
Title: Urban congestion inquiry
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Executive Summary

We present here some ideas for reducing congestion and pollution in urban areas, developed in the context of the Greater Cambridge area (roughly Cambridge city and South Cambridgeshire district). The area is typical of many UK towns and cities, with an urban population under 150,000, surrounded by a dispersed rural population.

Congestion-reduction measures can be thought of as falling into two categories: temporary and virtuous.

Temporary measures free up road capacity that is soon filled by induced demand: people adapt their lifestyles to prevailing road conditions. Such measures are therefore worth pursuing only if they either buy time or lay the foundations for more radical interventions. We take a quick look at measures in this category that should not be considered as solutions – at least not in isolation.

Virtuous measures start a feedback loop that induces more and more people to make a modal shift away from driving. Making a bus service more convenient or cheaper will increase patronage, which means that the service can be run more frequently and for longer hours, making it convenient and attractive to more people. These are the changes transport policy must support.

We have grouped our proposed interventions by the level of capital investment. At the low end we have:

1. Optimise traffic-light management
2. Use CCTV to monitor road conditions
3. Enforce existing road traffic laws
4. Improve perceptions of buses
5. Extend residents' parking zones
6. Charge for workplace parking

In the middle we have more complex proposals that require some degree of public and/or private sector investment:

7. Improve cycling infrastructure
8. Improve bus services

9. Develop and refine park-and-ride
10. Use Inbound Flow Control
11. Rationalise distribution and deliveries

Lastly, we cover areas that require large capital investment for long-term benefit:

12. Existing rail network
13. Light rail
14. Strategic Road Network resilience
15. Road pricing

We finish by looking at the role of transport in health and welfare and some concluding thoughts.

We are happy to be tested in an oral session.

The one-hit solution

One often hears suggestions that congestion may be solved with one big idea:

- Widen roads
- Narrow roads
- Add bus lanes
- Remove bus lanes
- Build tunnels
- Build a new ring road
- Build a light rail network
- Switch off traffic lights
- Ban cycling
- Ban cars from city centres
- Close through-routes to private vehicles
- Close car parks
- Build more car parks
- Build more park-and-rides
- Make buses free
- Make park-and-ride free
- Introduce a congestion charge/road pricing

None of these can deliver a complete solution, and most of them provide only temporary relief until induced demand fills up the road space once more. Road pricing (which we cover later) is the nearest to a one-hit solution, but it still needs to be paired with big improvements to public and active transport options.

Heavy-engineering measures, such as bus lanes, street-running trams, and tunnelling, can attract support from politicians, mindful of their legacy. But such projects typically require years of highly disruptive work, destroy fragile streetscapes, and undermine the viability of other public transport options. Widening a road to add a bus lane makes it more difficult for pedestrians to cross, and may compromise the quality of cycling infrastructure that can be accommodated. A tram line or park-and-ride can cannibalise patronage of rural bus services. Business cases need to be built up carefully, and only after 'softer' measures have been implemented, or at least modelled in detail.

For those who believe that cycling causes congestion, the Cambridge Cycling Campaign has a mischievous suggestion: let's have a no-cycle day! Experience is much more persuasive than theory.

We need only look to cities in Europe that manage congestion effectively, such as Copenhagen, Freiburg and Groningen: they employ a wide range of complementary measures, carefully balancing the needs of residents, commuters, businesses, visitors and tourists.

Low capital investment

1. Optimise traffic-light management

Urban Traffic Management Control (UTMC) systems such as SCOOT can be very effective in maximising road capacity by varying the timing of traffic lights to match demand in real time. When lights are all co-ordinated responsively to demand, incidences of 'blocking back' (vehicles stuck in junctions) leading to gridlock can be minimised. Traffic planners can also prepare and model programs to cope with specific scenarios (such as an incident on an arterial road), which can then be loaded into the UTMC immediately they're needed.

UTMC can help prioritise buses by synchronising light phases to the movements of buses. Modern systems can even see whether a bus is running on or behind schedule, and vary the amount of priority it gives accordingly (e.g. by limiting green time from cross roads).

