

A Transport Greenprint for Cambridge

Authored by

Rupert Read, Green Party national transport spokesman and
Cambridge Green Party MP candidate, and

Oscar Hughes, Cambridge Young Greens Committee, on behalf of
Cambridge Green Party

Presented in Cambridge on 16th January 2015



Green Party
for the common good

Contents

Executive summary.....	3
Our overall policy aims.....	5
Travel Information, Ticketing and Payment.....	6
Ticketing	6
Contactless Payment	7
Information provision	8
Re-regulating Bus Services and Coaches	8
Coach facilities on Parker’s Piece.....	11
Best City for Cycling	11
Better Safety on foot	15
Congestion charging, car sharing and the cost of motoring.....	16
Alternative technologies for powering cars	16
Parking	17
Reducing air pollution from road vehicles.....	17
Expansion of the road network, speed limits and road maintenance.....	18
Freight and deliveries.....	19
Taxis.....	19
Closing roads to private motor through-traffic	20
King Street	20
Mill Road	21
For the Nation: Our policy on some wider travel and transport issues.....	22
Rail - From a disparate collection of routes to a national network.....	22
Institutional problems	24
Institutional change – our solutions	24
Punctuality and reliability	25
Electrification.....	25
Cambridge station redevelopment and new Science Park and Addenbrooke’s stations	25
Rail re-openings	26
Rail freight	27
Flying	27
Long-distance freight transport and shipping	29
Looking further afield?	30
Conclusion	30
Acknowledgments.....	30
References.....	31

A ‘Transport Greenprint’ for Cambridge

Executive summary

Most people need to travel – to get to work, to shop, to meet friends, to live more fulfilled and enriching lives. We choose the modes of transport that suit us best, whether this means convenience, cost, speed, comfort or carbon footprint. But some travel is stressful – a long commute by car in heavy traffic for example - and travel can have harmful effects for society and the environment. Excessive dependence on the private car causes pollution and congestion, and commuting into London can bring London property values to towns and villages that cannot afford London prices.

Cambridge voters care much more about transport than any other political issue, according to opinion polls. Only the Green Party truly understands the difficult questions that beset transport policy. We offer voters proper answers, some of them radical, informed by the values that our Party stands for. In contrast to the old ‘grey’ parties, we stand for a less congested, less polluted Cambridge, where the various modes of transport – bus, bicycle, taxi and car – are sensibly integrated around the needs of the people who live, work and study in the city.

This report is the most ambitious and meaningful transport policy for Cambridge that a political party in Cambridge has ever produced. It sets out specific and detailed proposals that elected Green Party representatives at Westminster and on the City Council will advocate for the city of Cambridge and its environs. It also touches on wider issues of national and global transport policy that we stand for and which we will seek to advance with all the political weight we can muster.

We urge you to read this report so as to understand how our Greenprint will work. But here is a very brief summary of its main themes:

For Cambridge:

- **Contactless Payment.** For convenience and to enable fare plans such as daily or weekly capping, buses and trains serving Cambridge residents should accept contactless payment, whether by credit or debit card, an extension of London’s Oystercard or a new regional contactless card, which might be called the ‘Cambcard’.
- **Re-regulating the buses.** London’s buses are run for the public good, regulated by Quality Bus Contracts. In effect, it is a public bus system and the service has become very impressive in recent years. Cambridge bus services should be at least as good as London’s; with similar contracts, we believe that they would be, and quite quickly.
- **Best City for cycling.** Cambridge is already the best city for cycling in Britain, but we are more ambitious: we want Cambridge to become the best city for cycling in Europe. So we would greatly expand the cycling network, both on-road and separated from road traffic. We back the Cambridge Cycling Campaign’s ‘Cycling 2020’ proposals as set out here: <http://www.camcycle.org.uk/campaigning/cycling2020/> .

- **Better safety on foot.** A massive investment in pedestrian safety and in pedestrian access, including the rolling out of 20mph limits across all residential streets and city centre areas of Cambridge.
- **Congestion charging.** The only way in which the congested streets of Cambridge can be decongested is through radical action, as has occurred in London. It is time to scope out a congestion charging scheme for Cambridge. To refuse to go down this path is to be complacent about rising traffic levels.
- **Cambridge City Deal.** We support most of its proposals on public transport. But our Greenprint offers a far more visionary solution for Cambridge's transport woes, principally by reducing dependence on the use of private cars. So we think our proposals above will reduce the need for new roads as proposed in the map slides here: [http://www.cambridge-news.co.uk/images/localworld/ugc-images/276453/binaries/Cambridge City Deal map slides.pdf](http://www.cambridge-news.co.uk/images/localworld/ugc-images/276453/binaries/Cambridge%20City%20Deal%20map%20slides.pdf)).

For the nation:

- **Public ownership of the railways.** Only the Green Party backs this overwhelmingly popular, common sense policy. Caroline Lucas MP is seeking to make it law. If elected as Green MP for Cambridge, Rupert Read, who is the Party's national transport spokesperson, would work with her to make this happen. Furthermore, we plan to slash fares by 10% across the board.
- **Expanding the rail network.** A top priority for us is re-opening the old line to Oxford without delay. (There is more detail in the report, below.)
- **Reducing the *need to travel*.** As well as facilitating movement of people and things from one place to another, an intelligent transport policy such as ours also aims to reduce the *felt need to travel*. Rather than building dormitory towns, the Greens advocate using planning policy to create relatively self-sufficient towns and villages with high-speed broadband, wifi and video-conferencing, as in our vision for Northstowe, for example.

...and how would we pay for all this?

Simple: by cancelling HS2 and the reckless road-building programme started by this government and planned for the Cambridge area, by ending subsidies to air travel and fossil fuel use, by properly financing local government once again, and by instituting congestion-charging in Cambridge.

In summary, we want to see far more money going into pedestrian safety, cycling and public transport, and to reduce car- and lorry- travel in order to make this work. And unlike the other parties, we actually have proposals that will enable this to happen. Those proposals are set out in more detail in the rest of this paper.

Our overall policy aims

What is the purpose of transport? Most of us need it to get to work, to the shops, to meet people – we use it to live more fulfilled and enriching lives. Access to travel is currently very uneven and is a major factor limiting social mobility. But sometimes travel can be harmful too. Travel should be socially beneficial or personally enriching rather than a goal to be pursued for the sake of consumerism. Commuting pushes up house prices and prices people out of certain areas, as well as being physically exhausting for many. Most obviously problematic is excessive dependence on the private car. It is inherently inefficient in terms of resource usage and environmental impacts and causes congestion.

If we do not take large-scale action on human-triggered climate change now, we may pass tipping points beyond which disastrous change is unavoidableⁱ, and since the poor suffer most from climate change worldwide and the rich have been responsible for most of the consumption, climate change is also perhaps the greatest social justice issue. Transport accounted for 39% energy usage in Britain in 2010ⁱⁱ and around 27% of UK total emissions in 2009ⁱⁱⁱ. As a historical high emitter and a wealthy country, Britain has a responsibility to reduce its emissions faster than most other countries^{iv}. If we are to follow a “contraction and convergence” model, our emissions need to be reduced to near zero by 2030^v. Air pollution also causes premature deaths and reduces people’s quality of life.

Thus our aims are:

- to provide a basic level of mobility for every citizen
- to keep journeys short and reduce the need for travel by localising services
- to reduce dependence on the private car and encourage a transition to less environmentally-damaging forms of transport
- to decarbonise all forms of transport and invest in technologies to improve resource-efficiency
- to hugely reduce air pollution
- to prioritise better management of infrastructure (such as better use of road space by encouraging cycling or a higher priority for strategic rail timetabling) over new construction
- to regenerate deprived areas of the country to reduce the demand for London commuting.

Luckily, many people in Cambridge already do not feel they need a car. And some are not in a position to own one. Around a third of households do not have access to a car or van and this is roughly in line with other similar-sized cities and this figure is higher in and around the city centre^{vi}. More particular to Cambridge is the fact that undergraduate students are not allowed to have a car in Cambridge without special permission because of congestion in the city. The high rates of cycling for which Cambridge is known are due to this combination of factors, not to any special provision. Yet Cambridge still suffers from congestion and the house building planned for Cambridgeshire is likely to bring yet more cars into the city.

That is why we are proposing huge investment in cycling and walking infrastructure which currently receives a fraction of the spend on roads. Walking and cycling bring tremendous public health benefits, and are safer than driving. Increased levels of walking and cycling alleviate pressure on the NHS through reduced road injuries, reduced obesity and reduced pollution-related heart and lung problems. We would also free up space on Cambridge's roads for a more reliable bus service. Looking further afield, we are proposing to introduce a strategic, integrated timetable for Britain's railway, simplify fares, bring walk-up travel within the reach of ordinary people, and introduce smartcards. Driving and flying fall lower down our list of priorities, but large-scale modal shift towards public transport is likely to make driving much easier for those who have little option, such as the disabled and those carrying heavy luggage or shopping. We are committed to a roll-out of electric cars. We also propose switching away from air travel towards alternative land-based travel *and* the use of telecommunications technology to replace some types of face-to-face meetings.

According to a survey by the Campaign for Better Transport, Cambridge is the sixth best place in the UK to live without a car. This is welcome, but Cambridge could easily be higher in the rankings if the public transport was joined up and the cycle routes were to a standard that would be attractive for people who currently choose to drive.

The proposal by Transport for London to create a new Ultra Low Emissions Zone in Central London is one we should be aiming to follow with a similar plan for Cambridge.

