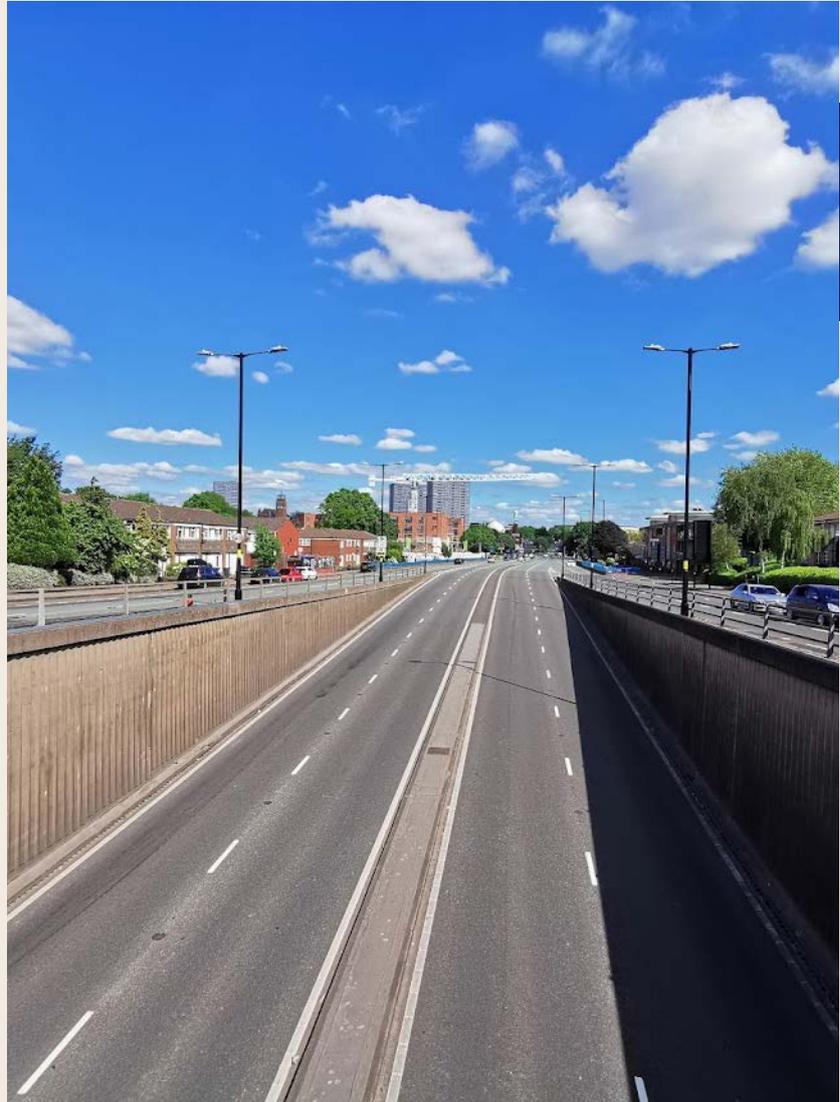


Create Streets
Briefing Paper

February 2022

David Milner



Computer Says Road

Why outdated transport models ruin new developments and how to fix them

We treat the results of transport prediction models as an uncontested fact, yet they are neither sophisticated enough to balance all the ways in which we travel around nor agile enough to adapt to changing technology and human behaviour. We must change how we use them so we can design the infrastructure we really need.

Endorsements

This article rightly highlights many of the key issues with our current methodologies for designing the future transport network, reinforcing concerns raised by CIHT and TPS over many years. The demand for change in these methodologies and approach NOW is growing: it is essential we change now to achieve the outcomes required. The solutions proposed are key pieces of this complex jigsaw.

Lynda Addison OBE. Chair of the Sustainable Transport Panel of CIHT (The Chartered Institution of Highways & Transportation). Former Chair of the Transport Planning Society. 2019 CIHT Transportation Professional of the Year

A powerful argument for planning that begins from a rich vision of a particular place and human community and rejects the imposition of rigid, unrealistic and destructive models - which are insensitive to local context. This is wise, environmentally progressive, good for communities, brave and humane.

Rory Stewart OBE. Senior Fellow at Yale University

Thank you for this important and hard-hitting paper, CPRE is very happy to support it and your recommendations in full.

Crispin Truman OBE. CEO of CPRE The Countryside Charity

David has taken the evidence, overlaid a layer of common sense and created this compelling and well explained case for Vision & Validate, not Predict & Provide. If we are serious as a society about climate, health, community and an economy based on all three then this is the simple and stark template. It is a 'must read' for politicians, policy makers and decision makers.

Mike Axon. Managing Director Vectos (transport planners)

This is a brilliantly persuasive paper which highlights the absurd situation that it is novel to work in a bottom-up way in terms of transport planning, starting with a vision of how people want to move around and how we want our town and cities to look and then designing a transportation strategy to deliver on that. It's always amazing that the common sense approach to doing things has become the exception not the rule.

Vidhya Alakeson. CEO Power to Change

I am very supportive of the approach you describe in the paper of rebalancing transport infrastructure planning away from the needs of rush-hour car traffic and embedding the government's active travel ambitions in local plans. The policy solutions you describe here are well-judged and align with the goals set out in the Transport Decarbonisation Plan.