The non-linearity of the relationship between traffic 'flow' and 'delay' means that relatively small reductions in flow (say 10-15%) can result in very large reductions in congestion. In Cambridge this is experienced as a 'half term effect': flow reductions of under 15% during school holidays lead to an almost congestion-free peak hour.

2. Use CCTV to monitor road conditions

Use of CCTV at junctions allows traffic managers to see breakdowns, collisions and other causes of congestion. Combined with good communication systems with Highways England, the police and major road users (such as airports, train stations, retail parks), this can ensure traffic managers receive advance warning of issues that will impact their network.

Any CCTV equipment installed should comply with the minimum standards required to support legal enforcement.

3. Enforce existing road traffic laws

Illegal parking, waiting, loading/unloading obstructs traffic flow, reduces capacity at junctions, holds up buses, and increases danger to those walking or cycling. Blocking junctions, which is illegal where there's a yellow box, can cause gridlock across a wide area of the road network.

Driving at an inappropriate speed, jumping red lights, or driving through restricted areas all contribute to fatalities, injuries and an unwillingness for people to walk or cycle, or to allow their children to do so unaccompanied.

There is currently an acceptance that it's OK for delivery vehicles to park up on the pavement outside a shop, even when there's a safer alternative. The convenience of the delivery driver outweighs convenience and safety of pedestrians, wheelchair users and those with infant buggies.

The government is currently reviewing the law around pavement parking. It may decide to extend to the rest of the country the ban that exists in London, but that will still require enforcement. Penalty Charge Notices currently given for illegal unloading are seen simply as a cost of doing business, so perhaps an escalating penalty for repeat offences should be considered.

Enablement of Part 6 of the Traffic Management Act 2004 would allow civil enforcement of a wide range of minor moving vehicle offences, which currently the police have neither the resources nor incentives to enforce.

Government and local authorities need to 'sell' enforcement as a positive effort to help responsible road users, and not as a 'war on motorists'.

4. Improve perceptions of buses

There is a perception (partly class-related) that trams are more attractive than buses. Rather than pander to this bias – potentially at huge expense – it makes sense to examine why the perception exists. Some of the commonly-cited objections are:

- The smell and noise of the large diesel engines is offensive. All-electric buses, with quiet, non-polluting motors, will be commonplace within a decade, so this advantage over trams will disappear.
- Tickets are typically purchased before boarding a tram, or there is contactless payment. Transport for London has proven there is no reason for buses to be different.
- Trams typically have multi-door boarding. Two- and three-door bus models are available, bus operators tend to prefer single-door buses because they have higher seating capacity and it's easier to prevent fare dodging. The advantage of having more doors, especially once

ticketing is streamlined, is that dwell times can be greatly reduced, allowing buses to run more frequently, increasing the hourly capacity, for only a small increase in overhead.

- Tram routes are easier to understand and find. Consistent, clear maps and signage, real-time passenger information displays, and online apps, like CityMapper, can make bus travel much more accessible. Naming routes can help too.
- The design and décor of trams is often seen to be more attractive. The challenge then is for bus manufacturers to up their game!
- Buses often pick up more dirt from the road in wet weather. That can be addressed by running buses through a washer during off-peak periods.

Requiring bus drivers to collect fares, verify tickets and passes, account for all money taken, and spot fare dodgers adds considerable stress to their job, and increases the dwell time at stops. Instead, operators should employ specialist revenue protection officers with powers to impose on-the-spot fines. CCTV on board buses provides a means to spot and target repeat offenders.

5. Extend residents' parking zones

In most towns and cities, only streets in the centre have comprehensive parking controls, typically including a mix of residents' parking and pay-and-display or limited-wait bays. Congestion, high parking charges and increasing fares on public transport are encouraging more and more people to drive and park outside controlled parking zones. They then walk, or sometimes cycle, the rest of the way.

This is exacerbating congestion and pollution in cities as more commuters drive around looking for parking spaces. This in turn makes walking and cycling less pleasant and safe for residents. It also leaves no space for visitors (including those providing health and personal care services) to park, and for delivery vehicles to stop safely.

