none"> Introduce a 'Place and Movement' approach to help embed the principles of 'Healthy Streets' 	<ul style="list-style-type: none"> Springfield Road sustainable transport corridor Parkway sustainable transport corridor

Outcome	Challenge	High Level Activity	Schemes to address these challenges
transport needs of all residents	peak times results in long delays and an inefficient road network	<p>and manage the transport network effectively for both existing streets and new developments</p> <ul style="list-style-type: none"> Implement 'well designed neighbourhood principles' in the redesign of existing neighbourhoods Continue to evaluate the suitability of our towns and cities for new electric forms of transport, such as e-scooters while we await new national requirements 	<ul style="list-style-type: none"> Chelmsford sustainable transport package Army and Navy sustainable transport package Baddow road sustainable transport corridor New London Road sustainable transport corridor Essex Regiment Way sustainable transport corridor Broomfield Road sustainable transport corridor West Chelmsford Park and Ride North East Chelmsford Park and Ride Expansion of plus bus and new cross county ones* Car sharing lanes in Major towns/cities* Smart junctions* Active intelligent traffic management systems* Safer school streets*
	The area has a strong cycle network, but the modal share does not reflect this	<ul style="list-style-type: none"> Introduce a 'Place and Movement' approach to help embed the principles of 'Healthy Streets' and manage the transport network effectively for both existing streets and new developments Implement 'well designed neighbourhood principles' in the redesign of existing neighbourhoods Continue to evaluate the suitability of our towns and cities for new electric forms of transport, such as e-scooters while we await new national requirements 	<ul style="list-style-type: none"> Broomfield – Chelmsford Garden Community active travel route Walking and cycling improvements: Moulsham – City Centre City Centre to ARU to Springfield walking and cycling route Broomfield Road walking and cycling route East Chelmsford cycle connectivity links Hammonds Farm Sustainable Travel Corridor Duke Street to City Centre cycle route Cycle hire* Cycle training and bike maintenance workshops* Home run travel planning app for schools* Cycle quietways in residential areas* Business and school travel planning* Residential travel planning* Behavioural change programme* NCN package – urban* Safer School Streets*
New developments	From 2024 to 2033 Chelmsford needs to	<ul style="list-style-type: none"> Introduce a 'Place and Movement' approach for planning all new developments 	<ul style="list-style-type: none"> Hammonds Farm (East Chelmsford Garden Community) sustainable travel corridor

Outcome	Challenge	High Level Activity	Schemes to address these challenges
are designed to be sustainable from the start	deliver 7,030 new homes	<ul style="list-style-type: none"> ▪ Adopt a vision-led approach to planning for new growth and its transport needs, including through all new Local Plans and the identification of monitoring measures ▪ Adopt an 'Avoid-Shift-Improve' approach to plan transport and development from the earliest stages of development planning ▪ Use connectivity planning to help locate new homes, jobs and essential services in sustainable places that align with our vision for transport ▪ Work with Local Planning Authorities (LPAs) and other partners to allocate developments in Local Plans and deliver new Garden Communities to help meet the significant housing targets set for Essex by the Government ▪ Work with LPAs to ensure that measures proposed in large developments and Garden Communities to promote sustainable transport are deliverable and sufficient to meet the vision for active and sustainable mode share ▪ Set up Transport Review Groups for larger developments to help the ongoing management of transport impacts ▪ Require effective travel plans for all new homes, new and existing workplaces and schools, including Garden Communities and other large-scale developments in line with our travel plan guides for residential, workplace, school, and large-scale developments and garden communities ▪ Monitor the delivery of active and sustainable mode share targets through the Travel Plan with permission for latter phases of development linked to the achievement of modal split targets for early phases in line with 	<ul style="list-style-type: none"> ▪ Parkway sustainable transport corridor ▪ Army and Navy sustainable transport package ▪ West Chelmsford Park and Ride ▪ North East Chelmsford Park and Ride ▪ Baddow Road sustainable transport corridor ▪ Essex Regiment Way sustainable transport corridor ▪ Broomfield Road - Chelmsford Garden Community active travel route ▪ Beaulieu station ▪ Cycle quietways in residential areas* ▪ Provision of cycling equipment in new development* ▪ You Smart Travel Planning Tool* ▪ Use of mobile apps and web information (supporting traditional information way finding) to encourage use of public transport*