Sam Hall. Conservative Environment Network

Well done to David Milner for bringing the murky world of transport assessment into the light of day. The RTPI's Location of Development work shows how important it is to take a long hard look at how we access new development

Richard Blyth. Head of Policy, Practice and Research RTPI (Royal Town Planning Institute)

The vision and validate proposal and the explanations behind it ring true. So many highway's teams have a fixation on having to deliver something 'physical' (such as a junction, road widening etc) rather than investing in the softer measures of bus and bike vouchers, dial-a-ride busses, traffic calming planting etc. Being able to move beyond this approach is essential to be able to unlock the true vision (and potential) of new places. This is not about avoiding investing in necessary junctions and improvements but about trying to refocus our energies (and money) on placemaking, 15-minute communities and foot and cycle connectivity within developments to reduce the need for these other physical interventions. But can 'we', collectively, wean ourselves off this outdated approach?

Andrew Taylor. Group Planning Director Countryside Properties

As the report shows, we must move away from planning for more traffic, and following the ghosts of roads plans from the 60s that would cover every city in motorways.

The report is right to suggest we need to be using a 'sense check' on all urban areas, so that people come first, and their right to walk and cycle, and use public transport is reflected in designs and investment.

Given all we need to do on the climate, we should be creating healthy and green streets, not relentless roads that cut communities apart.

Siân Berry. Green Party London Assembly Member. Former leader of the national Green Party

Far too many left behind towns are disfigured by overengineered roads, their communities and economies damaged by the traffic they generate. Yet millions are still being spent on ever bigger roads designed to improve driving times by a few seconds - while far more beneficial and cheaper proposals for active transport and better places struggle for investment. Thanks to this report, we now know why: buried in the technical models and policy guidance that determine transport investment are grossly outdated assumptions that prejudice decisions in favour of big roads. This model has failed. It's time to change it - and free up investment for better streets, with more public and active transport instead. As the No Place Left Behind Commission identified, improving local transport connections and physical fabric of towns are some of the best things we can do to make places happier, healthier and more prosperous.

Toby Lloyd. Chair of the No Place Left Behind Commission. Former Head of Policy at Shelter and No 10 Special Adviser on housing and local government to Prime Minister Theresa May

This fascinating and germane paper exposes the fallacy at the sclerotic heart of British road planning – and planning under neoliberal conditions more generally; which is that negative externalities are never 'priced in' to decisions the way that – allegedly – positive gains are. Of course, when you come to think about, it's exactly this that constitutes the ideology of technologically-fuelled expansionism throughout space and time – a priapic progressivism for which 'sustainability' is only ever a mere fig leaf.

Will Self. Novelist and journalist

This is an excellent paper, and the time is long overdue to challenge the traffic models that prioritise increased carbon and lead to vehicle-oriented places.

We need to move away from zoned development, roads that divide communities and places designed around the car or refuse collection truck. Instead, we must build proper mixed-use, connected places of beauty, and these are often complex, spontaneous, and 'messy' – all the things that are difficult for simple computer models to understand.

Active travel, combined with our health and our happiness are key priorities. For engineers and their fellow designers, these should be the criteria to start with.

Andrew Cameron. Director ACA. Co-author Manual for Streets. Former government advisor on housing and sustainable communities

We need to shape our places by asking ourselves how we want to live and move together, not which junction or road widening scheme we should invest in. Begin there and the answers will lead to more green space, more locally-based services, and options that make it easier for people to choose to walk and cycle – rather than be forced into cars. David's paper sets out how we can get there, skewering out of date rigid tools and proposing a new way forward. Let's make it happen."

Xavier Brice. CEO Sustrans

This timely paper signposts the designers and leaders of cities to the correct way of using technical tools and data - decide on the place you want to create, the health outcomes you want to deliver, and the shared prosperity you want to see - and use tools to let you know what you need to do to get there. We must stop hiding behind models, it's time to be brave and drop some optimism bombs.

Christopher Martin. Vice-chair of the UK Urban Design Group

When levelling up transport systems around the country to match the provision in London we need to acknowledge that London has an aggressive private car reduction target. This article explains with great clarity why you cannot have an efficient transport system by planning for continual growth in private motor vehicles. The article makes a strong case that 'Vision and Validate' is a more robust method than 'Predict and Provide' when it comes to creating great places to live and work as well as tackling the health, air pollution and climate crises. This is a breath of fresh air that will hopefully wake the profession up to the fact that private motor vehicles are not the future. Personally I would argue that it is not the computers fault but the lack of variables in the transport model. Until the impact of road expansion is fully measured in terms of its social, environmental and health damage then it should be treated as skewed opinion rather than fact. Well done to David for standing up and saying this

Brian Deegan. Technical Director Urban Movement

David has ably set out the inherent and often unspoken bias that underpins our current (and sadly long-standing) approach to transport in the UK. We continue to persist in expanding the capacity of the road network in the vain hope that with just one more bypass, one more roundabout, one more lane, we will rid ourselves of congestion forever. We're wrong of course, and our addiction to bitumen simply serves to make us poorer in health and wealth. With transport stubbornly forming the largest emitter of greenhouse gases we urgently have to take a different route.

Phil Jones. Founder Phil Jones Associates

At a time when the Government is investing record amounts in walking and cycling, it is vital that we consider further how we value and assess the contribution active travel can make. This paper makes a timely and important contribution to this debate.

Stephen Edwards. CEO Living Streets

Acknowledgements

I would like to acknowledge the following for their immense help in the preparation of this paper: Mina Kasherova, Ben Southwood, Samuel Hughes, Nicholas Boys Smith, David Taylor and Robert Kwolek.

Computer Says Road

February 2022

Sometimes the little questions we rarely think about have profound consequences for the lives we all lead. When is a road a street? When should it be a dual carriageway, a bus lane or perhaps a tree-lined path for pedestrians and cyclists? And who, or rather what, decides this?