Travel Information, Ticketing and Payment

Ticketing

Value for money is current passengers' top priority for improvement^{vii}. Only 45% of passengers asked about the last rail journey they made feel that they are getting satisfactory or good value for money for their tickets^{viii}. The figure for those who choose not to use rail is likely to be much worse. Partly this perception is due to the low up-front costs of motoring, which is covered elsewhere in this report. Fares are set by different Train Operating Companies (TOCs) at different levels with different restrictions. The fares structure often discriminates against interchange options as TOCs providing connections can limit availability of the Advance tickets sold by the principal operator for journeys involving the connecting services, or because through fares for certain ticket types do not exist. Fare income covers most of the operating costs of the railway, which are currently around £9bn, and looks set to cover all operating costs by 2019^{ix}. Research suggests that freezing fares in real terms rather than increasing them would have little impact on revenue as it would encourage additional journeys^x. *We therefore call for lower fares and for harmonising the levels at which they are set.* The Green Party has a costed plan for reducing fares by an average of 10% across the board. Visit:

<http://www.theguardian.com/politics/2015/jan/05/green-party-natalie-bennett-10-percent-rail-bus-fare-cut>

Walk-up fares should be set significantly below the up front cost of driving. Fares should be broadly, but not exclusively, distance based, for example where that would result in different fares for different routes. We would standardise and extend group ticketing arrangements to make rail competitive in price for groups.

The current marketing strategies of TOCs are based on encouraging leisure travel and selling seats using cheap Advance (booked train only) tickets. This encourages those who are already using rail and those who would not otherwise travel to make trips of little personal or social benefit on a limited number of inter-city routes. We think it more important to encourage those currently travelling by car to use rail instead. That is why Greens call for a focus on promoting travel from any origin to any destination with a flexible multi-modal fare structure and a reduction in the number of Advance tickets sold.

In a nationalised railway system inter-city fares would be set by the national planning agency mentioned above, regional fares would be set by regional transport authorities and local fares by city regions where appropriate. These bodies would consider a wide range of factors when setting fare levels, such as capacity, the timetable, housing availability and economic redistribution. All these bodies would be accountable to the public and its political representatives.

While Cambridge to London standard annual season ticket prices of between £4,000 and £5,000 may take a significant proportion of some people's incomes, we do not pledge to reduce season ticket prices. Rather, we will work to reduce inequality. Commuters are expensive passengers to cater for, as they require significant capacity that is only used at peak travel times. Policies that encourage more commuting from Cambridge will exacerbate the city's already acute housing problems.

Contactless Payment

Greens support the use of contactless payment cards to increase ease of purchase and reduce waiting times at ticket offices. Oystercard has helped to increase patronage in London^{xi} and on Southern Rail; we would explore extending it to Cambridge. Since winning the franchise for services between Cambridge and King's Cross^{xii}, Govia has agreed to roll out its smartcard 'The Key', based on standards set by the Integrated Transport Smartcard Organisation (ITSO). This would allow people to pick up pre-ordered travel products at the gateline rather than queuing to buy or pick up tickets. First Capital Connect used to offer m-ticketing but this has been withdrawn since it lost the franchise, leaving no option but to queue. A Green Cambridge MP would press for the roll-out to happen as quickly as possible. The Department for Transport is promoting the ITSO Smartcard specification despite a very reluctant uptake by TOCs and technical problems and smart ticketing is now starting to be implemented^{xiii}. A Green MP would press the Department for Transport to accelerate the roll out of smart ticketing as quickly as possible, probably using ITSO, though this should be reviewed. Greens would like to see smartcard ticketing introduced regionally (it might be called a 'Cambcard', if a separate card is used rather than using the Oystercard) rather than

on individual routes or by individual franchisees as far as possible. A Green MP would also call for future smart ticketing products to be multi-modal to make travel on public transport very easy.

Information provision

The existence of around 25 branded booking engines with 6 different interfaces and different booking and card fees alongside the National Rail Enquiries and Traveline websites confuses passengers. The booking engines provide little to no information about transport by other modes which may be essential to completing some journeys. Greens call for a single website which would give all times and prices and provide bookings for all public transport services in Great Britain. This is achievable: Germany, a similar sized country to Britain, has such a website, though it does exclude competing long-distance coaches^{xiv}. Transport Direct provided a national timetable look-up service, but no bookings and limited fares information, until it was closed down (!) by the Government in September 2014^{xv}. “Accurate and timely information available at stations” is the seventh priority for improvement for existing passengers in the East of England^{xvi}. The information provided by this website should also be available at all ticket machines and to all ticket office staff. Departure information should also display major intermediate calling points where possible rather than just final destinations, as many people are not familiar with railway geography.

Greens also appreciate that people are more likely to use rail if the atmosphere is welcoming, even though they may not realise it. We are supportive of keeping guards on trains to deal with people’s enquiries, tackle ticketing issues compassionately and inform them about delays and connections. Improving information about disruption is the fifth priority for improvement for existing passengers in the East of England^{xvii} and has the biggest impact on overall passenger dissatisfaction nationally^{xviii}. Rail staff need to be trained to use the electronic tools available more effectively and need to communicate more promptly with passengers in cases of disruption. We are critical of the installation of closed ticket gates given the limitations of the software. It is possible that security is one of the main motivations for the installation of CCTV for screening passengers^{xix}. We call for gates in Cambridge to be opened at very busy times, as passengers’ time should take priority over small potential revenue loss. We will question proposals to install them elsewhere.

Re-regulating Bus Services and Coaches

The more people choose to use buses, the more road-space there is for those who actually *need* to drive. About ninety people will fit into a full double-decker bus, compared to about twelve people into three full cars occupying the same amount of road-space.

Bus services outside London were deregulated by Thatcher under the Transport Act of 1985. This legislation has meant that councils no longer have the power to set routes and fares. Their role is limited to contracting and subsidising bus services which the operators do not consider commercially viable. Since 1995/1997 bus journey kilometres outside of London

have declined by 18% while in London there has been an increase of 45%^{xx}. Bus patronage has been falling even in metropolitan areas outside of London. Of course success in London may be in part due to the substantial funding that Transport for London (TfL) receives. Our proposals for congestion charging in Cambridge, outlined below, will make this possible for Cambridge too. However, planning and integration are essential to running a successful bus network. In London TfL plans the network and specifies vehicles, timetables and fares. Management is focused on providing quality information, and it is generally clear and up-to-date. You can use Oyster and Travelcards on buses, the Underground, trains and trams. Bus companies elsewhere have little incentive to provide this. London's bus services are also accountable to the elected Mayor of London who is responsible for providing a quality network.

Labour passed legislation as part of the Transport Act of 2000 making it possible for regional transport authorities to emulate the TfL model, but they must go through stringent tests against resistance from operators, so these provisions has never been implemented. Bus services in the UK are largely provided by a small number of large companies (in Cambridge, Stagecoach). Understandably, they are reluctant to run services for the public benefit if they are uneconomic. But under the concessions schemes of a regulated system, services can be run for the common good. A trial scheme is to be set up in the North East^{xxi}; this could serve as a model for Cambridge. Labour is now promising to pass legislation to make it easier for councils to regulate bus services^{xxii}. A Cambridge Green MP would put pressure on Labour and other parties to deliver the required statutory change, possibly as part of a 'rainbow progressive alliance' government arrangement.

With powers to regulate bus services a Green City Council would have the following goals:

- There should be a thorough review of the network and timetables. Some areas of Cambridge are poorly served by bus services, particularly in the west of the city. Many areas of Cambridge do not have direct links to the railway station and we would remedy that as far as possible.
- Routes with lower patronage and evening and weekend services should be cross-subsidised to ensure acceptable frequencies. Frequencies of less than every fifteen minutes should be exceptional. Frequencies of ten minutes or better are preferred: because this is the threshold at which most passengers will simply to turn up and wait, without having to check a timetable; and this greatly encourages bus use.
- City bus timetables should be co-ordinated, particularly in the evenings, to optimise connections between buses, principally in the city centre. City bus timetables should be co-ordinated with trains in the evenings, particularly to/from London. Rural buses should be routed via the station where possible and timetables should be co-ordinated with rail services. Rural bus timetables should also be co-ordinated to make it easier to travel between any pair of localities in the region, rather than just to and from Cambridge. Cambridge city centre and Cambridge railway station would be two of the most important, but by no means the only, interchange points in the county. The

physical lay-out of interchanges, particularly around rail stations, needs to be considered.

- There should be a flat fare for journeys anywhere in Cambridge. Lothian Buses in Edinburgh have a flat fare of £1.50^{xxiii}. Given that Cambridge is a small city, we would hope that a flat fare in Cambridge would be significantly lower. The exact price would depend on the subsidy options available: Greens would increase these subsidies.
- Vehicles used should be appropriate to the route and time of day. Stagecoach uses double-deckers for most high-frequency routes in Cambridge at all times of day even though patronage does not currently require this. This is simple for Stagecoach but does not create a good ambience in Cambridge's narrow streets. A fleet of double-deckers, single-deckers, and 'minibuses' should be mixed and matched by time of day.
- Price-gouging of key routes, e.g. the station to the city centre, should be stopped.

Even if regulation of bus services cannot be re-introduced, and in any case between now and its introduction, elected Greens would work hard to deliver incremental improvements to the existing network in Cambridge along these lines where possible. We would work with Stagecoach and Tower Transit (the company which has recently taken over from Whippet) to introduce smart ticketing. Payment by contactless cards (see below for details) should be available for all buses in Cambridgeshire. Such cards speed up boarding and therefore improve the space of bus services running at regular intervals. Ideally we would like passengers to be able to use one smartcard on all buses and trains across the county (see above for our 'Cambcard' suggestion) or indeed the region, but this is difficult to implement in the current fragmented industry. If this is not possible, and in the meantime, we would investigate urgently the feasibility of introducing roadside ticket machines at least at the railway station and at the city centre bus stops.

Congestion across the city, but particularly on Hills Road, makes it difficult to run a reliable bus service. In particular, it is not possible to run more bus services to the station because of congestion. Making space for cycling would alleviate this problem, and we would keep looking at where more bus-lanes should be introduced.

