Essex Climate Action Commission: Transport

Technical Annex

Essex County Council

Contents

Transport

The ability to travel is an essential requirement of all our lives; however, the choices we make about when and how we travel have unwanted impacts on the lives of others and the world around us.

Effective transport networks are essential to ensure the efficient and effective movement of people and goods necessary to support a sustainable and inclusive economy. Transport connects businesses to their customers and suppliers, and people's homes to workplaces, schools, and colleges. More efficient transport provides opportunity and increases productivity; it directly reduces the cost to businesses of getting the materials they need and delivering their goods to market; it means people and businesses have greater choice of products, and this competition drives quality up and prices down; better transport increases the range of jobs people can access and the pool of labour available to employers, increasing productivity through lower unemployment and a better match between skills and jobs; and it increases the positive interactions between businesses that improve skills networks and boost innovation.

Our ability to reach employment, education and training, and essential services including healthcare, retail and leisure facilities has a major influence on our overall quality of life. Most of us have benefited from the improvement in personal mobility made possible by rising car ownership. This has offered many people greater choice in when and where they can travel and increased the opportunities available to them, for instance by enabling access to jobs across a wider area. However, those without access to a car or those who have difficulty travelling often have more limited choices and opportunities and increased car dependency is having a significant impact on the environment.

Innovation and change will be essential. Essex does not simply need new transport infrastructure; new and more efficient ways of working, introducing new technology to use the network differently, supporting safer, cleaner, and more efficient transport, and promoting and stimulating new technologies are all essential.

Transport provision in Essex will need to reflect the complex geography of Essex, the different journeys people and goods need to make, and to do this in a way that does not have adverse impacts on the environment or climate. The emerging consensus is that in the future we will need to:

- Avoid unnecessary travel
- Shift to more sustainable modes of travel
- Improve remaining transport to minimise its carbon impact.

1. Essex in numbers

The Office of National Statistics and the Department for Transport both produce a wide range of standard data related to transport and travel that when added to specific data collected by ECC forms the basis of transport analysis carried out by Essex County Council.

- Essex has a population of 1.4 million, the second largest county in England
- Covers 1,300 miles
- 12 district planning authorities
- 4 main towns and cities: Basildon, Chelmsford, Colchester & Harlow
- 4 strategic roads operated by Highways England: M11, M25, A12 and A120
- 4 major roads operated by ECC A13, A127, A130 and A414
- 2 International gateways: Stansted airport and Harwich seaport
- 3 main railway lines from London, and 1 tube line
- 58 railway stations and 8 tube stations
- 9 miles average commuting distance, 2.5 miles above the national average
- 150,000 people commute into London daily
- 60% live in urban areas
- 30% live less than 3 miles from their job
- 806,200 cars
- 6% of traffic is HGV
- 49% CO_2 emissions from transport
- 10 Air Quality Management Areas (AQMA)
- 260 public electric vehicle (EV) charge points
- 3,636 electric / plug-in cars

Essex is a large place but is very varied in character. The larger towns are the main economic centres where most people live and work, however, much of Essex is rural, the parts of the coastline are very remote and isolated. Essex borders London and many people travel to London to work. As a result, the population of Essex travels a little more than the national average, travels slightly further by car than the national average and CO_2 emissions from transport in Essex are relatively high.

2. Travel in Essex

The Census includes questions about how respondents travel to work and analysis of the 2011 data enabled ECC to build a picture of where people work, how far they travel to work and how people travel to work.

The Census data shows that travel by car is the most common way to get to work, either as a driver of passenger. This is true for almost all locations in Essex (see Figure 1). However, from Figure 1 it is clear that car use is highest in rural and coastal areas of Essex and significantly lower in urban areas where alternatives are most likely to be viable.

Figure 1: Travel to work by car (Census 2011)