Designing new places is about balance. Bigger private gardens or a public park? More parking or more homes? Brick, stone or timber buildings? There is not always one right or wrong answer and trade-offs must be made. Urban designers, planners and ecologists try to resolve these tensions and create happy, sustainable and prosperous places to live. Yet when it comes to the transport assessment and its accompanying traffic model the predictions are treated as unquestionable. A black-and-white certainty whose whims we submit to completely.

Good design principles are often cast aside as we are told the 'infrastructure won't cope' or 'the junction can't take it'. Instead, the pedestrian-friendly high street, so caringly designed, becomes an over-engineered dual carriageway severing the development in two. Almost every traffic model tells us that, 'computer says road'.

In this paper I will argue that we are currently spending huge amounts of money on a single solution to transport - new roads – a decision which is driven by outdated and crude spreadsheet models and a focus on the wrong metrics of success. I will look at how we currently plan new infrastructure, why it's outdated and why it matters so much. I'll then address six key issues that have led to the 'big road urbanism' ever since the fifties and propose the targeted solutions we can take to change our approach.

Instead of assuming wider roads are always the answer, we should tackle the problem of how people travel around by using a full toolbox of solutions, from investing in a range of transport options to putting the services we use at the heart of new developments. This would not only keep people moving but also support happier,

healthier and better towns and cities at lower cost.

This means that, instead of spending tens of millions of pounds on one junction or on widening a few miles of road, we should instead design better places where more journeys are by foot, bike or public transport. We can do this by siting amenities we want to visit in the heart of new developments, not their perimeters.

Why is this important?

There is a large pot of gold available to towns and cities at the bottom of the highway's rainbow. Last year local authorities allocated £7.5bn, or 29 per cent, of their total capital expenditure to highways and transport services. This was the single largest area of spend and 23 per cent more than the £6.1bn spent on housing.¹ This local authority spending is on top of the £27bn committed by central government to national road projects.

A common assumption is that spending on more and wider roads will ease congestion. However, multiple studies have found that building new roads does not achieve this goal and is, instead, generating more journeys and more traffic. An American study found that there is an almost perfect one-to-one relationship between new roads and new traffic added. A study in Norway found similar results.² When the M25 was widened from three to four lanes traffic increased at an almost perfect 33 per cent in one year.³ A UK study by Prof Phil Goodwin found that traffic increased by an average of 47 per cent above background growth following road expansion projects.⁴ In 2009 the National Audit Office stated that 'previous experience shows that new road capacity rapidly fills, reducing the benefits of making more road available'.⁵ And in 2017 the DFT rejected a proposed road-widening scheme, asking that planners 'work first to find alternatives to travel, or to move traffic to more sustainable modes'.⁶ In summary, widening roads creates entirely new journeys, as opposed to taking the load from other roads. They do not reduce the time you spend stuck in traffic and merely shift journeys from other types of transport or replace a Zoom call, by making it easier to drive.

The more we build roads, the more people will drive, the more congestion we will suffer and the more pollution we will emit. This conflicts with the UK government's commitment to carbon net

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/932817/Local_Authority_Capital_Expenditure_and_Receipts__England_2019-20_Final_Outturn.pdf

² <https://www.sciencedirect.com/science/article/pii/S136192091830628X>

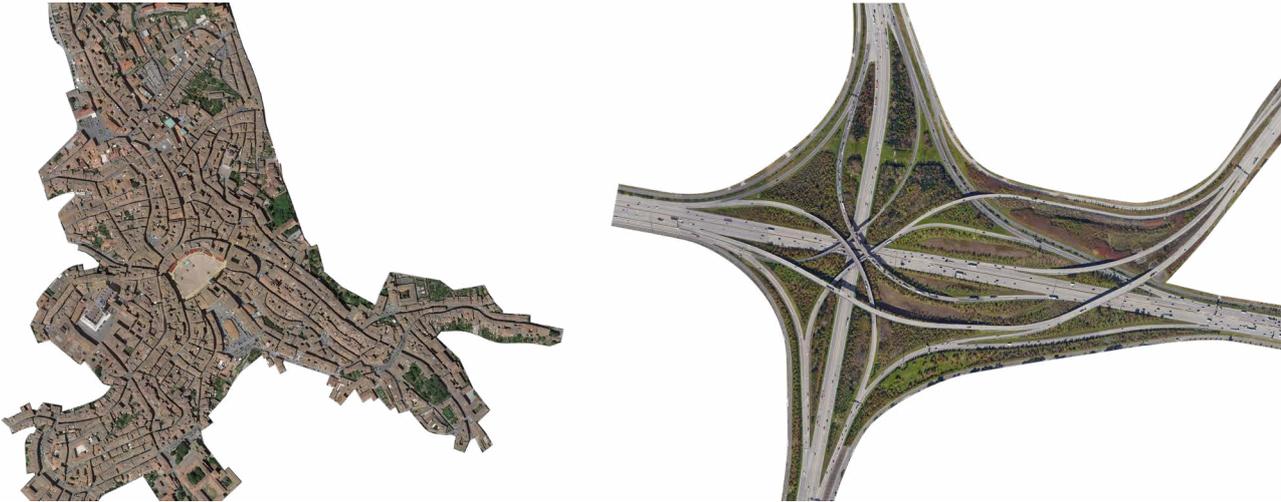
³ Gilles Duranton & Matthew A. Turner, 2011. "The Fundamental Law of Road Congestion: Evidence from US Cities," *American Economic Review*, American Economic Association, vol. 101(6), pages 2616-52