Cambridge University currently subsidises a Uni 4 bus service at a cost of around a quarter of a million pounds a year. The service provides a useful link between the south-east and north-west of the city and serves areas around Grange Road served by no other buses, but it only runs every twenty minutes and does not run at weekends or in the evenings. We are pleased that the Cambridge University Environmental Policy includes a commitment to retaining and improving this service and Cambridge University's new Travel Plan Manager is to investigate improving the frequency, extending the operating hours and routing it via the station^{xxiv}.

Greens would also make applications to national funds which currently offer multi-million pound grants for buying new, less environmentally-damaging vehicles, improving real-time

information or facilities at stops or subsidising services. The Green council in Brighton and Hove has obtained significant funding through these schemes and patronage is increasing significantly^{xxv}. We are concerned about the decline in national or local government funding for subsidies for services which are not ‘commercially viable’. Funding is often only available for capital infrastructure projects which are meant to deliver long-term improvements, but which may (such as arguably in the case of the Guided Busway) be less valuable than a more frequent regional network. Bus services should also run late enough to allow people to return home from London or other locations in the Eastern Region after the evening peak.

Coach facilities on Parker’s Piece

We are concerned about the proposals to locate permanent coach facilities outside Parkside school on Parker’s Piece. The Joint Area Committee decided to locate temporary facilities here in 2006^{xxvi} and now there is a proposal to make these permanent. Locating stopping facilities for any large vehicles outside a school is obviously questionable in terms of safety. Parker’s Piece is a green space which is important to the quality of life of Cambridge residents. This proposal has generated significant concern locally. Coaches should make a variety of stops from the Science Park to Addenbrooke’s, including stops in the city centre and at the main station. This would be similar to what now happens in Oxford, where only a minority of passengers use Gloucester Green or Victoria, so occupancy of central area stops would be considerably reduced. The X5 should also serve Cambridge station as well as Northampton Street, a new stop near Mitcham’s Corner and Parkside, since it is primarily a mitigation for an East-West Rail service. Facilities for coach driver breaks could be provided at the railway station, but the bus stops around the railway station have recently been re-designed so this may be difficult to implement. Unfortunately, there is likely to be significant opposition to alternative proposals as the County Council receives revenue from coach companies which stop on Parker’s Piece^{xxvii}. Green councillors would investigate the various options and push for an alternative solution.

Best City for Cycling

Increasing cycling-levels while reducing car-driving levels is good *for everyone*, including those who cannot avoid being car-drivers. Cycling is healthy, and keeps the roads relatively clear for those who actually *need* to drive. Investing in cycling is the cheapest way to improve conditions for drivers. Also it gives them more choice of transport mode, because people will only choose to cycle in large numbers if they feel cycling is convenient and safe. Transport infrastructure policy should aim to attract people out of their cars, and that means a change in local and national government thinking. Greens want County Councillors and officers in particular to make planning for cyclists, not just motorists, integral and Green representatives at all levels would advocate better cycling facilities.

Our key policy is that all main routes into the city and all of the Inner Ring Road should have ‘segregated’ cycle facilities as far as possible, in line with the recommendations of the ‘Making Space for Cycling’ guide endorsed by every national cycling organisation. This

outlines that cycle provision should be separated from both pedestrians and motorised traffic as far as possible. They need to be at least 2.1m and ideally 2.5m wide^{xxviii}. This will mean that cycling becomes a much more attractive mode of transport, and that people who currently find it too dangerous and so are forced into their cars would find they have a new transport option.

At some locations there is not the space for ideal provision and Councillors and Officers need to think creatively about what can be achieved. Cycle provision needs to be rethought in conjunction with other schemes such as bus priority measures on Milton Road. Green Councillors would look creatively for funding sources from central government. Greens would call for facilities for cycling to be considered whenever bus priority measures are introduced or housing developments are proposed.

Junctions need to be remodeled to make journeys quicker, safer and less stressful for cyclists. People cycling need to be separated from motorists as far as possible and awkward manoeuvres involving tight curves, railings and repeated starts and stops need to be avoided^{xxix}. We do not want dangerous narrow cycle lanes which invite accidents. Advance Stop Lines should not be advisory and cycle lanes need to be provided to access them. At signaled junctions crossing opportunities should be frequent, even if that means bursts are short^{xxx}. Advance green lights need to be placed at the appropriate height for cyclists. An ideal solution for many junctions would be a Dutch-style roundabout where cyclists are fully-segregated from motorised traffic and cyclists cross each side of the junction separately together with pedestrians. All these measures make cycling safer while not causing any extra delays for other road users. These changes also bring the opportunity to make the streetscapes of Cambridge to be made safer and of higher quality.

More cycle parking needs to be provided in Cambridge, both in the city centre and elsewhere in the city, particularly around local shops and services and at train stations. A third major cycle park in the city centre is essential to cater for the growth of Cambridge's population, and at Addenbrooke's the shortage of cycle facilities is particularly acute. We are pleased that the university is appointing a Travel Plan Manager who will work with affiliated bodies to improve cycling parking and other facilities, such as showers, which tend to be priced out of building plans since cycling lacks a strong advocate. Cycle stands must be full horseshoe shaped Sheffield stands at least a metre apart^{xxxi}. Where practicable they should be under cover and in sight of a busy thoroughfare.

Following the proposal for cycling super highways in London, Cambridge should develop a comprehensive off-road cycle network. This could start with the Chisholm Trail currently proposed by Cambridge Cycling Campaign. This route would run from Abbey and the Science Park areas to Mill Road, the station, Cherry Hinton and Addenbrooke's, thus linking areas of high employment to dense residential areas. The Chisholm Trail would also link the two sections of cycle path which follow the Cambridge-St Ives and the Trumpington busways^{xxxii}. The cycle path would largely run along the railway and would largely be constructed on Network Rail land^{xxxiii}. Making this happen therefore requires close co-operation between the County Council and Network Rail and is something Green councillors

would facilitate. Although £3 million has been earmarked for the Chisholm Trail as part of Cambridge's City Deal, a mechanism by which Cambridge can borrow money from central government to fund infrastructure improvements^{xxxiv}, Greens would push for a much stronger commitment to get it built quickly, given the major de-congestion benefits it would bring.

We echo the concerns of the Cycling Campaign about poor planning for cyclists at the Northstowe housing development just to the north-west of Cambridge^{xxxv}. This is a new development and so does not face many of the usual constraints, but still many of the aspirations of the Green Party and the Cycling Campaign regarding best-practice segregated cycle infrastructure, cycle parking and speed limits are not being met. This is unacceptable. It points strongly to the need for national standards for cycling infrastructure, which Conservatives, Labour and the Liberal Democrats have completely failed to create.

Northstowe would be connected to Cambridge and St Ives by the cycle path alongside the guided busway. There are unresolved issues of flooding along the approach to St Ives; Green councillors would investigate the hydrology of the route and aim to prevent the flooding which regularly blocks the cycle path. It is also worrying that the cycle path was only constructed because the guided busway needed an access road. Cycle provision needs to be *at the centre* of what the County Council's transport department provides.

Green Councillors would support the creation of additional off-road cycle routes linking surrounding villages, such as along the A10 corridor towards Royston^{xxxvi}. Attractive cycle routes to villages are crucial to enabling modal shift to cycling and reducing the level of congestion in Cambridge given the level of house building planned for Cambridgeshire.

Demand for cycle access routes to, and cycle parking at, Cambridge station is high. A new 3,000 space cycle park has finally been given the go-ahead after 15 years of campaigning by cyclists. However, this will be insufficient. Greens want the City Council to ensure that the space between the new cycle park and the cycle bridge will be protected from future development, so that the building can be upgraded to 6,000 spaces in future. Greens would bring forward national funding for connecting the new cycle park to the island platform bridge, which would enhance the station's capacity. Also, there should be direct access to the new island platform from the Romsey side, which would create the opportunity for 1,000 more cycle parking spaces and a less-congested station.

Cycle access to the station from the Petersfield area is through the car park and the space allocated to cyclists is minimal. This is dangerous and uninviting. Despite this, the route is heavily used by cyclists and sometimes scenes can be observed where only cyclists and pedestrians are moving. Some of this cycle traffic could be diverted away from this area if there were access to the station from the east, as noted above and Greens will advocate this. Green Councillors would also advocate better facilities for cyclists during the redevelopment of the station. A Green MP would advocate the restructuring of the railways to make them more democratic and to move away from the primacy of short-term financial concerns. The railways should be run for the common good.

The cycle access planned for the Science Park station is currently sub-optimal. A 3m wide shared space route is proposed for pedestrians and cyclists access along Cowley Road. This is inadequate given that this is new infrastructure, especially since numbers of both cyclists and pedestrians accessing the Science Park are predicted to be high^{xxxvii}. Kerbs, bollards, bends and crossings have not been designed with cyclists in mind^{xxxviii}. The fact that new shared use pavement provision is being created in Cambridge suggests that the City and County Councils do not take full account of the needs of cyclists.

Signage in Cambridge is almost always designed exclusively for cars except on cycle paths. Off-road cycling routes should be accompanied by dedicated signage. While the Central Cambridgeshire and Cambridge City Centre cycle maps are commendable, cycle maps should be much more widely available.

Cycling should be seen as a normal activity which does not require any special equipment. The council should be designing infrastructure so that it automatically creates an atmosphere of cooperation between cyclists and motorists, rather than causing conflict. We note that more people are killed each year by cars driving on pavements than by cyclists cycling on pavements; dangerous driving causes more deaths than dangerous cycling. We recognise the need to work with cycling groups to ensure good conduct on the part of cyclists and to penalise dangerous cycling and driving alike. However, we would oppose any proposal to make helmets or reflective vests compulsory, because this would reduce cycling levels, resulting in a significant overall reduction in public health. We also recognise that, because of the low quality of much current cycle infrastructure, some cyclists will prefer to use the road as this is still often safer and much more convenient. New cycle infrastructure, if properly designed, must avoid two-tier provision, and be safe and fast for everyone, whatever their ability, including those whose mobility is impaired.