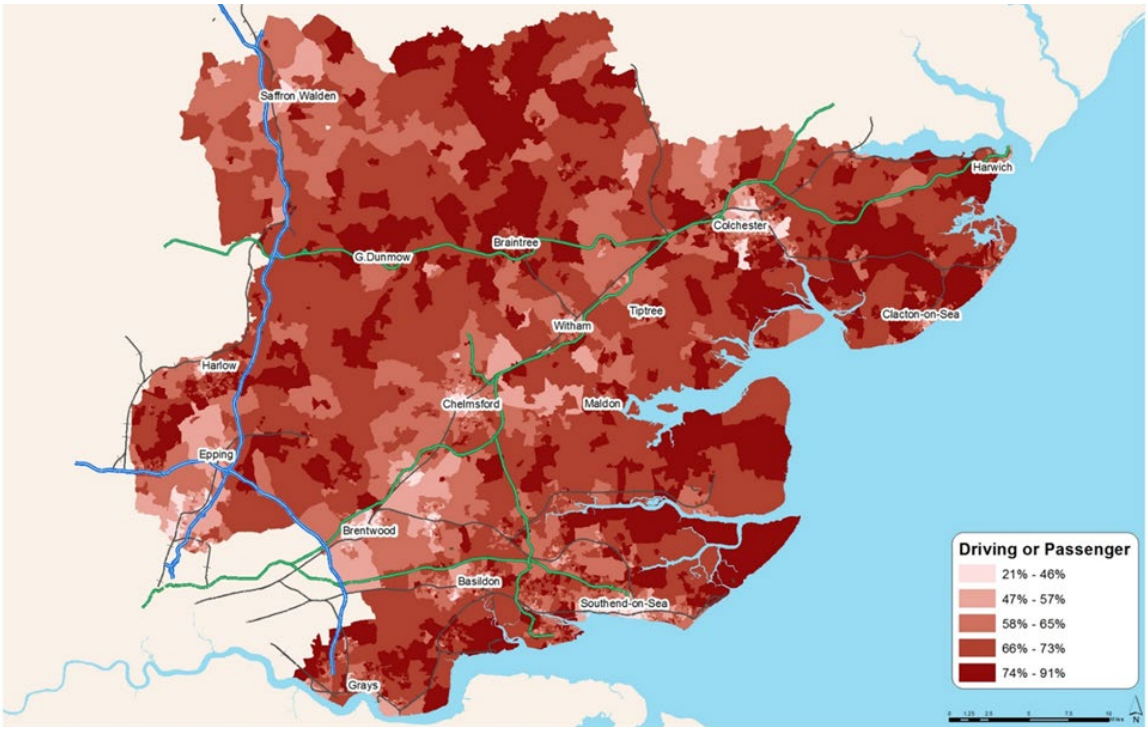


Figure 2 shows the distribution of people travelling to work on foot or by bicycle. This is most common in urban areas where the journey to work is likely to be relatively short.

Figure 2: Travel to work by walking and cycling (Census 2011)

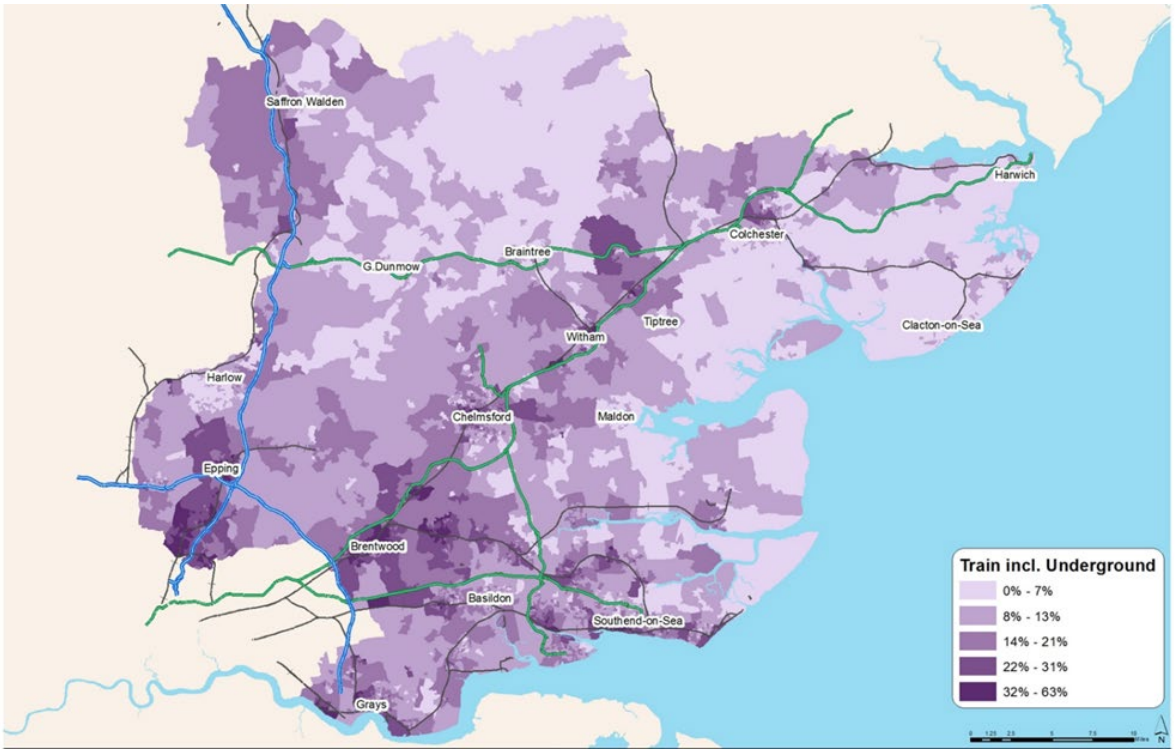
Figure 3 shows the distribution of people travelling to work by bus or coach. Again, this is most common in urban areas, or rural areas close to the larger towns, where viable and relatively frequent bus services are available.

Figure 3: Travel to work by bus or coach (Census 2011)

Census 2011 Office for National Statistics June 2014

Figure 4 shows the distribution of Essex residents who travel to work by train. Not surprisingly, this is highest in areas adjacent to railway stations and is most common in areas of Essex close to London. In 2011, rail was the most common form of transport for Essex residents who work in London.

Figure 4: Travel to Work by train or underground (Census 2011)