The answer is to extend parking controls much further out from the centre of the city in a co-ordinated way. Adding new residents' parking zones in a piecemeal fashion simply pushes problems to a new area. By co-ordinating the expansion it's possible to have one-hour residents' parking zones, which can be patrolled by one or two civil enforcement officers. A patrol route can be designed through consecutive one-hour restrictions: 10-11am in one area, 11-noon in the next, noon-1pm in the next, and so on. Combined with ANPR (automatic number plate recognition) technology, enforcement can be quick and cheap.

The challenge with introducing new parking controls is political: to gain support from those who see themselves facing additional costs and inconvenience rather than benefits. The steps to gaining popular buy-in are:

- Collect data on commuter parking and its impacts.
- Identify local problems that parking controls can solve and include these at an early stage in scheme proposals.

- Minimise costs to residents through efficient enforcement using appropriate technology, such as virtual permits.
- Offer a trial (using experimental traffic regulation orders) of controversial aspects of a scheme. Undertake in advance to remove or change the scheme if there is less than 50% support shown in a consultation held after, say, nine months.

As part of a general review of parking allocation, space should be allocated for short-stay parking for visitors and loading bays for deliveries.

6. Charge for workplace parking

Free parking at employment sites attracts traffic and therefore contributes indirectly to congestion. Nottingham has led the way in introducing a workplace parking levy (WPL). The effect on congestion is relatively small, but significant. More importantly it incentivises employers to help their employees find alternative ways to get to work. Measures may include:

- Re-allocate car parking for cycle parking.
- Set up or join a car-share scheme.
- Pay for taxis as a back-up when car-sharing does not work out.
- Provide financial assistance (e.g. loans) to buy train or bus season tickets.
- Build a changing room and showers.
- Assist with subsidising public bus services to extend the hours of operation.
- Where there is no (nearly) suitable public bus service, run a works bus.

WPL also incentivises employers to re-evaluate their land use. There are clear economic and environmental benefits to be had from businesses releasing city land currently used for parking and developing it instead for new offices or housing.

WPL is politically easier to introduce than a congestion charge and can provide local authorities with a revenue stream to invest in public and active transport options.

Medium capital investment

7. Improve cycling infrastructure

“Build it and they will come” is as true of cycle paths as of roads – as long as they provide a continuous connection between places that people want to travel between, without dangerous junctions or road crossings.

The keys to good design that is attractive to people of all ages and abilities are:

- Build protected cycle lanes, with as much separation as possible from busy roads and, where possible, from pedestrians.

- Design segregated crossings at busy junctions, where potential conflicts between cars, cycles and pedestrians are reduced to a minimum.
- Introduce the “Turning the Corner” simplification of the Highway Code and underlying law (essentially, turning vehicles and cycles must give way to all cars, cycles and pedestrians proceeding straight on), as proposed by British Cycling, the AA and RAC Foundation.
- Create and sign cut-throughs to create networks of quiet routes that connect up residential areas, schools, libraries, shops and other amenities
- Remove physical obstacles, especially if they require people to dismount. Research by academic Rachel Aldred has found that many people with impaired mobility get around on bicycles and tricycles but are unable to negotiate steps.

8. Improve bus services

Buses are seeing a sustained reduction in patronage since 2008. There is a vicious circle of subsidy withdrawal leading to service reductions, which make services less convenient, so patronage falls, requiring further reductions in service.

Bus operators try to make their services commercially viable by designing circuitous routes that pass close to as many houses as possible. This can make a 5 mile trip take the best part of an hour, which is particularly unattractive to commuters.

The answer, at least at peak times, is to run express services that follow a direct route with widely-spaced stops, more like a train service. Those stops would include the travel hubs discussed below in section 9.

At off-peak times, there needs to be more flexibility about how buses are routed for greater efficiency. For instance, on routes served by P&R and rural services, the rural service could replace some of the P&R services by calling in en route.

Interchanging

A single rural bus service can serve only a small minority of people whose journeys happens to begin and end close to the bus route. Interchanging to other services is essential to making public transport work for more people. The travel hubs described above can provide an interchange between express and traditional rural, stopping services (which become, in effect, feeder services).

Within cities, transport planners need to design bus routes around facilitating interchanging. The typical model is hub-and-spoke: all buses come into a central bus station, where passengers can change to another bus. Often though, this central location is highly congested, with little scope for building new bus priority measures.