Cars have more potential to do damage to pedestrians and cyclists than these groups do to cars, so cars should behave especially cautiously on the road. Yet this is not reflected in British law and neither pedestrian/cyclist nor car driver is automatically responsible for the accident, even though responsibility is difficult to determine. Equally, a cyclist has a stronger duty of care than a pedestrian when in a shared area. Most European countries accordingly adopt a proportionate liability law, recognises the concept of 'weak' and 'strong' road users for insurance purposes (though this makes no judgment on criminality). 'Strong' users are considered responsible unless they can prove that they have behaved faultlessly or the mistakes of the other road users were extremely likely. Children under 14 are never considered at fault unless they intended to cause the accident or their negligence was bordering on intentionality^{xxxix}. A Green MP for Cambridge would join many road safety groups in calling for a similar 'proportionate liability' law to be introduced in the UK to reflect the inherent danger car drivers pose to more vulnerable road users. Car-drivers are 'safe' inside a metal box; they need to exercise great care with regard to those lacking such protection.

Better Safety on foot

Walking also needs to be convenient and appealing. Many of our commitments to cycling will also make walking more attractive. Off-road cycle routes can also be used by pedestrians. At junctions, pedestrians generally dislike guard rails, prefer single stage crossings; and at signaled junctions, prefer short bursts to long waits. Pedestrians also require adequately surfaced paths. Many routes, such as along Queens Road on the Backs, urgently need improvement.

Pedestrians also have different requirements and particularly older and less mobile people dislike sharing space with cyclists. The County Council needs to treat cycling as a mode of transport in its own right. Pedestrians like on-street maps like those found London and Greens would work to increase the number of these maps in Cambridge, so that they are not just found around the city centre, but also at busy locations such as around the station. Pavements also need to be of an adequate width, especially where they are busy. The Campaign for Better Transport conducted research in 2013 into walking routes between stations and town centres in Ipswich, Ely and Colchester. It measured liveliness, human scale, legibility (ease of orientation) and safety and comfort^{x1}. Green councillors will work to improve all these areas when considering proposals for projects.

Greens would introduce a long-term plan to reclaim the terraced streets of Romsey and Petersfield for the residents. These streets could be transformed into beautiful places to live, with play areas, planters, secure cycle parking, more car club spaces, pavements for the exclusive use of pedestrians, and two-way cycling. This would be done by converting merely one parking space per street per year to one of these other uses. Over a 15-year period, the area would be transformed, and car dependence would be lowered. The high turnover of residents in the area means that people will cope with the reduction of 1% of car parking per year.

As we outline further below, we will take key further measures to make walking more attractive, including pedestrian schemes in the city centre, potential for the further extension of which should be seriously considered; blanket 20mph speed limits in residential areas; and pedestrian safety schemes including more zebra crossings where needed.

Congestion charging, car sharing and the cost of motoring

The way we pay for motoring is fundamentally flawed. Vehicle purchase, MOT, car tax and insurance are paid up front, while only petrol and (rarely considered) wear and tear depend on usage. The lack of a comprehensive integrated public transport system encourages people to buy cars even if they rarely need to use them. The cost of *using* cars is low, so people are encouraged to use them for journeys where this is not at all appropriate. A Green MP for Cambridge would argue for less of the cost of motoring to be paid for up front and more to depend on usage so that the car does not have an unfair advantage against other forms of transport or not travelling at all. This could mean significantly increasing fuel duty, but we do not favour this method, because it does not distinguish between driving on roads which are much in demand and driving on deserted roads. So we would favour substantially *reducing* fuel duty, and replacing it by the introduction of road user charging across the whole UK, while ending car tax and potentially also making car insurance and MOTs free at the point of delivery.

Motorised traffic is responsible for significant reductions in people's quality of life in urban areas due to congestion, land use, intimidation from moving around by other modes, and air pollution. All these should be reflected in the cost of motoring. Driving through Cambridge should not cost essentially the same as driving through rural areas. *Green councillors and MP(s) would call for a feasibility study into a congestion charge covering much of Cambridge.* Such a scheme was already mooted in 2008; had it been implemented, it would not only have reduced car traffic but also provided half a billion pounds for public transport, cycling and walking schemes^{xli} including many of these mentioned in this Greenprint. The Conservative County Council decided to forego this revenue. A congestion charge was successfully implemented in central London under Ken Livingstone with backing from a strong Green group in the London Assembly and the principle of the charge is now widely accepted. It even has significant support from delivery companies and businesses, who benefit from being able to undertake their more essential driving more easily. Green councillors would investigate whether a congestion charge scheme could become part of Cambridge's City Deal or other funding with central government which will cover transport schemes.

To make it more practical for people not to own a car we propose significant expansion of the car club scheme in Cambridge. Green Councillors supported the creation of a similar scheme in Norwich^{xlii}. People are much less likely to feel they need to own a car if they have access to one for certain journeys if required. If people do not own cars they are much less likely to actually use them.

Alternative technologies for powering cars

A Green MP would call for a state-sponsored programme to encourage production of electric cars and vans and help people afford the high upfront costs. However, the full cost of battery production in terms of greenhouse gas emissions and rare metal depletion is not reflected in the support currently given to electric mobility at a European level. Other technologies such

as hydrogen power also have hidden ecological costs^{xliii}. Despite that, these technologies offer promising ways to reduce the ecological impact of car travel^{xliiv}. Regenerative braking also offers significant benefits^{xliv}. A Green MP would call for would work to secure funding for investment in Research and Development to improve the technology, but we recognise that alternative technologies for cars are only one part of the solution to tackling emissions from transport and private cars remain socially exclusive.

Parking

In a growing city, the use of sparse road space for car parking – causing congestion – is increasingly hard to justify. Parking in some highly-congested places is under-priced. Our first priority is to look into bringing in a congestion charge. This would considerably ease the problem of parking in Cambridge by dissuading people from driving into Cambridge. However, if a congestion charging scheme failed for whatever reason to be possible or implementable, then Greens would conduct a feasibility study into a workplace parking levy, as in Nottingham (<http://www.nottinghamcity.gov.uk/wpl>), and we would work with the city's major employers on it. This could be combined with a radical scheme to make the whole of Cambridge a permit-parking-only zone; these two moves together could potentially have some of the same helpfully negative effect on excessive car and truck use in Cambridge as a congestion charge, and a corresponding positive effect on walking, cycling, public transport and air quality.

In any case, we would also advocate the significant expansion of residents' parking — but would consider increasing charges for permits to encourage people to use a car-sharing scheme. We would also look into taxing parking spaces at supermarkets or out of town shopping centres to encourage modal shift to less ecologically damaging forms of travel and to encourage businesses to relocate. As outlined above, we would also implement a long term programme of reducing the car dominance of the terraced areas of Romsey and Petersfield.

Reducing air pollution from road vehicles

The Mayor of London is currently holding a consultation on establishing an Ultra-Low Emission Zone^{xlvi}. This means introducing a charge on vehicles which do not meet emissions standards and investing in improvements to bus and taxi fleets^{xlvii}. Nitrous oxides and particulates are a growing concern in all UK cities because of the increasing number of diesel cars on the road. The soot particles from diesel bind with nitrous oxides emissions to form toxic micro particles which penetrate people's lungs and can cause premature death. Green Councillors would call for improved monitoring of levels of nitrous oxides and a feasibility study into an Ultra-Low Emission Zone in Cambridge, which could be linked to a congestion charging scheme. 257 people died from air pollution in Cambridgeshire in the most recent year for which stats are available: this is a scandalous figure, and urgent action is needed to reduce it. Only Greens are committed to that action. Failing to take serious action to reduce motor transport, and thus reduce air pollution, is to abandon the elderly, the young and those with respiratory problems.

Expansion of the road network, speed limits and road maintenance

The Cambridge Green Party realises that the car has a role to play in our transport system, but believes that its role should be significantly reduced. We therefore oppose the current Government's plans to expand the road network, for example by expanding the A14 between Huntingdon and Cambridge. Expanding the A14 would bring a lot of new traffic into Cambridge. Much of the traffic on the A14 is long-distance and could be transferred to rail. East-West Rail, capacity expansion and integrated timetabling will help with this. Assuming that the A14 is expanded, Greens will aim to improve crossing points for pedestrians and cyclists. To put the spending on the A14 into context, we note that the £1.5bn to be spent on the A14 represents around 10 times the national five-year cycling budget for the whole UK. Yet if £1.5bn were spent on local transport schemes in Cambridge, the entire area would be transformed for the long-term, with significant transport choice created. We also oppose new Government plans to dual the A428 west of Caxton Gibbet and upgrade the M11.

If adopted, the proposals in this report as a whole would undermine the case for expanding the A14 and other roads. Taken together, congestion charging, regulated and expanded bus services, a strategic integrated train timetable and expansion of the rail network combined with a 10% fares cut, more space for cycling, and proper planning to avoid more building on the green belt would significantly reduce the amount of car and truck traffic coming into Cambridge by road. In turn, this would reduce pressure on the A14 and obviate the need for expansion.

As well as the poor value for money, the county's record on air pollution provides another reason for opposing these road-schemes. Building more roads encourages more cars and lorries onto the road. This effect of 'induced traffic' has been understood by central government for 20 years now: it is shameful that it hasn't yet significantly influenced policy. Hundreds of people die from air pollution in Cambridgeshire every year, far more than die in road traffic crashes. *The only effective way to tackle air pollution is to reduce the amount of car and lorry traffic on the roads.*

The Green Party supports reductions in speed limits on residential roads to 20 mph and pioneered the roll-out of such schemes in many other cities (including via the leadership of Rupert Read and his colleagues in Norwich). 20 mph limits make cycling and walking more attractive and improve quality of life for residents. We are pleased the Cambridge City Council is rolling this out. The new speed limits are currently being rolled out in the Trumpington area and Newnham will soon be the only area without the new limits. Green councillors will be fully supportive of these measures and will push for a fast roll-out in Newnham. We would also like to see the speed limit on Huntingdon Road reduced from 40 mph to 30 mph.