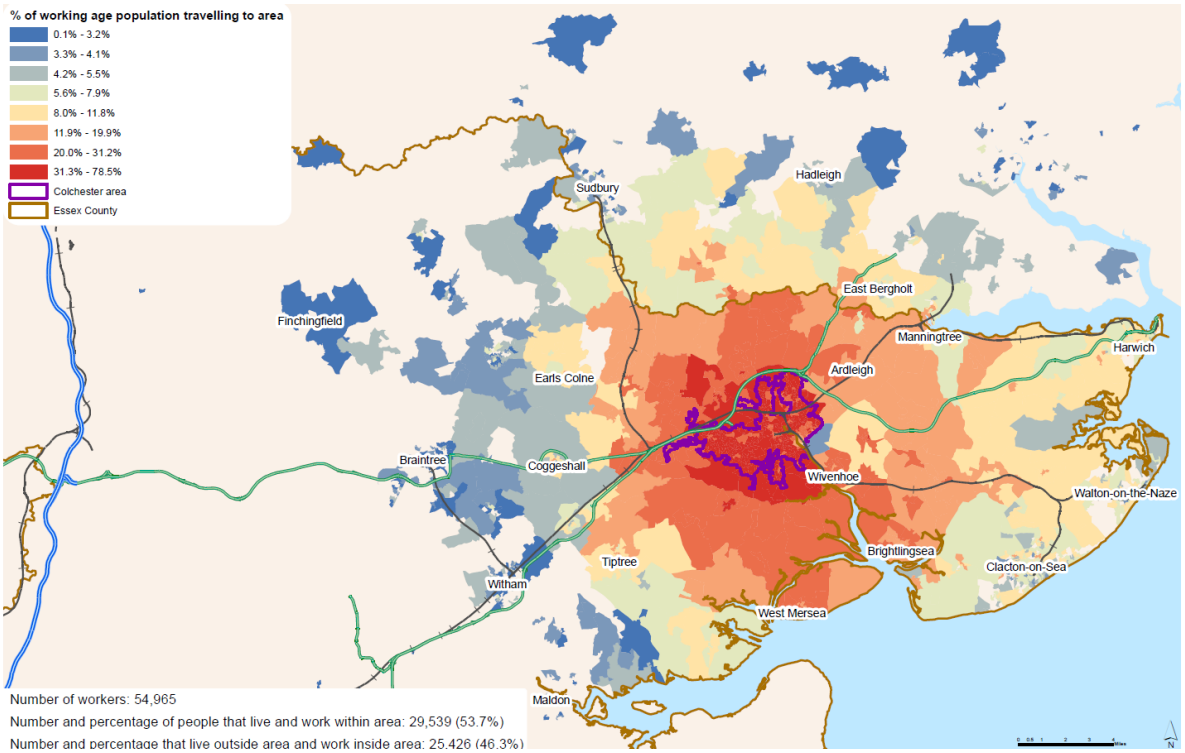
Key points from this analysis:

- When travelling to work the car is the most common form of transport across Essex,
- Walking, cycling, and buses are commonly used to travel to work in urban areas where the journey is shorter and bus travel is a realistic alternative to the car,
- Rail is a common form of transport for longer journeys, especially to London.

Further analysis of the Census data looked at travel to each of the towns in Essex.

Figure 5 shows the extent of the Travel to Work areas for people working within the built-up areas of Colchester and is typical of larger towns within Essex.

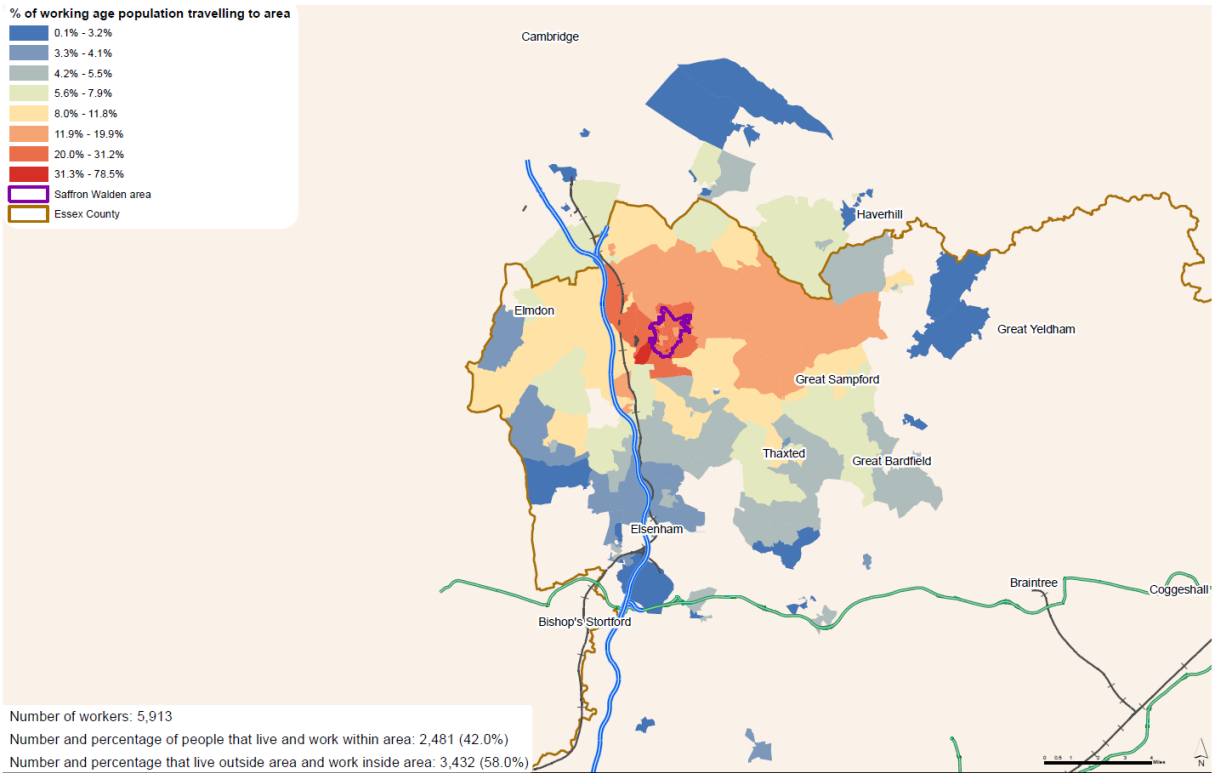
Figure 5: The Colchester Travel to Work areas, typical of a large town in Essex



Census 2011 Office for National Statistics. OAs with a travelling workforce to the area of fewer than 6 have been excluded from the map to avoid disclosure April 2015

Smaller market towns such as Saffron Walden (Figure 6) exhibit a similar travel to work pattern but with a smaller sphere of influence.