Another model is ring-and-spoke, where buses circulate around an inner ring road. This effectively makes it one big hub: you can hop off anywhere and catch a bus headed to any other part of the city. Oldenburg in Germany uses this model.

Works buses

Where a company puts on a works bus service, this will often compete with and undermine the viability of public services. Therefore it is far preferable (and probably cheaper) for the company instead to subsidise public services for the hours or frequency needed to make it serviceable for their workers. Hopefully the Bus Services Bill will make this kind of arrangement easier to organise.

9. Develop and refine park-and-ride

Park-and-ride (P&R) is now an accepted traffic management tool. However research has identified two unwanted side effects:

- Competition with rural bus services, where people who have a car prefer to use P&R rather than a rural bus service. (The ‘abstraction’ rate of people switching from rural bus and train services was about 20% at one Cambridge P&R site.) This almost inevitably leads to a reduction in rural bus services, hurting those (disproportionately disadvantaged) people who depend on them.
- As P&Rs become more popular, congestion occurs on the approach roads, delaying buses and other traffic (including vehicles not heading for the city).

The model needs refining, in part by catering differently to local and longer-distance traffic.

Those travelling from the local area would be served best by rapid bus services from close to home. To make this work, buses need to run more like trains or coaches. Rather than calling at multiple road-side stops, buses need to call at one, well-connected travel hub in each rural centre along the route.

Those travelling from further afield will continue to be served best by P&R. They are unlikely to be tempted to abandon their cars far away from the city so sites need to be located close to the city edge. But, in order to minimise congestion, sites also need to be located close to exits from the strategic road network, with dedicated lanes to funnel cars rapidly into the P&R.

Travel hubs

Travel hubs in rural centres should be well-connected to the surrounding homes and amenities by foot- and cycleways. Local buses (where these are commercially viable) and community transport should provide links to the wider area.

A large car park would be neither desirable nor necessary at most such hubs: many busy train stations have little parking provision, with most people walking, cycling or being dropped off. But what space is allocated for cars could be used for communal events, such as a farmers’ market, craft fair, and by providers of mobile community services (e.g. county library, NHS health screening, police and fire service contact points, and CAB advice centres).

Parking costs

In order to incentivise use of public transport, there needs to be a hierarchy of cost to travel into the city, where it is (typically) most expensive to drive and park in the centre, less expensive to drive and use P&R, and even less expensive to take a bus from close to home.

The cost of building and maintaining P&R sites are substantial and should be borne by users rather than local taxpayers. Public money should be used to subsidise public transport, which is available to everyone, rather than parking, which is available only to those who are able to drive and can afford a car.

10. Use Inbound Flow control

Inbound Flow Control (our term for ‘gating’ or ‘queue relocation’) is a powerful technique for managing morning peak traffic flows efficiently, and for providing bus priority without the need to build bus lanes right into a city.

The idea is that some of the traffic that would normally sit in a queue somewhere in the city is held back temporarily at the edge. Here there is typically land of relatively low environmental or heritage value that may be used to widen the road to queue traffic and provide a bypass lane for buses (and emergency services and potentially other authorised vehicles).

Clear signage in advance of the queuing area should inform drivers of expected queuing times and direct them to the nearest park-and-ride.

Vehicles are released from the ‘gate’ at a rate that matches the road’s outflow rate, i.e. the rate at which vehicles are able to disperse. This ensures that all traffic flows freely beyond the gate. This obviates the need for bus lanes, and improves journey times for all road users.

11. Rationalise distribution and deliveries

Efforts to reduce car traffic in cities are being undone by growth in commercial traffic. The largest growth in traffic in cities is in LGVs (up 13.5% from 2012 to 2015) used to deliver goods and groceries ordered online to homes, and just-in-time deliveries to stores.

The solution is to use consolidation and redistribution depots and many fewer vehicles making the ‘last mile’ deliveries and collections in the city. This is the General Post Office model pre-deregulation.

City authorities should look to encourage companies wishing to set up and run the depots, and find ways to incentivise logistics companies to start using them. They should also explore ways to restrict the number of delivery companies operating in the city, perhaps by creating access restrictions for “authorised vehicles only”, and setting fees and conditions for gaining access licence. In this way, authorities can also incentivise use of low-emission vehicles.