⁴ <https://www.cpre.org.uk/wp-content/uploads/2019/11/TfQLZ-ZTheZImpactZofZRoadZProjectsZinZEnglandZ2017.pdf>

⁵ <https://www.nao.org.uk/wp-content/uploads/2010/11/1011566es.pdf>

⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/600047/m25-south-west-quadrant-strategic-study-stage-3.pdf

neutrality by 2050. The domestic transport sector in the UK emits 27 per cent of all our CO₂ - more than any other sector.⁷ Measures like switching to electric vehicles (EVs) could help, especially in rural and less connected areas, but EVs still embed roughly half the lifetime CO₂ emissions of a conventional car (during their manufacture) and, therefore, will continue to damage our environment and our children's lungs (through brake and tyre wear).⁸ Switching to EVs will not reduce congestion.



When should a road instead be a city? Siena versus a Houston interchange at the same scale.

We are at a critical time for investing in infrastructure. The government is spending large amounts in 'levelling up' our towns and cities, with a £27.4bn budget for roads and £4.8bn identified for towns and cities that have been left behind in the last few decades of economic growth.⁹ Infrastructure has clearly been singled out as a key destination for this cash. So how might this be spent and how are new roads planned in the first place?

How do we currently plan infrastructure and why is it broken?

Issue 1: The wrong models

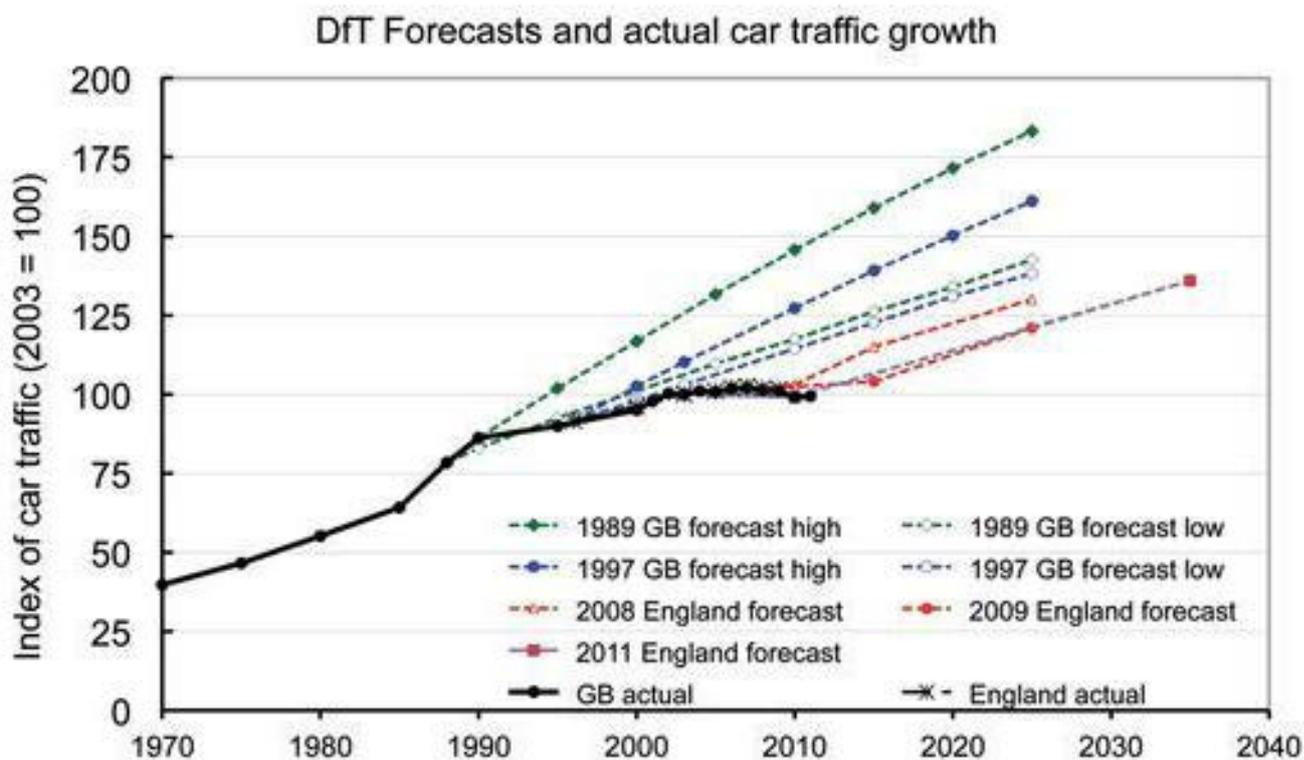
Existing traffic modelling, so called 'Predict and Provide' is outdated and based on flawed, oversimplified solutions. We have outsourced the responsibility for this crucial area of designing and planning our cities to spreadsheets. It's right to prioritise infrastructure but we are too focussed on a single solution that is not extracting value for money. Decisions are made by outdated models based on old data and even older human assumptions rather than by designers and

⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/984685/transport-and-environment-statistics-2021.pdf

⁸ <https://www.carbonbrief.org/factcheck-how-electric-vehicles-help-to-tackle-climate-change> and <https://nationalinterest.org/blog/reboot/why-electric-cars-alone-wont-save-planet-171158>

⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/966138/Levelling_Up_prospectus.pdf

engineers planning for the health, happiness and environmental outcomes we want from new developments. These models rely on compound assumptions such as predictions on how we will move around for decades into the future. They assume growth in car use, growth in car ownership and poor network conditions. These models, compounding many assumptions over multiple decades, have repeatedly proved inaccurate, as can be seen by comparing the Department for Transport's own forecasts with actual results.