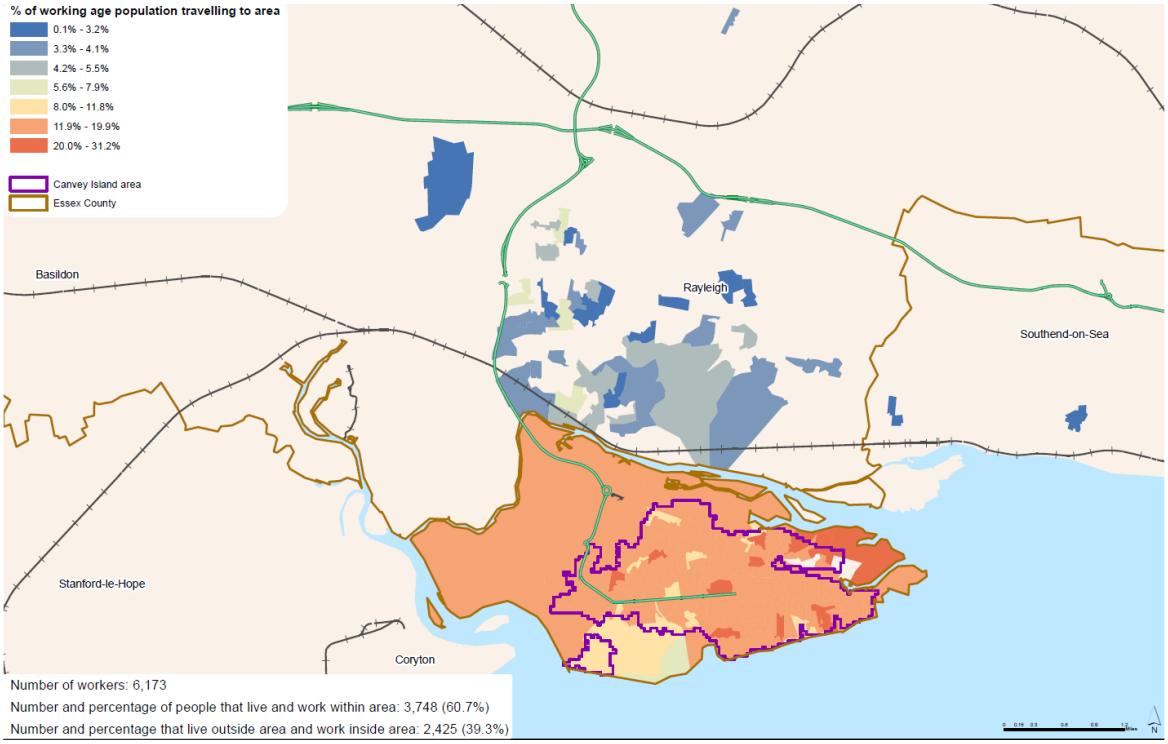
Figure 6: The Saffron Walden Travel to Work area, typical of a smaller town in Essex



Census 2011 Office for National Statistics. OAs with a travelling workforce to the area of fewer than 6 have been excluded from the map to avoid disclosure April 2015

Coastal towns such as Canvey exhibit highly self-contained employment (Figure 7).

Figure 7: The Canvey Travel to Work area, typical of a coastal town in Essex



Census 2011 Office for National Statistics. OAs with a travelling workforce to the area of fewer than 6 have been excluded from the map to avoid disclosure April 2015

Key points from this analysis:

- Many people travel a relatively short distance to work and walking, cycling and travel by bus are realistic modes of travel for many, especially within the larger towns.
- All of the larger towns in Essex draw some employees from a wide area, unless someone lives and works close to a railway line, and especially for those that live in rural areas, travel by car is the only realistic option for these trips.
- Coastal communities are often self-contained and well suited to walking and cycling, but this self-containment may reflect lack of opportunity and travel options.

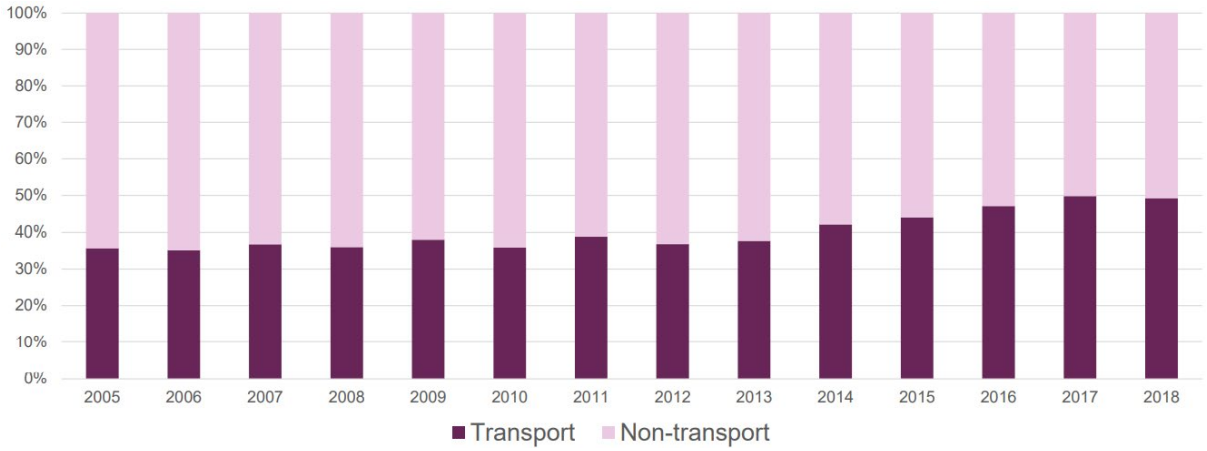
Covid and the associated lockdown restrictions have led to significant changes to work and travel during 2020. It is likely that this will lead to some permanent changes to how and when people travel. Many people, especially office based workers, have worked from home, however, the ability to work from home varies by employment sector and geographic location, for example, during 2020 26.5% of the population of south Essex did some work at home while 46.4% of the population in central Essex did some work at home (Office for

National Statistics. Homeworking hours, rewards and opportunities in the UK: 2011 to 2020). The long-term travel and carbon impacts of changing work patterns will need further analysis as the implications of more home working become clear.