Once depots and ‘last mile’ delivery firms are established, the cost savings will themselves be a strong incentive, so local authorities will be able to step back.

Cambridge is one of the few cities to have an established and successful cycle logistics business delivering small packets and parcels from a depot close to a junction on the A14.

Changes in legislation that permit the use of larger electric-assist cargo bikes have helped. Local authorities can also help by ensuring that cycle routes are sufficiently wide to accommodate cargo bikes, starting with a review of gates, pinch points and other paraphernalia that does less for safety than was once believed.

High capital investment

12. Existing rail network

There is considerable potential in the existing heavy rail network to run metro-style services in cities like Cambridge. Rail is a true mass transit mode, able to move many thousands of people an hour efficiently. Where rail infrastructure exists already, and could serve sizeable new populations, the business case can be strong for adding stations, and for increasing line capacity where this limits provision of more frequent, local services.

Parking at stations

In most cities, train stations are at the centre of a highly congested road network. It therefore makes sense to gradually reduce the number of car parking spaces provided, reducing congestion and freeing up some of the most valuable land for development.

Providing high quality, secure cycle parking and short-term bike hire services at stations reduces the need for car parking and the volume of private and hire car traffic accessing the station.

Stations outside cities and close to the strategic road network make ideal locations for park-and-ride or parkway stations. These can then serve a wider rural population that would otherwise drive into the city.

13. Light rail

Light rail can be popular and politically attractive, but the cost is high and in most cases improving bus services will be have a greater benefit than installing street-running trams.

- Installation of the rails and power supply (either overhead lines or inductive loops below the road surface) is very expensive and highly disruptive.
- In existing urban areas, the space required will typically compromise the space available for other transport modes, including walking and cycling.
- People travelling from beyond the tram network will still have to take a bus, and possibly change to the tram en route.
- Rail has to avoid steep gradients and sharp bends, ruling out routes that buses can manage perfectly well.

- Rail-based transport cannot adapt to temporary disruptions, e.g. road works, traffic incidents, street-based events.
- Tram lines are a hazard to people cycling.

Rail-based transport is appropriate where:

- There is a need to move large volumes of people (in the order of 10,000 per hour) between major centres (e.g. a transport hub and the city centre).
- It is possible to fully-segregate the line to enable services to run fast, reliably and safely.
- There is a large new development, which can be designed around the transport infrastructure.

14. Strategic Road Network resilience

Incidents and works on the strategic road network often cause large volumes of traffic to divert onto city and village roads, creating long delays for local traffic, including bus services.

Highways England should make it a higher priority to make the strategic road network more resilient, i.e. better able to adapt to partial or complete closure of a road.

The benefits of investment in junctions to improve connectivity should be measured in terms both of reducing journey times and delays on the strategic road network, and also on reducing congestion and delays that spill over onto the local road network.

Around Cambridge there is a triangle of dual carriageway roads: M11, A14 and A11. In theory, if one side of the triangle is blocked, traffic could be diverted around the other two sides, minimising delays on the local road network. To make theory a practical reality, the junctions at each end of the A11 require additional connections, to the M11 north, and A14 west.

The Girton Interchange, where the A14, M11 and A428 meet, also offers limited connectivity. This results in congestion on local roads: through traffic must use a local road (A1303) to move between the A428 and M11; and traffic coming from the east destined for the north-west of Cambridge must leave the A14 early and drive through the north of the city. Additional connectivity at the Girton Interchange would reduce traffic and congestion on local roads, both by reducing diversions of traffic onto local roads, and by enabling the creation of a park-and-ride site at a near perfect location (see Point 9 above).

15. Road pricing

There is no doubt that road pricing can work: in Singapore, for instance, a network of 'gates' that charge a toll that varies in relation to demand successfully keeps a lid on congestion. But there is a complex debate to be had around designing and implementing road pricing: the social, political and technical challenges are huge and will take years to resolve. That process needs to start now.

Part of the urgency stems from the fact that government stands to lose in the region of £30bn of revenue from fuel duty and VAT: electricity, currently VATable at 5%, is replacing petrol and diesel as the fuel for motor vehicles. That transition will reach a tipping point almost certainly within the next five years, when the total cost of ownership of all-electric vehicles will be lower than for petrol/diesel vehicles. From that point on, almost all cars sold will be all-electric.