Time and time again we make poor forecasts. This DfT chart shows a constant overestimate of car traffic through the years¹⁰

The government's decarbonising transport plan acknowledges this issue stating 'we need to move away from transport planning based on predicting future demand to provide capacity ('predict and provide') to planning that sets an outcome communities want to achieve and provides the transport solutions to deliver those outcomes'.¹¹

When you dig into the main types of transport modelling available the first question asked is 'Are you modelling for vehicles or pedestrians?' instead of considering all types of transport holistically. Despite the rhetoric around sustainable transport we still think about walking, cycling and car transport as separate silos. Many planners will never touch a pedestrian transport model.

¹⁰ 'Due diligence, traffic forecasts, and the pension infrastructure programme', Phil Goodwin

¹¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf

Another problem is that humans are truly terrible at making predictions. Take the late 19th century transport crisis, not a crisis of congestion, but of overwhelming horse manure. Tens of thousands of horses in London and New York were used in transport, each producing around 20 pounds of manure per day. Headlines at the time warned that 'In 50 years, every street in London will be buried under nine feet of manure.'¹²



DISPENSE WITH A HORSE

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Planners demanded more stables and increased street cleaning. No doubt horse transport modellers would also have called for wider roads, space to parallel park your horse and service stations to top them up with hay. But the predicted crisis never materialised. Less than 20 years later the car would outnumber horses in New York, rendering proposed solutions to the manure problem redundant.

When we act on these predictions, like spending on big expensive bits of infrastructure, we are left with these changes for dozens if not hundreds of years. To counter this we must accept we're bad at predictions and create places that can adapt to challenges and solutions we haven't even thought of yet.

Predicting the future based on previous experience will, by definition, lead to the same conclusions and, therefore, the same very expensive outcomes. One example being the planned Black Cat roundabout expansion near Bedford at a cost of £1.4bn for one roundabout and 10 miles of new road.¹³ That is over a third of the £3.7bn budget for 40 new hospitals.¹⁴ Could we solve congestion in a cheaper, more effective way than spending the equivalent of 14 new hospitals on a single roundabout?

¹² <https://99percentinvisible.org/article/cities-paved-dung-urban-design-great-horse-manure-crisis-1894/>

¹³ <https://www.bbc.co.uk/news/uk-england-beds-bucks-herts-47290440>

¹⁴ <https://www.gov.uk/government/news/pm-confirms-37-billion-for-40-hospitals-in-biggest-hospital-building-programme-in-a-generation>

These huge costs often result in road schemes requiring large housing developments to pay for them. (A developer will contribute thousands of pounds per house sold to fund a new road). This is money that could have otherwise been spent on improved local facilities. It's difficult to find a new housing development that isn't linked in some way to a major new road or widened junction. You'd be forgiven for wondering if the new homes are being built to serve the roads rather than the roads serving the new homes.



The £1.4bn three tier Black Cat roundabout plans. We can deliver wider social, ecological and economic value, whilst keeping the roads running smoothly by spending on many holistic projects that reduce traffic generated by new housing developments.²⁵

There is hope however. A few planners, engineers and designers are challenging the post-war default to traffic prediction based on simple assumptions of endless traffic and car ownership growth. Instead they are working bottom up, with residents, local authorities and developers to set a vision for how we want to move around and how we want our towns and cities to look and be. And then design

²⁵ Image: National Highways

the streets and places to help us achieve this vision. This approach is known as 'Vision and Validate'. There are also other terms such as 'Decide and Provide' and 'Monitor and Manage' representing the same method.

An example of 'Vision and Validate' can be found at a business park in Silverstone where the original 'Predict and Provide' led designs for new offices included a roundabout and road expansion, based on predicting an increase in traffic, at the cost of a cool £25m.

But here the story took a different turn. The eye-watering cost led to a rethink. New designs adopted a 'Vision and Validate' approach and, while there were some smaller, necessary road improvements, the revised proposal went beyond road building. Better pedestrian crossings, pavements and cycle paths were added. Changing in the speed limit increased road capacity and £1m went to improving bus routes. Money went into subsidising on-site gyms and nurseries, meaning workers could walk or cycle there instead of driving to the gym a few miles away.

As a result of these changes the number and length of expected vehicle trips was reduced. The spend on roads was reduced from £25m to £2m with the extra £23m spent on facilities for the whole community. This is the approach we should default to.

How can we fix this?

This leads us to the main solution and five additional detailed issues and fixes for improving the way we plan big infrastructure.

Solution 1: Dispense with 'Predict and Provide' traffic modelling and adopt the 'Vision and Validate' methodology for all schemes. Plan for the traffic and place your residents want. We need to start with the vision and desired outcomes.¹⁶ What does the community want their place to look and feel like? Do they want cleaner air in the centre and around the schools? How many neighbours would you like to know? What are the climate targets in the town? Once you know the desired outcomes, work back from this by planning the travel we want and need to meet our health, happiness and environmental goals. This change of approach was endorsed by the recent No Place Left Behind Commission into levelling up England set up by the Create Streets Foundation.¹⁷

¹⁶ An outcome led approach to design is also at the heart of the national street design guide, Manual for Streets.