Many residents are concerned about potholes on secondary roads. Green city councillors will work with the County Council to find additional funding to improve maintenance. We would also like to improve communication channels between the public and County Council to make it easier for residents to report potholes or drainage problems. This would start by

increasing awareness of who to contact. We also think that the current patch and patch again approach is poor value for money. It would be better to invest properly in road maintenance up front.

Freight and deliveries

Goods for supermarkets are often transported over unnecessarily large distances for packaging, processing or delivery. It is ridiculous, for instance, that fish from the coasts is driven half-way across the country to a packing plant, then driven back to the coast to be sold in a supermarket. A Green MP would call for some form of taxation on the transport of consumer goods to reduce wasteful practices and encourage local businesses. When freight is moved, more should be moved by rail, and much less by road.

The UK is the “Whiplash capital of Europe” according to the Association of British Insurers, due to the culture of driving long haul with few rests. New safer lorries are due to come onto the roads, but this has been postponed until 2022. The Green Party urges an earlier introduction of these, as they will be much safer, especially for pedestrians and cyclists.

Taxis

Greens consider taxis public transport and think that they have a crucial role to play in our transport system. They are particularly important for people with restricted mobility or in a hurry. However, over-reliance on taxis is a sign that provision of public transport and cycling and walking facilities is inadequate. By improving the bus network we think however that taxi usage can be reduced, saving people money.

Taxis can be effective in reducing road over-use if they are usually full and if they save (e.g.) car journeys used for ‘dropping people off’. Taxis are wasteful when they only carry one or two people and if they then have to return to the point where they started from. We propose shared taxi *marshalling*: someone should be employed at busy taxi ranks to bring people together who travelling to similar destinations and are willing to share taxis. Taxi ranks where this could be set up include such as at the railway station and St Andrew’s Street in the city centre. This measure could cut costs for passengers and drastically reduce queues and congestion; also reducing air pollution at busy times.

We favour re-regulation of the taxi system to reduce numbers.

There are currently 310 licensed Hackney Carriage vehicles and 180 licensed Private Hire vehicles trading as taxis in the city of Cambridge, but there are in practice many more taxis than this in Cambridge, primarily because of taxis operating in Cambridge that are registered outside Cambridge. The total size of the de facto Cambridge taxi fleet is in danger of becoming in itself a cause of congestion in Cambridge. We hope that responsible taxi-drivers and firms will welcome our proposals in the round in this GreenPrint as the only viable way of actually reducing congestion in Cambridge, and so enabling taxis to ply their trade without being continually stuck in traffic.

Only 25 of the Cambridge-registered taxis are electric hybrids with the remainder being mostly diesel. At most ranks, taxis are continually required to crawl forward to reach the head of the rank thus ensuring that their engines are constantly spewing fumes into an area where there are high concentrations of pedestrians.

A system, such as is used in the Netherlands, where the rank is removed from the immediate vicinity and requires a deliberate movement away from vulnerable pedestrians such as children in pushchairs (whose heads are almost at the same height as exhaust pipes) is extremely worthwhile. To this end, the removal of the rank from St Andrew's Street with only a provision for the collection of disabled would be beneficial. Such disabled carriers should be required to be hybrids.

Taxis in their current form are listed as the most wasteful of transport requiring two journeys for the benefit of sometimes only one person. A frequent electric bus service rotating between the train station and the Drummer Street bus station would reduce the volume of taxis required freeing up some space on the roads at crucial peak flow times. The route could also include the relocated taxi rank but would encourage people to continue onwards by bus or coach.

Finally, the current licensing system by the City Council does not keep an accessible record to show the suitability of any taxi driver. No record of motoring offences nor the associated rank number is publicly available by Freedom of Information request, due to staff limiting the numbers of hours to 18 for this purpose. Any member of the public using a taxi should have readily available information to determine whether or not their driver is competent and safe. There are also many anecdotal stories of dangerous driving that the taxi licensing office has been not dealt with effectively.

Closing roads to private motor through-traffic

Greens consider streets places to live and work rather than just passageways for traffic. We will prioritise air quality, pedestrians, cyclists and public transport and think it is appropriate to close certain roads to all private motor traffic or at least to through traffic. Here we outline two proposals where we think a feasibility study should be conducted, as a priority.

King Street

Currently this road is a neglected part of the city with vehicles, pedestrians and cyclists simply passing through en route to somewhere more pleasant to shop. There are a large number of small businesses along here which have limited trade due to the high volume of motor vehicles passing through, the chaotic nature of parking and the inappropriate two way stretch between Manor Street and Malcolm Street. Traffic proceeding from Hobson Street is supposed to be limited to access, buses and taxis. In reality, most private vehicles 'in the know' use this as a rat-run. The red Roundel signs (No motor vehicles) at the junction of St Andrews St and Emmanuel St prohibit passage and can be enforced by a fine of £30 per offence (2010).

Our proposal is to restrict passage up Hobson Street to essential access (delivery), buses and electric or hybrid taxis, enforced by camera. The two way system in King Street would be replaced by one-way in the same direction as the remainder of the street. A counter flow cycle lane would be clearly marked and the pavements widened to encourage more pedestrian use. The one-way in Malcolm Street would be reversed, although for restricted access and egress onto King St from Manor St, limited to a left turn. All shops between Manor & Malcolm St can be serviced from the rear where there is covered, restricted and dedicated parking. The parking in front of the shops should be removed with motorists able to use the Park Street Multi Storey carpark. Further along King St towards Short St, parking is again a problem usually on a first-come, first-served basis. Isolated and spaced disabled parking bays with limited time allowances could be fitted in at the widest points and again the footway widened.

This will enable a more pleasant environment with wider walkways encouraging the pedestrian traffic from the Grafton Centre to cut along here from Christ's Pieces en route to Sidney or Sussex St, and complete a triangle of shopping where people naturally progress past shops between the two main centres of commerce in Cambridge.

Mill Road

Mill Road is an important shopping street and route for pedestrians, cyclists and buses. Mill Road is physically narrow and delivery vehicles frequently block cyclists' line of vision and cause queues of cars to build up. The situation is set to become worse when a supermarket opens on the Mickey Flynn's site, which we opposed on a variety of grounds.

We propose closing Mill Road to through private motor traffic. This could be done by installing a rising bollard in the middle of the bridge, or at the Parker's Piece end of the road. Traffic would be diverted via Coldham's Lane or Hills Road. We appreciate that these streets are already congested and so this proposal would need to be accompanied by a general reduction in the amount of private motor traffic in Cambridge (through cycling and public transport measures as outlined above). Proposals would be developed in conjunction with local businesses and residents. However, a key point is that removing through-traffic from Mill Road would mean that the tens of thousands of people who live in this area would suddenly find that cycling is a much more attractive option, and switch some of their journeys accordingly.

For the Nation: Our policy on some wider travel and transport issues

Rail - From a disparate collection of routes to a national network

Around 70% of all rail journeys start and finish in London. Long-distance and commuter services to and from London are fast and frequent and carry a large proportion of rail traffic. But rail's modal share is negligible on many other routes, including many inter-urban routes, and this has significant social and environmental consequences. There are marked differences between people's views of the last rail journey they made (as recorded in the National Travel Survey), a journey they chose to make by rail, and their views of rail and public transport as a whole. Railway operators also seem to take little interest in why only around 9% of total journey kilometres are made by rail.

The franchising system encourages the Department for Transport and TOCs to think in terms of arbitrary individual units. Currently timetables are planned for each franchise in sequence. The last major East Coast Mainline timetable change assumed that all other service timetables were fixed. Now, a changing timetable for Transpennine services assumes East Coast services are fixed; and so on. This does not allow any player to radically rethink the timetable with a view to achieving optimal outcomes for passengers.

The Government's policy of investment in rail to generate economic growth is also problematic. It generally means increasing the number of people travelling by increasing capacity and cutting journey times. The potential for this is highest on routes to and from London, where there is predictably large and increasing demand. Even though many long-distance services have significant spare seating capacity, Conservatives, Labour and Lib Dems are planning to invest in a high speed railway to improve what is already satisfactory. The rest of the network is left behind. Greens call for huge increases in capacity across the network. Incidentally, this would also reduce the cost per passenger of running the railway. Running an eight-coach service between Cambridge and Norwich adds relatively little to the cost compared to running a two- or three-coach service^{xlvi}, especially since a large proportion of the cost is related to infrastructure^{xli}, but it can generate several times the income.

This encourages environmentally damaging and socially restrictive dependency on cars. People greatly value the flexibility of car use and are unlikely to stop using their cars unless there is a viable alternative offering frequent and convenient travel opportunities from any origin to any destination.

The most important aspect of the public transport offer is the timetable¹. That's why Greens would centre rail planning around the delivery of a strategic integrated timetable (*Integraler Taktfahrplan*, ITF). This simply means a timetable that is based around trains departing at the same time past the hour in each direction, and a system of symmetrical hubs. To illustrate, main line trains would stop at xx.58-xx.02 in both directions, local services would stop at xx.56-xx.04 and buses would stop at xx.54-xx.06. Cross platform connections would make short connections possible. Obviously the reality would be somewhat more complex and would require some compromises. To create ideal nodes, journey times between two

hubs should be around 25 or 55 minutes and, in the longer term, infrastructure investment would be targeted to allow this to happen, but some less than ideal nodes would remain. At major stations setting up hubs might be difficult, so long distance trains could stop around xx.55-xx.05 / xx.25-xx.35 and local services could stop around xx.10-xx.20 / xx.40-xx.50 if there are not enough platforms for all the services. A 'mirror image rule' would mean the same timetable in both directions, which is currently not the case. Also, trains would pass each other half way between nodes, making bus connections easy. An ITF relies on good punctuality, but British railway punctuality is improving greatly, and would improve further, given the proposals contained in this Report, despite being hampered by unrealistic sectional running times and inconsistent allowances to make up for this. Some designs for a British ITF have already been developed^{li}.