3. Transport emissions

As the below graphs reveal (Figures 8-10), emissions in the transport sector have constantly increased in the recent years, both as a proportion of overall emissions and in absolute terms.

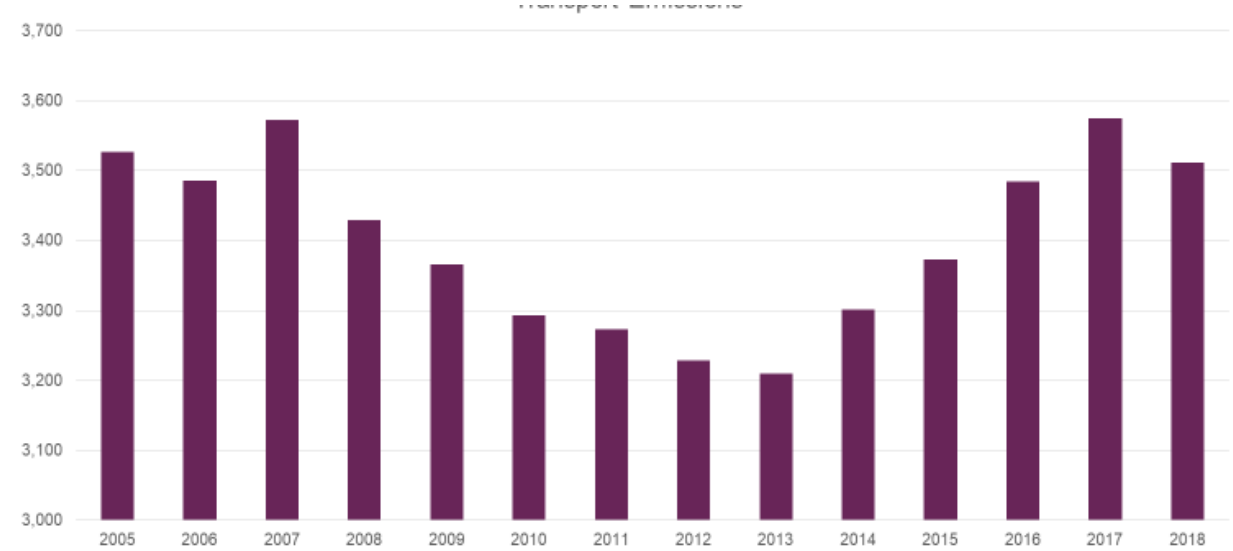
Figure 8: CO_2 emissions 2005-2018 percentage (kt CO_2)



Department for Business, Energy & Industrial Strategy, 2020

Recent increases in emissions from transport follow a period of declining emissions prior to 2013 (see Figure 9). This factor is closely related to the increase in the number of cars, the number of journeys and the number of residents, and a trend towards the purchase of larger, less efficient vehicles (European Environment Agency, 2019).

Figure 9: Transport related emissions in Essex



Department for Business, Energy & Industrial Strategy, 2020.
Source: Local Authority territorial CO_2 emissions estimates 2005-2018 (kt CO_2)

Figure 10: UK emissions (CO_2 and NO_x) by transport mode, 2017

Cars and taxis	LGVs (vans)	HGVs	Buses & coaches
Motorcycles & mopeds	Rail	Aviation, LTO2	Domestic shipping
Other	Aircraft	Shipping	

Source: Department for Transport, Table ENV0301

Essex County Council is a member of Transport East, the Sub-national Transport Body (STB) for the East of England, comprising public and private sector partners across Norfolk, Suffolk, Essex, Southend and Thurrock, providing a 'Single Voice' for transport strategy and investment in the region. The partnership is developing its inaugural Transport East Strategy, to provide the strategic framework for the transport investment required to help achieve its ambitious and inclusive economic, social, and environmental goals from now to 2050.

Following engagement with the partners, four key themes have been agreed, unique to the East region, that will form the cornerstones of the strategy and case for investment to deliver wider and transport specific outcomes. These key themes are:

- Unlocking global gateways,
- Multi-centred growth,
- Energising coastal and rural communities,
- Decarbonisation to net zero.

In 2020 Transport East published its decarbonisation evidence base and strategic recommendations for the East region.

The report identifies three key opportunities to support progress towards NetZero: mode shift, reducing the need to travel and alternative fuels.

4. Addressing the transport impacts of carbon

Following the advice contained within the Transport East report, there is a need to build upon the current approach taken by ECC based upon best practice elsewhere, and to consider the implementation of more cutting-edge technology and ideas. It is proposed that we will need to focus our agenda on a threefold approach:

1. Replacing transport trips and doing things differently to reduce the need to travel,
2. A shift to sustainable ways of travel and,
3. Finally decarbonising remaining transport.