¹⁷ https://www.createstreetsfoundation.org.uk/wp-content/uploads/2021/10/8560_PS_Create_No_Place_Left_Behind_FINAL_amended.pdf

1. Homes England and Active Travel England should only financially support housing schemes using 'Vision and Validate' transport modelling
2. DFT's Local Transport Plan guidance should call on all Local Transport Plans to mandate the use of 'Vision and Validate' for all transport modelling
3. The DFT should issue technical guidance on how to deliver 'Vision and Validate' led schemes
4. All infrastructure schemes seeking levelling up funding should use vision and validate modelling
5. All highways authorities should ask for 'Vision and Validate' modelling for all new transport and development schemes
6. The Planning Inspectorate should not give consent to Nationally Significant Infrastructure Projects (NSIPs) designed using predict and provide transport modelling.
7. The sustainable transport section of the NPPF should be amended to state that planning policies and decisions should require new developments to show that their design enables the government's desired active travel modal share (the current target is 50 per cent).

Issue 2: Valuing algorithms over expertise.

Decision makers treat traffic models as a fact rather than an opinion. If the computer says 'road', it must be done. But as we know with all models and algorithms used to inform policy decisions, the solution pumped out at the end is only as good as the information fed in at the beginning. And that information is vulnerable to mistakes and human biases as much as any other source.

Solution 2: Give traffic models the same weight as an expert opinion from your design team rather than as an exact science. Challenge it, unpick it, understand it. It is just an opinion, it's not a binary decision, it's not true or false. Councillors on planning committees should treat these models with as much weight as the designer's advice, the community's wishes, or the evidence on places that make for happy, sustainable and connected lives.



Another lane will fix it¹⁸

Issue 3: Valuing traffic congestion over everything else.

The Department for Transport's cost-benefit analysis tool known as 'Transport Analysis Guidance' (TAG) fails to value social and environmental benefits and costs, and overvalues travel time. The TAG cost-benefit analysis, which gives highways authorities a costed appraisal for proposed transport schemes, needs to be dragged kicking and screaming into the 21st century. It fails to properly capture non-travel-time benefits, such as health, wellbeing and the environment, in proposed schemes, so the answer will always be to build more or bigger roads. Whilst TAG seeks to monetise the benefits and costs of new projects, it claims that it is 'currently not feasible' to monetise almost any environmental or social costs or benefits to new projects.

This is becoming an increasingly untenable position as the evidence on how increased prosperity, value and wellbeing metrics are influenced by place and urban design continually improves.¹⁹

¹⁸ https://unsplash.com/photos/7nrsVjvALnA?utm_source=unsplash&utm_medium=referral&utm_content=creditShareLink

¹⁹ Boys Smith, Venerandi, Toms (2017), Beyond Location

Table 1 Appraisal Summary Table Impacts

Category of impact	Impacts that are typically monetised	Impacts that can be monetised but are not reported in the AMCB table	Impacts that it is currently not feasible or practical to monetise
Economy	Business users and private sector providers (including revenues)	Reliability impact on business users Wider Economic Impacts	
Environment	Noise Air quality Greenhouse gases	Landscape	Townscape Historic Environment Biodiversity Water environment
Social	Commuting and other users Accidents Physical activity Journey quality	Reliability impact on commuting and other users Option and non-use values	Security Access to services Affordability Severance

TAG database: Too many social and environmental impacts are left out of cost benefit calculations

The staggering value we put on improving journey times by just a slight amount versus any social or environmental impact is laid bare deep inside the TAG spreadsheet. The external cost attributed to severe road congestion is valued at 57.2 pence per km travelled, whereas excess noise is costed at a paltry 0.1 pence per km. Air quality is valued at 0.5 pence per km and greenhouse gases, the source of worsening floods, fires and droughts, stand at 2.8 pence per km. This means all of these harms combined are given just 5 percent of the value of congestion on our roads. This is all the more futile because we know new road building doesn't actually improve congestion.

TAG also values the commute above all else. If you are travelling for a non-work purpose such as collecting the kids from school or picking up groceries, your time is worth a paltry £4.54 an hour versus £9.95 for commuters.²⁰ As an aside, cyclists will be shocked to discover that painted cycle lanes are given the same cost benefit as a fully segregated cycle lane (3 pence per minutes journey-time).

²⁰ 2010 prices. TAG data book July 2021 v1.15

Solution 3a: Update the TAG database to redress the balance in favour of health, wellbeing, climate and happiness and monetise negative environmental and social costs. Policy already supports rebalancing the benefits beyond saving a few minutes from your daily commute – but the TAG hasn't caught up yet. For example, the reviewing inspector for a housing scheme in Chester, which the council was trying to block due to claimed peak hour traffic increase, reported that "it is not the aim of policy to protect the convenience of commuting car drivers". In fact, the forecast traffic growth would have added just one minute delay to a peak-hour commute.

8. Road schemes in the pipeline should be assessed with the updated government carbon values. The 2022 price was increased from £72 to £248 per tonne, which should be applied to all appraisals.²¹

Solution 3b: Do not use TAG at the design stage of a project, instead use it to compare detailed design options at a later stage. The design team and transport planners should decide when new road infrastructure is needed. Only then should TAG be used to compare detailed plans of road schemes.

Issue 4: Valuing commuters over everyone else.