The most obvious parallel is with cameras: the transition from film to digital started slowly and reached a tipping point in the 2000s, after which film camera sales fell rapidly.

There will be strong pressure to scrap the petrol and diesel vehicles already on the road when we take seriously the health costs of the harmful pollution they cause. The WHO estimates that 40,000 deaths per year are attributable to pollution (which compares with 1,800 in road collisions). So the decline in the fuel duty revenue could be precipitous once it starts to accelerate.

Fuel duty is aligned to energy consumption and therefore roughly to distance travelled and use of infrastructure. At its most basic, road pricing can emulate this. By varying charges by time of day, road pricing can reduce congestion. But the opportunity is much bigger than that: it is to design a tax that is also socially progressive.

A system based only on ability or willingness to pay would be regressive. Even if income from road pricing is invested in improving public transport, there will always be gaps leaving many people with no option but to drive, owing to personal circumstances or the nature of their work. Many socially valuable services are provided by people who are paid minimal wages, e.g. health and social care workers, or whose services need to be affordable by the low paid, e.g. boiler servicing and food delivery for the home-bound. In our view, road pricing needs to be designed, with wide public consultation, to take into account:

- Physical cost (building, repairing and renewing roads and associated infrastructure);
- Environmental cost (pollution, noise, vibration caused);
- Social cost (e.g. in contributing to congestion, delaying other drivers);
- Social benefit the driver is providing (e.g. a health worker);
- The driver's need to use a vehicle (e.g. health-related or no access to public transport);
- Commercial benefit derived from driving, especially at peak times;

There will also need to be a debate around the infrastructure needed. There's the monitoring system: should we fit every vehicle with a 'smart meter' that communicates with a central system, or install a network of ANPR (automatic number plate recognition) cameras? And there's the billing system: should this be centralised and run by government, or de-centralised and run by private companies or local authorities?

If the system is not centralised (perhaps because of privacy concerns), then there must at least be nationally-agreed standards to ensure a seamless experience for drivers. And if it is centralised, local authorities must be able to set local premiums to manage localised demand

and raise income (much in the way that parish, city and district councils can set their own Council Tax precept). Councils could also consider rebating national road pricing fees where they want to encourage regeneration of deprived areas.

Health and welfare

There needs to be much greater consideration given to the health aspects of transport. Reducing obesity and improving mental health requires for most people requires building more physical activity into their daily routines. That means walking and cycling must be attractive, convenient and safe for many more people.

The grave danger to health of being exposed to pollution, especially from diesel engines, is only now becoming apparent. We must prioritise reducing people's exposure by reducing congestion, traffic volumes and incentivising the transition to zero-emissions vehicles.

Planting trees between highways and homes has been shown to reduce the amount of pollution people are exposed to in their homes. It is also linked with greater willingness to walk and improved mental health.

Social isolation is a major concern for those who cannot drive or afford a car: the elderly, disabled, poor and unemployed. It is generally recognised that public (or community) transport is a lifeline for them to maintain existing relationships. But there is a much wider benefit for everyone in walking, cycling, and taking public transport, in that it provides many more opportunities for social interaction than driving. Good public realm for walking and cycling, and public transport that works for everyone make communities stronger and more cohesive.

Concluding thoughts

The name of the game is 'modal shift'. Long-term reductions in congestion require people to switch to more sustainable, space-efficient modes of transport: walking, cycling, buses, trams and trains. Though some relief may be gained from increasing the efficiency and capacity of the road network, this will always be short-term: the iron law of induced demand will see to that. People will simply adapt to prevailing road conditions, choosing whichever route is quickest, and increasing driving distances as road speeds increase.

To achieve modal shift in towns and cities we need to invest in improving sustainable transport modes and, at the same time, reduce capacity, access and convenience of urban road networks for motor vehicles. This requires a revolution in transport planning: no longer can the motor vehicle be king of the city. We must design urban roads and streets to be attractive and convenient places to walk, cycle and use public transport. Where compromise is necessary, because of lack of space or safety concerns, it is motor vehicles that must give way: diverted away from sensitive streets or slowed down.