4.1 Replacing transport trips

Essex is expected to grow, and this creates a demand for new homes and new businesses. It is essential that these new developments are located in the right place and designed in a way that enables the generation of zero emissions from surface transport. ECC acknowledges this need within the Local Transport Plan; however, much greater focus on delivering development in the most appropriate locations will be required in the future reflecting research carried out by the Chartered Institute of Highways and Transportation in its 2019 publication Better Planning, Better Transport, Better Places and the Royal Town Planning Institute in its 2021 publication Net Zero Transport; The role of spatial planning and place-based solutions.

Alongside a new approach to new developments it is also important that the need to travel is addressed across the wider population as only a small proportion of travel demand is related to new developments.

Digital technology offers new ways to work and to deliver and access services that are less dependent upon travel; for example, video consultations with doctors have become common during Covid lockdowns and while not appropriate in all cases have the potential to reduce unnecessary trips to see a doctor.

Increased working from home, or at local office hubs, will reduce commuting trips, especially longer trips. Video conference facilities have also become the norm and have the potential to significantly reduce business travel. However, it should not be forgotten that many need to be at work to do their job. There is also some evidence emerging that people who used to commute to work now use their cars during the day for more short local trips; it is important that these short trips are also zero carbon.

Changes to retail will reduce shopping trips but other interventions will be required to ensure that deliveries are zero carbon.

4.2 Mode shift

The evidence presented above, in Section 2, shows that many short trips are made in Essex every day. While this data is based upon the journey to work it is assumed to be representative of the mode of transport likely to be used for a range of other trips such as shopping and leisure trips. There is therefore clear potential to replace many of these shorter car trips with more sustainable and lower carbon journeys on foot, bicycle, or the bus, especially in urban areas. Promoting mode shift is likely to require an alternative to be available, people to be aware of the alternatives and a range of disincentives to discourage unsustainable behaviour.

The following is an analysis of several case studies where efforts have been made to promote mode shift.

Waltham Forest Walkable Neighbourhood

In many cases the car is seen as the default mode of transport and has come to dominate the streetscape leaving little space for people. Creating local neighbourhoods that encourage walking and cycling can reduce unnecessary car trips, reduce carbon, reduce pollution, and create places people want to live. The New Walkable Neighbourhood in Waltham Forest has delivered many benefits:

- 10,000 fewer car journeys per day,
- Motor traffic levels fall by over half inside the residential area,
- Collision rates reduced,
- Residents walking and cycling more,
- Vehicles speeds reduced from 21.6mph to 9.5mph.

This is why in our Transport recommendation we are advising the introduction of Walkable Neighbourhoods in Essex.

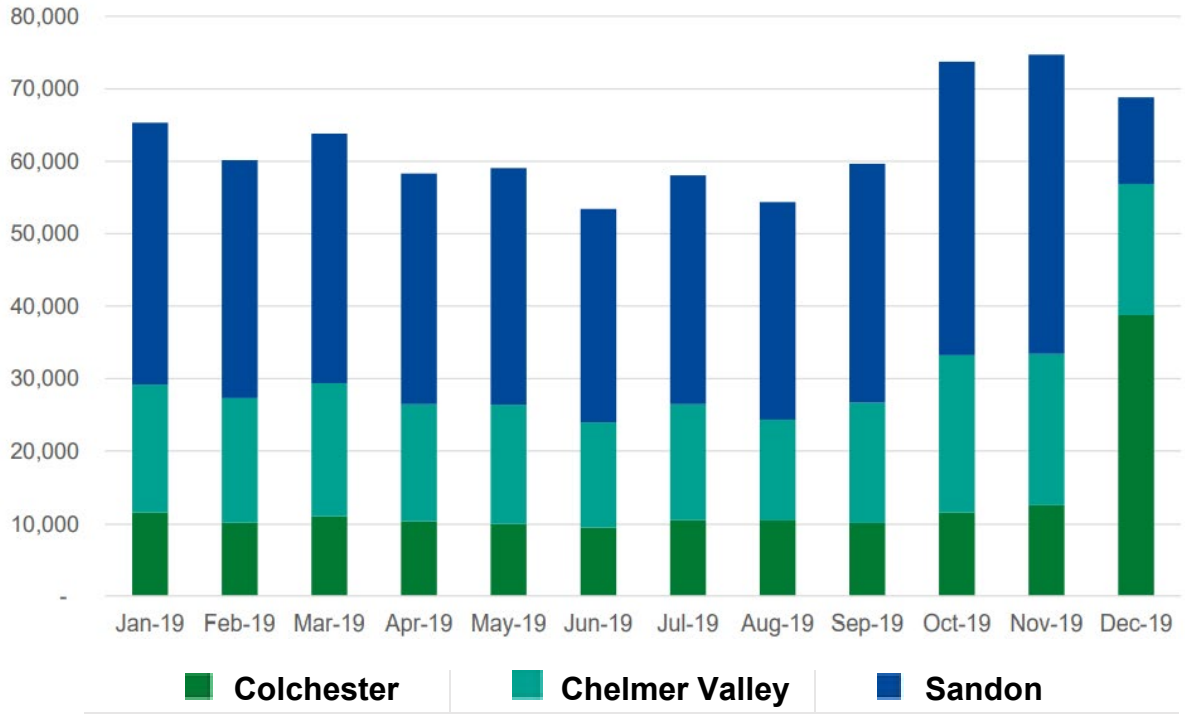
School Streets in Essex

The journey to school has become more dependent on car travel. Changing this dependency on car travel can reduce carbon emissions, reduce congestion around schools and bring health benefits to both pupils and their parents. Analysis carried out by Living Streets and contained with Swap the School Run for a School Walk imply that changing how children travel to school reduces carbon, has wider health benefits and increases children's independence. Why are we suggesting the introduction of 25 school streets by 2022, and an additional 20 per year to 2050 to cover all schools in Essex.