We value the pre-Covid peak-hour commuter ahead of the school run and design developments for infrequent events. We have seen the astronomical value we place on relieving just a few minutes of congestion, mostly occurring during the morning and evening commute. This is despite the fact that commuting accounts for just 15 per cent of trips, with leisure (26 per cent) and shopping (19 per cent) being greater drivers of everyday travel. This results in roads designed for a brief moment in the day and leaves vast amounts of road capacity idle for the rest of the day. Designing for infrequent occurrences inflates costs and results in swathes of empty tarmac that damage our towns and cities. I explored this principle of designing for infrequent events in 'The bin lorry effect', a paper about how we design our streets around the needs of the fortnightly bin collection, not the people living there every day.²²

Solution 4: Plan for the whole day, not just peak hours. We should take a longer view of movement, ending our obsession with optimising transport between 08:30 and 09:30. Covid has accelerated the change in work patterns and we need to catch up with the new reality of flexible working. The obsession with peak time also ignores the biggest driver of transport in developments: schools

²¹ <https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation>

²² <https://www.createstreets.com/wp-content/uploads/2021/01/The-bin-lorry-effect-2.pdf>

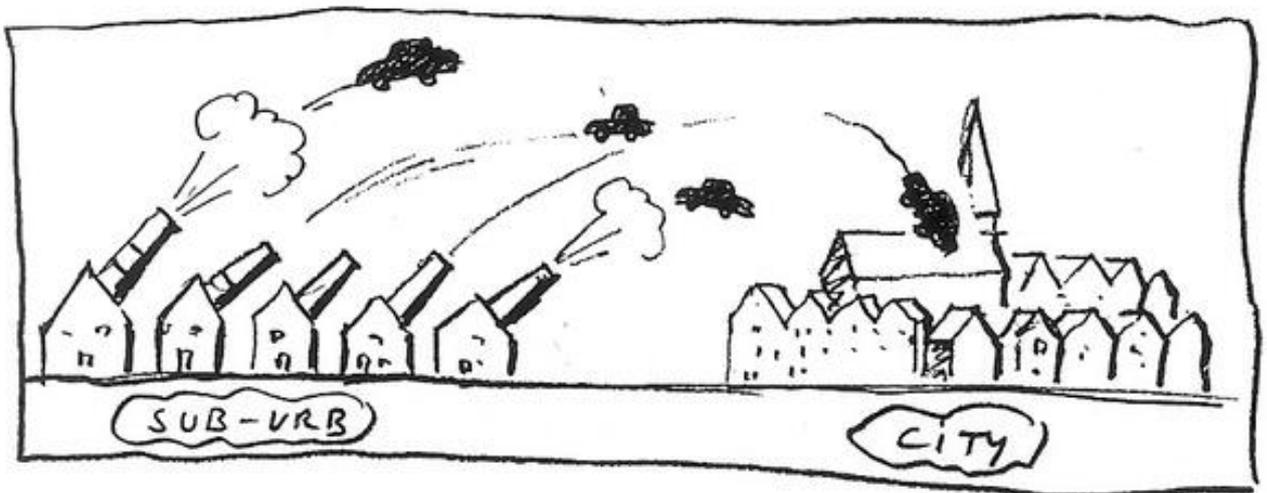
and leisure, whose users, often women²³, are relegated to being second-class citizens. Post-Covid commuting patterns mean that thousands of homes could be built without anywhere near as much expensive new road infrastructure as current models ask for. This would speed up the delivery of new homes at a time that they are desperately needed.

9. Local authorities should run a 12-hour transport model (ideally 24), instead of peak hour, for housing developments which are being held up by accompanying highways works.

Issue 5: Failing to consider systemic impacts

Our transport infrastructure is a series of expensive disjointed projects.

The way we move around is designed in a piecemeal way, project by project: a link road here, a new junction there, each project often independent of the rest and not considered in a holistic manner. The impact of a new suburban housing development, for example, considers the roads immediately around it. But the greatest impact will be on the town centre where these cars will inevitably end up.



We need to think about transport and movement holistically, not as a series of separate infrastructure projects. Sketch by Leon Krier

²³Invisible women, Caroline Criado Perez

Solution 5: Treat movement (not transport) as a strategic outcome, not a series of disjointed infrastructure projects. Building another road shouldn't be the expensive default solution for every congestion challenge. Instead, all towns and boroughs must consider transport as a holistic ecosystem and apply a range of solutions to achieve their desired outcomes. This toolkit could include small tactical (and often cheaper) interventions such as opening offices, nurseries or gyms close to where people live, more pleasant walking routes, e-bike loan schemes or more regular buses.

10. As called for in the government's decarbonising transport report, all local authorities should complete Local Transport Plans. The transport goals contained within must be consistent with their net zero ambitions, whether it be a 2030, 2040 or 2050 target date.
11. The NPPF should call on Local Plans to set transport accessibility and mode share targets to help to meet environmental, health and wellbeing targets.