Outcome	Challenge	High Level Activity	Schemes to address these challenges
		<p>our travel plan guide for large-scale developments and garden communities</p> <ul style="list-style-type: none"> ▪ Work with LPAs to embed inclusive design principles into all new developments ▪ Promote tools, guidance and best practice documents, such as A New Street Types Model for Essex, EPOA 2024 Parking Guidance, Mobility Hubs as part of the Essex Design Guide and the Highways Technical Manual, to help plan all new developments sustainably ▪ Implement ‘well designed neighbourhood principles’ in the design of new communities ▪ Require planning applications to be supported by a Health Impact Assessment (HIA) considering the Essex Healthy Places Checklist 	
Transport has a reduced impact on the environment and adverse impacts on natural habitats are avoided	The road network is impacting on air quality	<ul style="list-style-type: none"> ▪ Adopt an ‘Avoid-Shift-Improve’ approach to plan transport and development from the earliest stages of development planning ▪ Implement the Essex Air Quality Strategy to reduce exposure to poor quality air ▪ Develop effective and deliverable Air Quality Action Plans with partners ▪ Implement our Green Infrastructure Strategy to deliver ‘Healthy Streets’ and more accessible green spaces and links that provide multiple benefits for people and the environment ▪ Avoid adverse effects from new transport projects on the integrity of internationally important habitat sites. 	<ul style="list-style-type: none"> ▪ Chelmsford sustainable transport package ▪ Chelmsford walking and cycling improvements ▪ Promotion of synthetic fuels* ▪ Roll out of EV infrastructure* ▪ Car sharing lanes in major towns / cities* ▪ Roll out of shared mobility initiatives* ▪ Cycle quietways in residential areas* ▪ NCN package – urban* ▪ Safer school streets*

B.3 Connectivity

B.3.1 Outcome -> Issue -> Activity -> data

Outcome	Challenge	High Level Activity	Schemes to address these challenges
The business potential of Essex is maximised	Commuting is essential for the Chelmsford Economy and is important for job creation, local business and the quality of life for local people	<ul style="list-style-type: none"> Introduce a 'Place and Movement' approach to help embed the principles of 'Healthy Streets' and manage the transport network effectively for both existing streets and new developments Adopt a vision-led approach to planning for new growth and its transport needs, including through all new Local Plans Prioritise journey time reliability for all modes of transport, including freight and passenger transport Work with partners to make the case for investment in our strategic road and rail links, including to the airports and ports to provide enhanced capacity for freight Work with partners and the freight industry to reduce the impact of freight and delivery vehicles on communities and the environment Work in partnership to implement our Rail Strategy to influence the delivery of nationalised rail services and plan rail improvements Work with partners to secure better public spaces and access around stations and bring underutilised station buildings into community use 	<ul style="list-style-type: none"> Broomfield Road sustainable transport corridor (providing links to the hospital) GEML strategic package Beaulieu Park station Chelmsford sustainable transport package Chelmsford walking and cycling improvements A12 improvements Expansion of plus bus schemes and new cross county ones* Better access to rail stations* Promotion of the Smarter Travel Network to Essex Businesses* Integrated ticketing across modes*
	Collaborating with and leveraging the potential of Stansted Airport and Anglia Ruskin University will be vital for the continued economic success of Chelmsford. Transport connections to and from these locations are key.	<ul style="list-style-type: none"> Adopt a vision-led approach to planning for new growth and its transport needs, including through all new Local Plans Prioritise journey time reliability for all modes of transport, including freight and passenger transport Work with partners to make the case for investment in our strategic road and rail links, including to the airports and ports to provide enhanced capacity for freight Support our airports in preparing and implementing Surface Access Strategies, including the Sustainable Development Strategy for London Stansted Airport Work with partners and the freight industry to reduce the impact of freight and delivery vehicles on communities and the environment 	<ul style="list-style-type: none"> City centre to ARU to Springfield walking and cycling route Expansion of plus bus schemes and new cross county ones* ATF major package* Strategic PROW enhancements to form long distance routes* Integrated ticketing across modes*