Greens support the primacy of modal shift over encouraging new journeys simply to fill seats or encourage economic growth. An ITF would match as far as possible the convenience and constant availability of the car, encourage patronage in general and modal shift from the car in particular. We need to reduce discrepancies between faster and slower links and can do this by targeted acceleration where required by the timetable or where rail journey times are slower than by road. This can often be achieved by incremental infrastructure improvements or improved rolling stock. An ITF would also minimise journey times from any origin to any destination and increase effective frequencies by optimising connections. An ITF would make excellent use of capacity by grouping fast trains together, particularly around hubs. Freight and stopping services can be slotted in between. This method of planning is rapidly spreading across Europe, at least for local services. A feasibility study is being undertaken in Germany^{lii} and Austria, the Netherlands, Belgium, France, Italy, the Czech Republic and Hungary are all implementing it to some degree. Switzerland has employed this method nationally to great success - rail's modal share has climbed to a world record of over 17% (hugely better than any other European country, though still not good enough).

We are pleased that Network Rail is considering implementing such a scheme starting with a trial in the Eastern Region^{liii}. The scheme would cut journey times from Cambridge to towns and cities across the region by improving connection times and cut Norwich to Cambridge journey times to 55 minutes. However, there are many problems with the proposal. The scheme is based around costly infrastructure development which may well be rejected. A new station at Ely North and a new curve at Newmarket are proposed, which seem to serve no purpose beyond enabling connections. The proposal to slow down Norwich – Ipswich - London trains with these calling even at Needham Market seems odd. The proposal does not consider significant timetable improvements which could be made by implementing the methodology described above next year. Connections at Norwich, Ely and Cambridge could be improved without new infrastructure. The scheme also needs to be national to affect perceptions of convenience. It should start with the main intercity routes rather than a specific region – the Eastern proposal involves services running on the East Coast Main Line, which need to fit around longer distance services.

Institutional problems

Public transport in Britain is fragmented and there are clear structural problems. Integration with other modes is remarkably poor, and co-operation between Train Operating Companies can be poor. Train Operating Companies (TOCs) are liable to pay financial penalties of around £100 to £200 per minute to Network Rail for delays their trains incur and so there is little incentive to hold connections, even where this is clearly in the interest of the majority of passengers and the overall cost to the industry is higher if the connecting train does not wait.

Despite the obvious interaction between rolling stock, operations and infrastructure, track and train have been arbitrarily divided. Rolling stock is ordered by a short staffed and often incompetent government department which has been hard hit by cuts. TOCs are frequently ranked based on their performance in the National Travel Survey, but more often than not their performance is based on the infrastructure they have no choice but to use. Initiatives of co-operation between TOCs and the infrastructure manager Network Rail suggest that there is merit to co-operation and a good working relationship is essential to providing a reliable service.

Network Rail is a large, bureaucratic organisation which receives £3.5bn annual grant and track access charges from TOCs to pay for infrastructure maintenance. The organisation is difficult to scrutinise effectively. It has a tendency to carry out long-term projects in stages inefficiently and questions have been raised about working relationships with contractors. Investment projects announced by the government are generally paid for through a little-known mechanism called the Regulatory Asset Base. This involves Network Rail building debt which to be repaid by the additional income the infrastructure will allegedly generate. The debt is predicted to rise to £50bn by 2019^{liv} and accrues interest.

There is an increasing tendency for the rail industry to implement safety measures that needlessly lengthen journey times, while increasing cost and energy usage^{lv}.

Institutional change – our solutions

Greens would start to tackle these issues by bringing franchises back into public ownership when they expire. However, the railway we would create would not be a ‘new BR’. Re-nationalisation would enable strategic planning of timetabling, infrastructure and rolling stock by a national agency run by professional railway people at arm’s length from the government. Some tasks could be performed by regional transport authorities that would be accountable to local politicians. In short, we propose taking the railways back into public ownership, not just old-fashioned ‘nationalisation’. We would use these bodies to give passengers a greater say in strategic decision-making. We would investigate the possibility of contracting out operation of local services to a variety of smaller organisations such as not for profit co-operatives or organisations closely linked to local or regional government. This could make management more responsive to local issues and would enable benchmarking. Vertical integration of infrastructure and operations would create direct incentives for more efficient working practices in infrastructure management and could go some way towards making it more democratically accountable. Network Rail could also be transformed into

some form of co-operative structure with wider social objectives^{lvi}; potentially, for instance, one could come to own it, in proportion to the miles one travels, much as the Co-op's customers own it in proportion to their spending there.

One of the main arguments in favour of franchising is that funding has increased as the Treasury feels costs are under control. The five year grants given to Network Rail also allow better long-term planning than the short-term funding arrangements between the Government and British Rail. However, five years is still not nearly a long enough time frame for planning the development of a national network towards the goal of a future timetable and operation through a series of infrastructure projects. Greens propose ten to twenty year funding commitments to deliver step changes in provision across the network following the highly successful model of Bahn 2000 in Switzerland.

Punctuality and reliability

Punctuality and reliability are the factors with biggest impact on overall passenger satisfaction, much more so than journey times, though that may be because passengers who are not satisfied with journey times choose not to travel by rail^{lvii}. A Green MP would work closely with the rail industry to implement measures to improve punctuality. Better presentation of trains at the Welwyn viaduct two track section on the Cambridge to King's Cross route through integrated timetable planning and better capacity allocation would be desirable.

Sadly, suicides are a major cause of disruption on Cambridge to London routes. Greens would tackle at source the economic and social problems that are causing increasing numbers of people to take their lives in this very distressing way.

The Hitchin flyover has improved punctuality on the East Coast Mainline. A Green MP would support projects to relieve other capacity bottlenecks, such as the double tracking of Ely North junction. The junction is currently single track and is to be doubled by 2017 to allow half-hourly services to King's Lynn^{lviii}. Doubling would improve punctuality of services between Ely and Peterborough, King's Lynn and Norwich. Another major cause of disruption is signaling failure. The railway has long-term plans to make from lineside to in cab signaling and we are hopeful that this will lead to improvements.

Electrification

A Green MP would call for a plan to electrify the vast majority of the national network. This needs to happen in the next ten to twenty years if we are to de-carbonise at the speed necessary to avoid potentially catastrophic climate change. Routes with the highest number of services or with the most interworking with other electrified routes would be electrified as a priority.

Cambridge station redevelopment and new Science Park and Addenbrooke's stations

Cambridge Green Party welcomes the redevelopment of Cambridge station which will provide a larger concourse and more ticket machines. We also welcome the construction of

Cambridge Science Park station which will make it easier for people in north Cambridge to access the national railway network. Cambridge Science Park station looks set to be served by two trains an hour to Kings Cross (of which one, later two, will run to Ely and Kings Lynn in the opposite direction) and one train to Liverpool Street. What is more worrying is that Science Park station is being constructed largely to serve London commuters arriving by car from Fenland areas. Though we of course appreciate the need to reduce traffic on Cambridge roads, the car parking space takes up valuable land and individual travel by car is inherently inefficient. We would encourage people to travel to the station by other means through our support for local bus services, cycling and car sharing.

We support the construction of a station at Addenbrooke's which could help the many people who travel from outside of the city to Addenbrooke's Hospital and Hills Road and Long Road Sixth Forms. A station at Addenbrooke's offers much more potential for interchange with bus services than a Science Park station, which is located at the end of a side road so buses cannot be diverted without significant time penalty for through travelers. Buses could run out to the B1046 corridor, which is currently poorly served, and to villages to the south east (north of the A1307 corridor) that are currently even more poorly served. The construction of an Addenbrooke's station is likely to require four-tracking of the Shelford Junction to Cambridge section of railway. It is likely that this four-tracking will be required in any case following an increase in semi-fast and stopping services to London and the opening of the Cambridge – Bedford section of East-West Rail. The patterns of services calling at Addenbrooke's and the Science Park should be determined as part of an analysis of travel flows by all modes and as part of the construction of an ITF plan.

Rail re-openings

The Green Party supports East-West Rail. The project will cut journey times between a number of areas with sizeable populations (Oxford, Milton Keynes, Northampton, Bedford, Peterborough, Cambridge) and encourage modal shift to rail. The Cambridge academic community demands good links to Oxford. Current journey time between Cambridge and Oxford by X5 bus of 3h30 to 4h is not competitive with the car journey of around 2h to 2h30 and the journey is not comfortable. To maximise the connectivity benefits of East-West Rail the project should be designed around long-term timetable plans. The routes between Bedford and Cambridge currently under consideration either involve new construction between Bedford and Cambridge via the East Coast Mainline Sandy or St Neots (*check latest proposals*), or new construction only as far as St Neots followed by a routing via Biggleswade and Royston involving a new curve north of Hitchin. A Cambridge Green MP would call for the development of a long-term ITF timetable plan for the network involving each of these options. We are sceptical of the Conditional Outputs Statement for the Central Section^{lix} not only because of its growth assumptions, but because of its assumption of 60 minute journey times between Cambridge and Oxford for a route of around 130 km with numerous stops where 60 minutes is currently given as the planned journey time for Oxford to Bedford in 2019^{lx}. Stopping patterns for the planned Oxford to Bedford services have not been finalised^{lxi} and there is no indicative timetable plan, which is extremely worrying since the required infrastructure is already being constructed. A Green MP would call for a much

clearer consideration, and swiftly, of the timetable and service patterns in the development of this project.