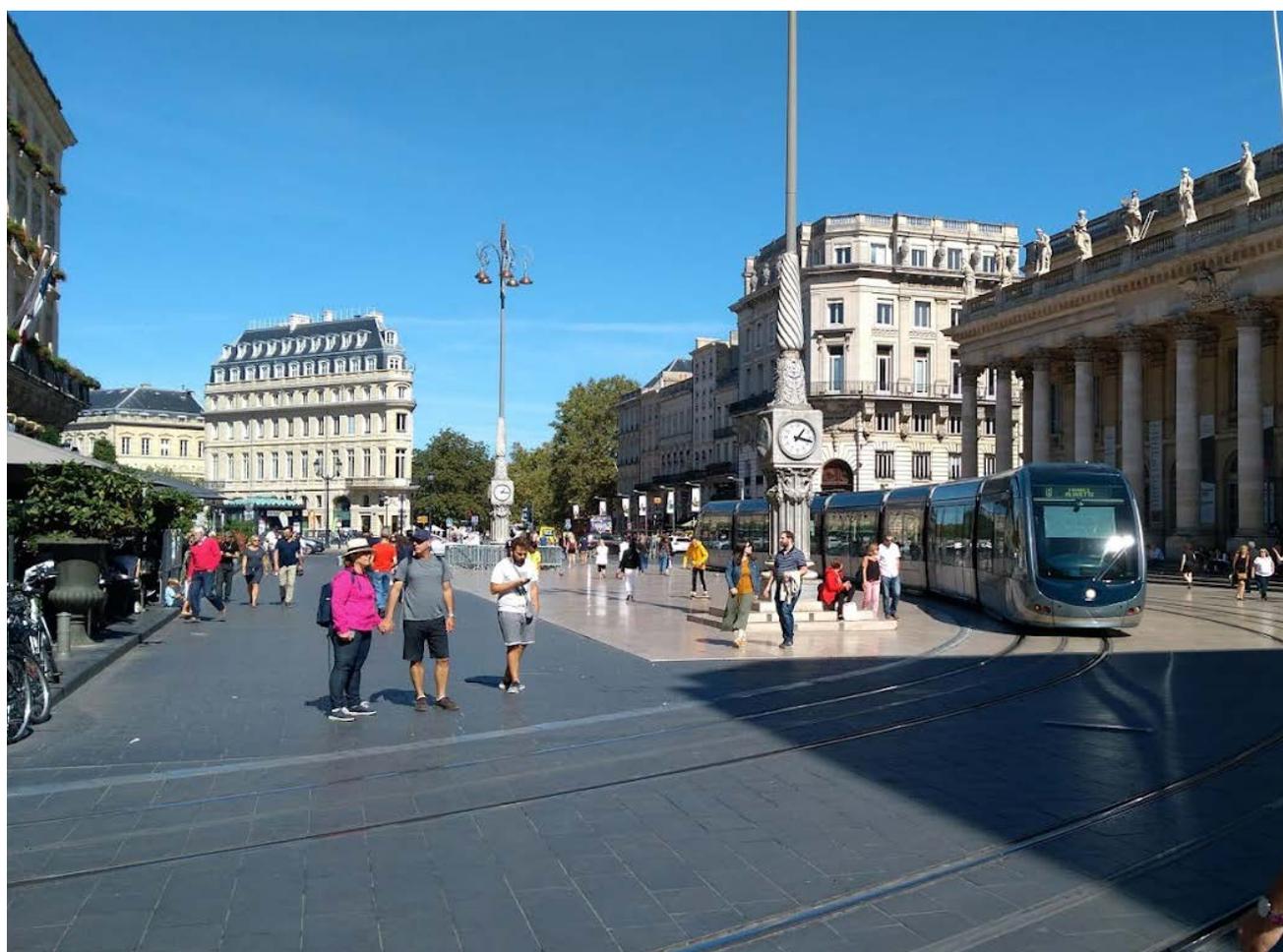
Issue 6: Garbage in equals garbage out.

The data we feed into existing traffic models is often crude, unintelligent and outdated. Transport engineers often use in-person counting of vehicles or the familiar black wires placed on the road to create data that is fed into a model. This takes no account of the number of passengers in the vehicle, or whether it's a bus, an Uber or a cargo bike. It also ignores the family of four walking alongside the pavement. These crude numbers of vehicles then get fed into traffic models – with the inevitable result that the model identifies the need for more capacity for vehicles. In computer science, this is known as 'garbage in, garbage out'.

Currently, many transport planners use a database of historic transport journeys known as TRICS (Trip Rate Information Computer System). It's helpful in some cases but should not be used in a 'Predict and Provide' scenario. If we continue to assume the number of future journeys based on the number of historic vehicle trips we will keep creating the fast-road urbanism of our recent past.

Solution 6: Count people not cars. Acquire better real-time data on how people move, not just individual vehicles. Use artificial intelligence and machine learning to analyse it and inform smarter infrastructure provision. For example, developments that attract a younger demographic may need less infrastructure for private cars and more for public transport and shared mobility. Technologies such as artificial intelligence (AI) and machine learning (a subset of AI) that can process vast data sets and suggest complex transport solutions based on learning from real-life examples, not assumptions, should be encouraged.

12. The metric used in transport models should be updated from asking for vehicle movements per hour to asking for people movements per hour.



Another way to move the same number of people through our cities in a healthier, happier and greener way.²⁴

²⁴ Author's image

Conclusion

These proposed solutions are about putting people, communities and residents back in the driving seat (or should this be saddle?) of how their towns and cities should look and feel. It is a plea to stop making society a servant to computer models. Should we do away with such models altogether? Probably not – they have a useful role to play. But we should agree on the outcome we want first, then use data and specialists to refine our designs and make it happen in an effective way. We cannot separate transport from urban design, so the next time you hear someone say we have to add a large junction because the traffic model said so, be sceptical, ask the residents what they want and dig into your toolbox. There is likely to be another solution there, and one that might be cheaper, more popular and more successful.

There is reason to be optimistic. Increasingly, the value of place is being remembered and prioritised. Fortunately, it is mostly outdated spreadsheets, not people's preferences that we have to change. Residents, councillors and developers I speak to across the political board are mostly in favour of spending less on tarmac and more on our neighbourhoods, trees, schools, buses and high streets.²⁵ The challenge now is to give them the tools, update the policy and let them get on with creating the places we all want to live in.

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²⁵ Developers contributed £1.2bn to the overall capital spend in 2019

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