For this not to be portrayed as a “war on motorists”, we must find ways to filter motor vehicles so as to deter people from driving who have alternatives, but without severely inconveniencing those who, for personal or business reasons, have no alternative. Transport professionals must adjust the way they refer to people, not as ‘motorists’ or ‘cyclists’, but as people who drive, cycle, walk, take a bus, etc. Change is not a zero-sum game: someone’s gain is not necessarily someone else’s loss: we all stand to gain from having more travel options.

Government and local authorities need to invest in developing and articulating a positive vision of what low-car cities will look like. It is essential that they involve urban and landscape designers from the outset, and not bring them in at the end of engineering-led schemes merely to ‘add lipstick’.

About Smarter Cambridge Transport

Smarter Cambridge Transport is the initiative of an impartial group of local people, all volunteers, who are developing and promoting a modern vision for integrated transport in Cambridge and the surrounding region. Our immediate focus is on ensuring that the Greater Cambridge City Deal money is spent in the best possible way.

Our guiding principles are:

- Give people more travel options.
- Make journey times predictable.
- Enable buses to run faster.
- Make multi-modal journeys easier.
- Make paying for transport and parking simpler.
- Make cycling and walking safer and more enjoyable.
- Design transport infrastructure for people not vehicles.
- Protect and enhance the natural and built environment.
- Promote social cohesion and inclusion.

Most of the interventions discussed above are covered in considerably more detail with references on our website: www.smartertransport.uk

About Cambridge

Cambridge shares with most UK towns the challenge of tackling congestion, which imposes significant direct and indirect costs on businesses, residents and visitors. We highlight a few of the city's successes and challenges.

Cycling

Cambridge has the highest modal share for cycling anywhere in the country. This is despite rather than because of the cycling infrastructure, which is still disjointed and of variable quality. The mode share for commuting by cycle within the city is 29%, which approaches that of European cities like Copenhagen and Groningen. Better connections to more necklace villages and making more junctions cycle-safe will encourage many more people to cycle, especially school children.

Road

Cambridge has been subject to two abortive solutions to tackle congestion: a Southern Relief Road was planned in the 1980s, but never started. Plans to introduce a congestion charge were prepared using TIF funding around 2008, but abandoned.

The strategic road network around Cambridge (M11/A14/A428/A11/A505) is heavily congested at peak times. Incidents on the A14 in particular are frequent, and have a severely negative

impact on the local road network, diverting large volumes of heavy vehicles onto city and village roads. Although the A14 is being upgraded to increase capacity and improve safety, early plans to create an all-ways junction at the Girton Interchange were dropped to save money.

The government is funding a study into creating an Oxford-Cambridge expressway by dualling sections of the existing roads and establishing new links, for instance around Milton Keynes, to reduce journey times. This is happening in parallel with a study into creating a rail link along the same corridor (see East West Rail below). There is a risk that creating an expressway will undermine the business case for creating the rail link. The National Infrastructure Commission will need to make an important judgement call on this.

A city-wide parking strategy was being worked up by the County Council in 2013 and abandoned, but is now being explored again.

Rail

Cambridge's railway station has a footfall of over ten million per annum, one of the largest in the country. It is served by four lines, which connect the city to a number of market towns and villages. Where services are frequent (for instance, Ely), train is heavily used for commuting and leisure trips. This suggests that investment in a more frequent service on the line that serves Newmarket (which has a similar population to Ely), we could expect a significant modal shift to rail.

Cambridge is to open its second city station in 2017, and is hoping (with private investment) to have a third by 2019. These will reduce the number of vehicle movements between the central station and areas that will be served by the new stations, including large science and business parks on the north side, and a hospital and biomedical research campus on the south side.

East-West Rail will add a new line to the west of Cambridge, most likely via Sandy, to Bedford, Milton Keynes and Oxford. On the current timescale the Sandy–Cambridge section is unlikely to open before the 2030s.

Serious consideration is being given to building new stations around Cambridge, at Fulbourn Hospital, Six Mile Bottom (parkway) and Soham, reopening branch lines to Wisbech and Haverhill. Expansion of rail in this way should reduce road traffic and bring more affordable housing within commuting distance of the job opportunities in Cambridge.