We also support the Cambridge – Linton – Haverhill – Sudbury re-opening^{lxii}, which would connect sizeable communities to the national rail network. Haverhill's population is around 27,000^{lxiii}. The railway would take traffic off the A1307 and reduce journey times considerably compared to travel by bus (around 30 minutes rather than 1hr 30min for Haverhill to Cambridge). It would improve connections between Cambridge and Colchester, Chelmsford or Clacton. The journey is currently slower by rail than by road and involves a detour via Bury St Edmunds and Ipswich.

We support the March – Wisbech re-opening^{lxiv}, which would connect a town of around 31,700 to the national rail network^{lxv}. The track is still present but is not used for passenger services.

Consideration of the timetable should inform infrastructure and rolling stock decisions in the planning of these rail re-openings.

Rail freight

Rail freight is a relatively efficient way of moving very large loads over long distances. However, the goods that lend themselves towards transport by rail are often not socially or environmentally beneficial, such as coal, nuclear waste and large shipments of mass-produced consumer goods from ports. The question of what kind of rail freight we should support is particularly important given the need for significant capacity, which can come from gaps in passenger services (which is not compatible with an ITF scheme) or government-funded investment schemes^{lxvi}. There is often a significant speed differential between freight and passenger services which further limits capacity. Expansion of rail freight to take traffic away from motorways is desirable, but trains are much less versatile than lorries and this would only be feasible over long distances. Rail freight paths need to fit around the regular passenger services and be allocated through a catalogue system rather than on demand to optimise use of capacity^{lxvii}. A Green MP would call for a review of the rail freight business with a view to channeling its development towards meeting social and environmental objectives.

Flying

We oppose airport expansion at Stansted, Heathrow or elsewhere and would gradually increase taxation on flights so that the environmental impact of aviation is taken into account. It is a scandal that at present air-travel is in effect heavily-subsidised! This represents a competitive disadvantage to UK freight companies. While flying may only account for a small percentage of total worldwide emissions at present, the demand for air travel is increasing by several percent per year and will continue to increase as many Asian countries catch up with the West in terms of material consumption^{lxviii}. Most flights are for leisure, and airline passengers are wealthy by world standards, so this is also a social justice issue.

The advertisements promoting expansion of Heathrow and claiming benefits to future generations are factually untrue, immoral, and have no place in Cambridge or elsewhere.

There is no obvious solution in sight^{lxxix}. Electric passenger aircraft do not currently seem feasible because electricity cannot match the energy density of kerosene and so would struggle to get planes off the ground^{lxxx}. A solar aircraft has been developed, but can only carry one passenger (or at most two) in a tiny cockpit^{lxxxi}. The response of the International Air Travel Association to the problem is very unconvincing^{lxxxii}. Essentially the argument is that biofuels are carbon neutral and this will allow the airline industry to continue to grow. The problem is that biofuels replace food production that will be required to sustain a growing population. There are numerous other reasons why large-scale biofuels are not green.

Economic growth can either improve or worsen the quality of people's lives; all it measures is financial transactions, with no reflection of actual benefit to society. (Overall, economic growth in rich countries such as Britain is normally now a bad thing, for ecological and other reasons^{lxxxiii}; what is actually needed is to *share* more equally the wealth that the country already has.) The same is the case for the amount we are forced to or choose to travel. People's ability to travel more has made them more tolerant and this has improved the quality of our lives. Though this is probably very untrue in the long term due to climate change, we do not dismiss the positive impact of some travel. It will also be difficult to get people to give up their access to this travel before this is forced upon them by dramatic circumstances. But we must take a lead: we must look to the benefits of 'slow travel' (and of no travel), and organise price-signals and government regulation accordingly.

We appreciate that the academic community needs sometimes to travel internationally and we appreciate the intrinsic benefit international travel can bring. We strongly support the suggestion in the university's proposed environmental policy that video conferencing facilities should be improved and use should be increased^{lxxxiv}.

The majority of flights are leisure flights and a large proportion of these are short-haul. These could easily be avoided. A Green MP would call for the following measures to be introduced:

- increase the cost of air travel by taxing it at a rate which reflects the environmental damage caused and redistribute wealth so that this does not simply restrict air travel to the rich, who would still have unfettered access to the skies.
- create integrated networks of high quality long-distance surface public transport which makes optimal use of the infrastructure available; incremental improvements to rail infrastructure are likely to be most cost effective and should maximise connectivity as this cuts point-to-point journey times most effectively; expensive new rail infrastructure should be built when other options are exhausted.
- set relatively low prices for surface public transport over longer distances and relatively high prices for short distances (where it can compete on time and convenience), as the cost of air travel does not increase in cost as distance increases as much as surface public transport (there is no infrastructure to maintain in the sky).

Eurostar needs to be re-orientated towards providing links between anywhere in the British Isles and almost anywhere else in Europe, rather than as a shuttle service between the South East of England and Paris and Brussels.

- set up a common booking portal for European rail travel. Ticket sales for all routes should also open simultaneously. Booking tickets for multi-leg European journeys is often currently very awkward.
- relax requirements for border controls and security requirements, especially on ferries and Eurostar. These have grown incrementally on the Eurostar service and it is unclear whether all the requirements are necessary. The stringent requirements prevent Eurostar from serving more Continental destinations easily. It should be possible to check passports on board trains, but UKBA does not want to do this it would not be able to turn back the small number of people illegally entering the country before they reach British soil. The number of staff checking passports is often insufficient and can cause delays.
- shipping companies should be obliged to provide facilities for foot passengers as well as people in cars
- invest hugely in Research and Development into alternative forms of air travel^{lxxvlxxvi}
- invest hugely in improving video-conferencing/Skype or similar (including in 3-D) – people seem to need to meet face to face once for work contact to work most effectively but after that using technology is often an alternative to travel
- reduce the demand for travel by localising the economy when there is no obvious benefit to globalization
- increase the heterogeneity of our cities and rural areas so there is less demand for people to travel so far for leisure
- increase awareness of the environmental damage of air travel, such as by including this on aircraft adverts or tickets^{lxxvii}
- restructure the economy and academic community to allow people to make fewer but longer trips.

Long-distance freight transport and shipping

Container ships have huge capacity^{lxxviii} and are a relatively efficient way of transporting large quantities of goods^{lxxix}, though it is vital that they operate with the right kind of fuel. Transport of goods by air should be penalised through taxation, though shipping is also far from perfect^{lxxxlxxxi}. We also need to consider the contents of the transport. The concentration of economic activity in certain areas produces significant inequality. Greens want to ensure that all communities have some local manufacturing to provide career opportunities, strengthen communities and increase resilience in an increasingly uncertain future. Our world

has been globalised for the purposes of corporate greed; we want to re-localise it for the common good, and to facilitate democratic control: i.e. people controlling their own destinies.

Passenger ships running with diesel engines produce other emissions such as sulfur dioxide which can cause ozone depletion and health problems^{lxxxii}. Luckily the EU is introducing regulation enforcing the use of fuel with a low sulfur content. Unfortunately, this has recently led to the demise of the Harwich-Esbjerg ferry, making land travel from this region to Scandinavia less attractive^{lxxxiii}. We need to ensure that passenger sailing routes where there are few alternatives receive support to implement measures of this kind.

Looking further afield?

Rupert Read wrote a report called “A Transport Revolution for the Eastern Region” during the European Election campaign. You can read it here:

http://eastern.greenparty.org.uk/assets/files/easternfiles/Transport_revolution.pdf

Conclusion

This package is holistic. In effect, it contains everything that we support in the City Deal proposals, excluding the parts that we consider retrograde; mainly the road building plans. It includes additional elements that, unlike the City Deal proposals, will disincentivise the addition of yet more cars and lorries to Cambridge streets.

Green Party elected representatives have played a key role in reducing London’s congestion levels over the last 15 years. In that time, we have found that the only way that congestion can be reduced is by combining the ‘carrot’ of better cycling, bus, and train facilities with the ‘stick’ of making it less attractive to drive cars and lorries into the city.

Any plan that does not include ‘stick’ as well as ‘carrot’ does not offer a holistic transport plan, and is therefore doomed to fail. The Cambridge Green Party is the only one courageous enough to propose a ‘stick’ as well as a really juicy carrot and the only one going into this election with a viable plan for transport in Cambridge. Our Transport Greenprint is that plan and we commend it to you.

Acknowledgments

The authors like to thank everyone who contributed in putting this work together; may it be by discussing transport policies, in-depth research or intense fact-checking and proof-reading. It would have been impossible without them. In particular, Anthony Smith has done a great deal of work connecting research, science and policies, painting the bigger picture.