- Travelling to school by car is increasing,
- 58% of primary pupils came to school by car compared with 52% in 2011 (Essex),

- 43% of secondary pupils came to school by car compared with 30% in 2011 (Essex),
- 2 in 5 parents of primary school children say they worry about pollution levels around their school,
- A YouGov survey showed that two thirds of parents found the school run to be stressful.

Figure 11: Passenger numbers at Essex Park and Ride sites 2019



Source: Essex County Council

Park and Ride is seen as an important contributor to carbon reduction and also significantly reduces congestion and air pollution in urban areas. Park and Ride intercepts car trips as they enter the urban area and replaces them with a more carbon efficient bus trip. In 2019, 749,000 annual trips where shifted from cars onto other modes of transport.

Congestion Charging

Making changes to travel will require a mixture of incentivising positive change while discouraging behaviours that are more carbon dependent. At the same time, we are recommending introducing congestion charging. The following benefits have been reported where congestion charging is already in place (Essex Highways analysis of published data): London:

- Congestion cut by 30%
- Traffic cut by 15%
- CO_2 cut by 19%
- NOx cut by 12%
- Housing values increased around 5%
- £230m revenue in 2018/19

Durham:

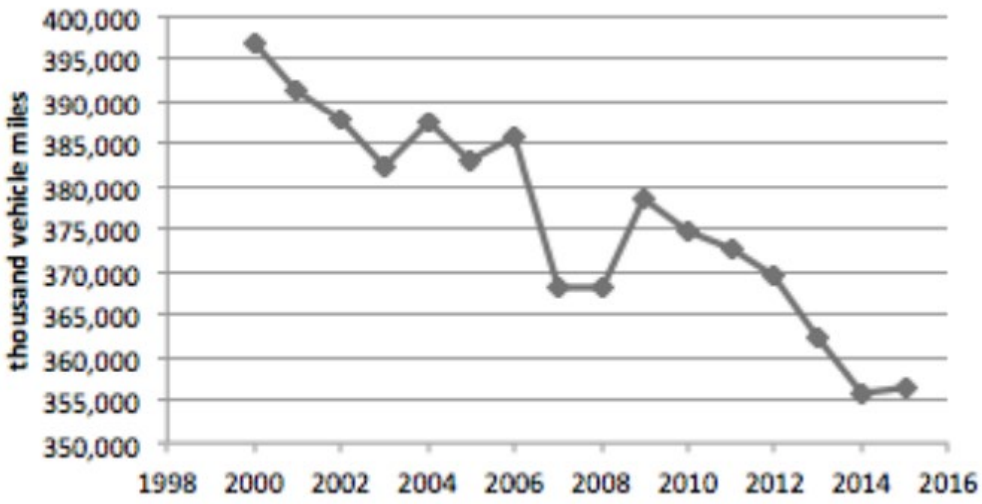
- Introduced October 2002
- Traffic has reduced by 90%
- Pedestrian numbers increased by 11%.
- Expected 50% drop in vehicles.
- Revenues £300,000 per annum
- 50% reduction in HGV/LGV activity
- Increase in bus patronage.

Nottingham Workplace Levy

Nottingham is an example where workplace levies have been already applied. The change was introduced to help fund the introduction of trams into Nottingham and has subsequently been retained with funds generated by the charge invested into a rage of sustainable transport interventions. The result is that this has reduced traffic and generated revenue.

- The levy applies to all workplaces with more than 10 parking spaces.
- There are around 24,800 spaces covered by the levy, approximately 60% of the total available.
- Economic benefit of £10 delivered for each £1 raised by the levy. £3 of external funding generated for every £1 raised by the levy.

Figure 12: Nottingham car traffic

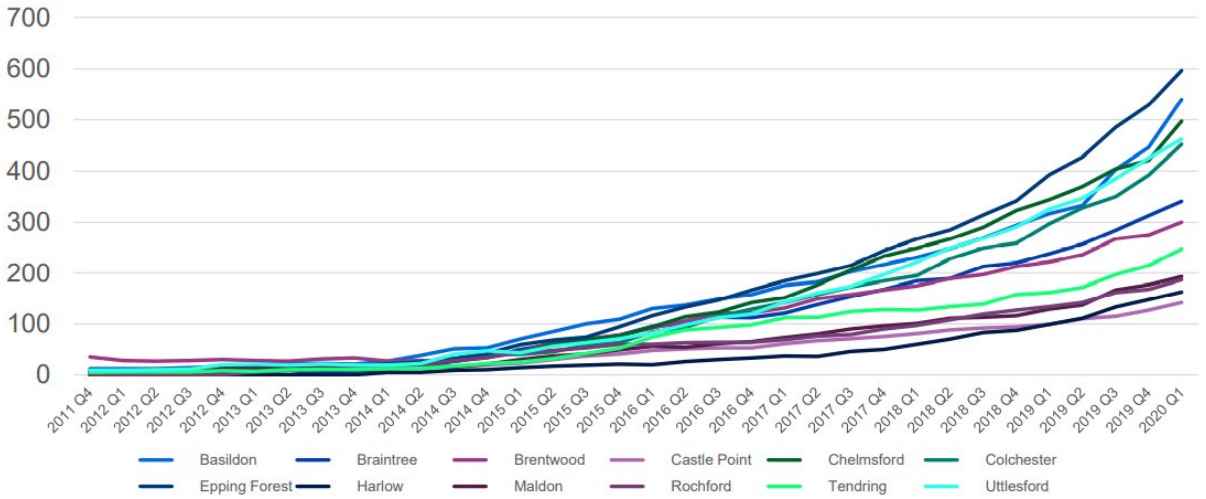


Source: Essex Highways analysis of published data4.3 Decarbonising remaining transport

Many journeys will still need to be made by car. It is therefore essential that these journeys can also be made in a way that is zero carbon. This requires the replacement of internal combustion engines with alternative fuels. The switch to electric and other forms of vehicle will need to be supported. The data below from a local survey, help us to understand where we need to focus our work.