Outcome	Challenge	High Level Activity	Schemes to address these challenges
		<ul style="list-style-type: none"> Work in partnership to implement our Rail Strategy to influence the delivery of nationalised rail services and plan rail improvements 	
People have inclusive and affordable access to employment, education and training	Purchasing tickets to use Chelmsford's public transport is more expensive than the Essex average	<ul style="list-style-type: none"> Tackle barriers to travel, such as accessibility, complexity and security, to support greater use by everyone Work with organisations such as bus operators and active travel organisations and funders to make the case for new investment Work with partners to improve walking, cycling and public transport connections between residential and employment areas Work with partners to secure better facilities at stations for onward travel via all modes of transport, including step-free access Work in partnership to provide attractive, safe, convenient, inclusive, and high quality walking, cycling and public transport routes and facilities Deliver high quality rapid transit networks where feasible Support the introduction of multi operator and fully integrated smart ticketing for transport services in Essex 	<ul style="list-style-type: none"> Integrated ticketing across modes* Expansion of plus bus schemes and new cross county ones*
The transport network has a secure and long term future	We may see changes to our natural environment in the future that may pose risks to the area. Heavier rainfall and hotter summers which will have an impact on the transport network. Transport networks need to be resilient to ensure the safe, efficient movement of people and goods.	<ul style="list-style-type: none"> Implement our Highways Infrastructure Asset Management Plan and supporting plans and strategies to maintain our transport infrastructure to appropriate standards which offer value for money to the Essex taxpayer Proactively monitor the condition of our road, cycle and pedestrian networks and other pieces of infrastructure Manage, maintain and improve our network by considering our Climate Adaption Plan Framework, Decarbonisation Strategy and our Strategy for managing the Green Estate Develop our own ability as a Council to adapt to climate-related risk Deliver suitable actions that enable our transport network to adapt to change 	<ul style="list-style-type: none"> Springfield Road sustainable transport corridor Parkway sustainable transport corridor Chelmsford sustainable transport package Army and Navy sustainable transport package Baddow road sustainable transport corridor New London Road sustainable transport corridor Essex Regiment Way sustainable transport corridor Broomfield Road sustainable transport corridor West Chelmsford Park and Ride North East Chelmsford Park and Ride A12 improvements* A12 technology package* Smart junctions*

Outcome	Challenge	High Level Activity	Schemes to address these challenges
		<ul style="list-style-type: none"> ▪ Deploy approaches such as Sustainable Drainage and Natural Flood Management to promote greater flood resilience on the highway network ▪ Play an active role in flood defence, coastal protection, and conservation to reduce the risks and impacts on our coastal communities and transport network ▪ Work with National Highways and neighbouring local transport authorities to provide a common approach to innovation ▪ Accurately digitise our highway networks and traffic regulation orders to support future use of our networks by autonomous vehicle systems ▪ Manage the introduction of appropriate alternative fuel infrastructure to encourage cleaner zero-emission travel <p>Support the pilot and where appropriate the adoption of new technology which enables more sustainable travel</p>	<ul style="list-style-type: none"> ▪ Active intelligent traffic management systems* ▪ Expansion of plus bus schemes and new cross county ones* ▪ Car sharing lanes in major towns / cities*

Appendix C. References

- ¹ Economic Activity Status, Census 2021. NOMIS. 2021. Available at: <https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=2083>
- ² Census 2021.
- ³ Index of Multiple Deprivation 2019 (quintiles 1 and 2). Ministry of Housing, Communities and Local Government. 2019. Available at: <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019>
- ⁴ Essex Joint Strategic Needs Assessment. ECC. 2019. Available at: <https://data.essex.gov.uk/jsna-home/>
- ⁵ Car or van availability Census 2021. NOMIS. 2021. Available at: <https://www.ons.gov.uk/datasets/TS045/editions/2021/versions/4>
- ⁶ Method of travel to work Census 2011 (Census 2021 data is not representative of commuting travel because of the pandemic.) NOMIS. 2011. Available at: <https://www.nomisweb.co.uk/census/2011/qs701ew>
- ⁷ Many of these issues are set out in Chelmsford Area (Bus) Review, part of ECC's' Bus Service Improvement Plan (BSIP) which can be found here: <https://www.essexhighways.org/getting-around/bus/bus-strategy>
- ⁸ Essex Bus network reviews
- ⁹ Essex Joint Strategic Needs Assessment. ECC. 2019
- ¹⁰ Essex Joint Strategic Needs Assessment. ECC. 2019
- ¹¹ Essex Joint Strategic Needs Assessment. ECC. 2022
- ¹² UK National Atmospheric Emissions Inventory. 2022. Available at: <https://naei.energysecurity.gov.uk/>
- ¹³ Census 2011
- ¹⁴ Collision Data sourced from Essex Police, 2021-23
- ¹⁵ British Transport Police, 2022
- ¹⁶ Essex Air Quality Strategy, Draft document for public consultation. Essex Air. 2025. Available at: https://consultations.essex.gov.uk/essex-highways/essex-air-quality-strategy/supporting_documents/essex_air_quality_strategy_web_version.pdf
- ¹⁷ Census 2011
- ¹⁸ Census, 2021