References

i

One such tipping point is the release of Arctic methane. For more, see the website of the Arctic Methane Emergency Group: <http://ameg.me/>

ii

DfT, *Transport Statistics Great Britain 2011*

iii

Ibidem

iv

McKay, David, *Sustainable Energy without the hot air*, 2009, <http://www.withouthotair.com>, p. 12-15. David McKay is based in Cambridge.

v

This is the opinion of Johan Rockström who created the planetary boundaries framework and was accepted in the Green Party's 2014 European Election manifesto which called for 90% emissions reductions from 1990 levels in the EU by 2030:

<http://greenparty.org.uk/assets/files/European%20Manifesto%202014.pdf>, p. 12

vi

33.6% of households in Cambridge have no access to a car or van, an interactive map of England and Wales is available at <http://www.ons.gov.uk/ons/interactive/census-map-2-1---car-ownership/index.html>

vii

Passenger Focus, *Rail passengers' priorities for improvements*, 2014, p. 3

viii

Passenger Focus, *National Rail Passenger Survey Spring 2014 Main Report*, 2014, p. 8

ix

http://www.bettertransport.org.uk/sites/default/files/research-files/Fares_and_rail_financing.pdf

x

Ibidem

xi

For some indicated of the growth in passenger numbers see, <http://focustransport2011.blogspot.co.uk/2014/05/passenger-numbers-rise-on-londons-buses.html> and <http://tfl.gov.uk/info-for/media/press-releases/2014/december/lu-breaks-record-for-passenger-numbers-for-second-time>. It is widely accepted within the industry that Oyster has been a significant driver of this increase.

xii

<http://www.go-ahead.com/ourcompanies/rail/tsgnfranchise.aspx>

xiii

ITSO news (November 2014), <https://www.itso.org.uk/wp-content/uploads/2012/05/ITSONews-November-2014.pdf>

xiv

reiseauskunft.bahn.de

<http://www.theguardian.com/politics/2014/sep/12/transport-direct-50m-govt-website-to-close>

xv

Passenger Focus, *Rail passengers' priorities ...* (2014), p. 22

xvi

Ibidem

xviii

Passenger Focus, *National ...* (2014), p. 54

xix

Tyler, Jonathan, *Current strategies in the railway passenger business. A critical appraisal.*, Institute of Railway Studies and Transport History, York (6 November 2013),

http://passengertransportnetworks.co.uk/IRS%20paper_FINAL.pdf, accessed 28 November 2014

xx

National Travel Survey 2013, DfT (29.07.14)

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/342160/nts2013-01.pdf,

p. 8

xxi

<http://www.bbc.co.uk/news/uk-england-tyne-29715155?print=true>

xxii

Institute for Public Policy Research, *Greasing the wheels: Getting our bus and rail markets on the move*, 26.08.14, http://www.ippr.org/assets/media/publications/pdf/greasing-the-wheels_Aug2014.pdf, p. 12
xxiii

<http://lothianbuses.com/plan-a-journey/fares-and-tickets>
xxiv

Cambridge University Environmental Policy proposal:
http://www.environment.admin.cam.ac.uk/files/environmental_policy_review_consultation_report.fin_.pdf, p. 10
xxv

<http://www.brighton-hove.gov.uk/content/press-release/bus-patronage-doubles> and
<http://agc.greenparty.org.uk/assets/images/agc/Brighton%20&%20Hove%20achievements.pdf>, p. 6
xxvi

A local campaign is underway - <http://parksidebus.com/original-decision/>
xxvii

<http://parksidebus.com/transport-planning-issues-in-kite-area/>
xxviii

Cambridge Cycling Campaign, *Making Space for Cycling*, <http://www.makingspaceforcycling.org>, p. 18.
xxix

Cambridge Cycling Campaign, *Making Space for Cycling*, <http://www.makingspaceforcycling.org>, p. 20-22
xxx

Idem, p. 22
xxxi

Idem, p. 26-29
xxxii

<http://www.camcycle.org.uk/vision2016/chisholmtrail.html>
xxxiii

Cambridge Cycling Campaign, *Cycling 2020*, <http://www.camcycle.org.uk/cycling2020>, p. 18-19
xxxiv

<http://www.camcycle.org.uk/newsletters/117/article3.html>
xxxv

<http://www.camcycle.org.uk/blog/2014/10/29/northstowe-consultation-2/>
xxxvi

<http://a10corridorcycle.com/>
xxxvii

Letter sent by Cambridge Cycling Campaign,
<http://camcycle.cyclescape.org/media/W1siZiIsIm1lc3NhZ2VfZG9jdW11bnRzL2RjNy9iNmUvZGM3YjZlMmEzYmI4Y2YxYjJ5ZWFiYTk2ZTc0ODFiNzZjYWl0Y2MwZCJdXQ/Chesterton%20Station%20Access%20Response%20v2.pdf>
xxxviii

Ibidem
xxxix

Article 185 of the Dutch Traffic Law of 1994 is available here (Dutch):
http://wetten.overheid.nl/BWBR0006622/HoofdstukXII/Artikel185/geldigheidsdatum_07-12-2014

This Wikipedia article explains it in detail (Dutch, no English version available):
http://nl.wikipedia.org/wiki/Artikel_185_Wegenverkeerswet

This non-professional article explains the concept behind the law:
<http://www.bicycling.com/blogs/roadrights/dutch-law>
xl

<http://www.bettertransport.org.uk/fixing-link>
xli

www.unclogcambridge.com
xlii

norwichcarclub.com
xliii

McKay, David, *Sustainable Energy without the hot air* (2009), <http://www.withouthotair.com>, p. 129-131
xliv

Idem, p. 127 and p. 131-132

xlv

Idem, p. 125-126

xlvi

<https://www.tfl.gov.uk/modes/driving/low-emission-zone/ultra-low-emission-zone>

xlvii

<https://consultations.tfl.gov.uk/environment/ultra-low-emission-zone>

xlviii

Modern Railways (November 2014), p. 66

xlix

<https://www.gov.uk/government/publications/rail-subsidy-per-passenger-mile>

l

<http://www.passengertransportnetworks.co.uk/Railway-timetabling.pdf>, p. 3

li

For more details, see www.passengertransportnetworks.co.uk. The consultancy is run by lifelong railwayman Jonathan Tyler, Green Prospective Parliamentary Candidate for York Central in 2015.

lii

[http://www.deutschland-](http://www.deutschland-takt.de/deutschlandtakt/index.php?option=com_content&task=view&id=22&Itemid=45)

[takt.de/deutschlandtakt/index.php?option=com_content&task=view&id=22&Itemid=45](http://www.deutschland-takt.de/deutschlandtakt/index.php?option=com_content&task=view&id=22&Itemid=45)

liii

<http://www.networkrail.co.uk/publications/long-term-planning-process/improving-connectivity/>

liv

<http://www.theguardian.com/business/2014/aug/28/network-rail-public-sector-dont-call-it-nationalisation>

lv

Williams, Alan, in: *Modern Railways* (March 2014), p. 95-97

lvi

Paul Salveson, a former senior manager at Northern Rail, has written an account of how railways could be restructured to be more democratically accountable: <http://www.chartist.org.uk/wp-content/uploads/2014/09/Socialising-Transport-Salveson-Chartist-2013.pdf>

Salveson is a Labour member and is writing for a Labour audience, but Greens support this broad vision, while Labour has been reluctant to fully embrace it.

lvii

Passenger Focus, *National ...* (2014), p. 54

lviii

Information about latest plans for the Cambridge – King’s Lynn route and links to consultations and reports are available at the Fen Line Users’ Group website: <http://www.flua.org.uk/>

An article on Ely North junction is available here:

http://www.edp24.co.uk/news/analysis_rail_upgrade_at_ely_north_junction_will_help_norfolk_benefit_from_the_cambridge_effect_1_1448477

lix

http://www.eastwestrail.org.uk/sites/default/files/images/shared/ewr-cs_-_cos_-_final_report_08-08-2014.pdf

lx

<http://www.eastwestrail.org.uk/frequently-asked-questions>

lxi

Ibidem

lxii

<http://www.railhaverhill.org.uk/index.php>

lxiii

Population data from Census 2011 by the Office of National Statistics,

<http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcn%3A77-257414>, table P07. The sum of the Haverhill wards is just over 27 000.

lxiv

<http://wisbechrail.org.uk/>

lxv

Population data from Census 2011 by the Office of National Statistics, see 60. Figure is sum of Roman Bank, Clarkson, Waterlees, Kirkgate, Staithe, Mershe Lande, Hill, Medworth and Pickover wards.

lxvi

Tyler, Jonathan, *Current strategies ...*, Institute of Railway Studies and Transport History, York (6 November 2013), p. 10

lxvii

<http://www.deutschland-takt.de/deutschlandtakt/>, p. 4 of the ‘Zielepapier’. A full English translation of the ‘Zielepapier’ is available on request to Cambridge Green Party.

lxxviii

http://www.amadeus.com/web/amadeus/en_US-US/Amadeus-Home/News-and-events/News/04214_Global-travel-industry-set-for-decade-of-sustained-growth/1259071352352-Page-AMAD_DetailPpal?assetid=1319592754833&assettype=PressRelease_C

lxxix

McKay, David, *Sustainable Energy without the hot air*, 2009, <http://www.withouthotair.com>, p. 132-133

lxxx

<http://www.theguardian.com/environment/2010/apr/06/aviation-q-and-a?guni=Article%3Ain+body+link>,

lxxxi

<http://www.solarimpulse.com/>

lxxxii

<http://www.onehundredmonths.org/>

lxxxiii

See <http://greenhousethinktank.org/page.php?pageid=postgrowth> for details

lxxxiv

http://www.environment.admin.cam.ac.uk/files/environmental_policy_review_consultation_report.fin_.pdf, p.

11

lxxxv

There is a mention of “nuclear powered ships” here and a critique of the energy-saving potential of ships:

McKay, David, *Sustainable Energy without the hot air*, 2009, <http://www.withouthotair.com>, p. 133

lxxxvi

George Monbiot has advocated airships, though we should take what he writes with a pinch of salt.

<http://www.monbiot.com/2008/05/06/travelling-light/>

lxxxvii

<http://policy.greenparty.org.uk/tr.html#TR553>

lxxxviii

An exhibition at Maritimes Museum Hamburg says that a typical modern container ship has the same capacity as 1000 aeroplanes or 7500 lorries.

lxxxix

<http://www.fluglaerm.de/hamburg/klima.htm> includes some figures provided by Lufthansa Cargo

lxxx

<http://www.theguardian.com/environment/2008/feb/13/climatechange.pollution>

lxxxxi

<http://www.theguardian.com/environment/2014/nov/02/environmental-impact-of-shipping-goods>

lxxxii

<http://news.bbc.co.uk/1/hi/world/europe/3019686.stm>

lxxxiii

<http://www.dfdseaways.co.uk/about-us/press/press-releases/new-sulphur-rules-cause-closure>