- 67% of existing electric vehicle (EV) drivers would not have bought an EV if they did not have access to overnight charging.
- 80% of charging by current EVs drivers is done at home.
- 89% said they would be encouraged to make their next car an EV if they were offered access to a parking space where they could charge their EV while it is parked.
- 260 public charging points in Essex (Department for Transport)
- 65K estimated on street chargers needed.
- 4,121 EVs registered in Essex (Department for Transport, Table VEH0131 2020).
- Forecast 196K EV cars by 2030 (Deuchler, 2020).

Figure 13: Plug-in Cars, Vans and Quadricycles in Essex



Source: Department for Transport, 2020

5. Policy Framework

5.1 Department for Transport

In 2020 the Department for Transport published the document Decarbonising Transport Setting the Challenge that set out Government thinking ahead of the publication of the Transport Decarbonisation Plan that was published in July 2021.

This identifies six strategic priorities for the Transport Decarbonisation Plan, to deliver a vision of a net zero transport system.

Accelerating modal shift public and active transport

- Help make public transport and active travel the natural first choice for daily activities.
- Support fewer car trips through a coherent, convenient, and cost-effective public network; and explore how we might use cars differently in future.
- Encourage cycling and walking for short journeys.
- Explore how to best support the behaviour change required.

Decarbonisation of road vehicles

- Support the transition to zero emission road vehicles through:
  - regulatory framework
  - strong consumer base
  - market conditions
  - vehicle supply
  - refuelling and recharging infrastructure
  - energy system readiness
- Maximise benefits through investment in innovative technology development, and development of sustainable supply chains.

Decarbonising how we get our goods

- Consider future demand and changing consumer behaviour for goods.

Place-based solutions

- Consider where, how and why emissions occur in specific locations.
- Acknowledge a single solution will not be appropriate for every location.

- Transform 'last-mile' deliveries – developing an integrated, clean and sustainable delivery system.
- Optimise logistics efficiency and explore innovative digitally-enabled solutions, data sharing and collaborative platforms.

- Address emissions at a local level through local management of transport solutions.
- Target support for local areas, considering regional diversity and different solutions.

UK as a hub for green transport technology and innovation

- Utilise the UK's world-leading scientists, business leaders and innovators to position the UK as an internationally recognised leader of environmentally sustainable technology and innovation in transport.
- Build on expertise in the UK for technology developments and capitalise on near market quick wins.

Reducing carbon in a global economy

- Lead international efforts in transport emissions reduction.
- Recognise aviation and maritime are international by nature and require international solutions.
- Harness the UK as a global centre of expertise, driving low carbon innovation and global leadership, boosting the UK economy.

5.2 Essex County Council Local Transport Plan

Essex County Council is both the Transport Authority and Highways Authority for Essex. As the Transport Authority, ECC is required to develop a transport strategy that includes policies for the promotion and encouragement of safe, integrated, efficient and economic transport facilities and services to, from and within their area, that are required to meet the needs of persons living or working in the authority's area, or visiting or travelling through that area, including those required for the transportation of freight (Local Transport Act 2008). This is the Essex Transport Strategy that is also the formally adopted Local Transport Plan for Essex.

The most relevant policies with the Essex Transport Strategy are as follows.

Policy 2: Integrated Planning

Transport and land-use planning will be used together to secure new development at the most appropriate and sustainable locations by:

- working closely with district planning authorities to enable a better balance of new homes, jobs and services,
- locating new developments in areas which are accessible to key services by sustainable forms of transport,
- ensuring new developments provide for sustainable transport and effective travel planning,
- making the most effective use of all available funding sources by co-ordinating the delivery of ECC and development funded works.

Policy 7: Carbon Reduction

Essex County Council will support and encourage the use of lower carbon travel by:

- promoting the use of more sustainable forms of travel (Policy 8),
- ensuring new developments minimise the number and length of trips made by private vehicles (Policy 2),
- supporting use of emerging low-carbon technologies to reduce carbon emissions from transport sources,
- ensuring the Essex road network operates efficiently to minimise CO_2 emissions from vehicles,
- adopting measures to improve energy efficiency and further reduce carbon emissions arising from our own activities.

Policy 8: Promoting Sustainable Travel Choices

The County Council will encourage the use of more sustainable forms of travel by:

- consistently supporting and promoting sustainable travel,
- providing infrastructure for sustainable transport,
- working with partners and service providers to promote the use of sustainable forms of travel and to identify new ways to provide services,
- requiring effective travel planning for proposed developments in line with the Council's current development management policies,
- developing effective travel plans with existing workplaces, schools, and other locations that attract a significant number of people,
- promoting access by sustainable forms of transport to the county's railway stations, ports and airports.

This information is issued by:

Essex Climate Action Commission

Contact us:

Email: Climate.Commission@essex.gov.uk

Twitter: @EssexisGreen

Facebook: www.facebook.com/greenessex and
www.facebook/essexclimateaction
Instagram: www.instagram.com/essexisgreen

The information contained in this document can be translated, and/or made available in alternative formats, on request.

July 2021