Stepping off the Road to Nowhere

How changing our transport modelling can deliver beautiful housing, sustainable transport and green growth

CREATE streets

sustrans
JOIN THE MOVEMENT

Executive Summary

How stepping off the 'road to nowhere' can create more homes, save money, save our countryside and create happier, greener places.

Too often new housing developments are designed as an appendage to a new, expensive, distributor road on the edge of existing towns. Each wide roundabout entrance is adorned with the housebuilder's flags and if you're lucky a decorative rock will signify you have arrived at the 'gateway' to the development. Densities of these new estates are typically low, often 20 to 25 dwellings per hectare, meaning that vast swathes of countryside are consumed by houses and the road infrastructure that accompanies them.

They generally have no centre and few, if any, shops and services, as they are planned as drive-to dormitory suburbs, not real towns. Everybody drives everywhere, so each home needs multiple car parking spaces, creating more congestion and more demand for new roads. In trying to build the homes we need, we have entrenched a self-reinforcing pattern of car dependency and bland, faceless estates that always require another new road: **a road to nowhere.**

Once established, this pattern is self-perpetuating, but its origins lie in the dominant paradigm of traffic modelling, known as 'predict and provide' which is based on flawed assumptions, and prescribes oversimplified solutions. Rooted in post-war predictions of the inevitable growth of car ownership and driving, these models assume that everyone will drive everywhere, and so require ever more roads to meet that demand.

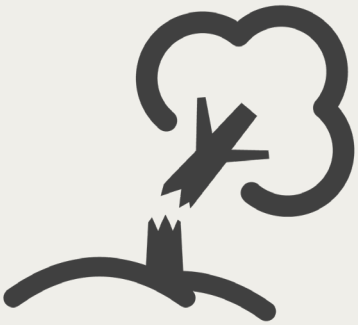
Despite decades of evidence that driving does not necessarily increase relentlessly, and that development based on more fast roads only locks in the need for driving, transport planning processes have been slow to adapt, and largely continue to be based on 'predict and provide' models. Academics and planners, designers, developers and investors have long since realised that this is not the best approach. The transport planning process has not caught up however. Now it needs to.

The result is not only that we build impersonal, unattractive places. Car-dependent, low-density development based on the demands of 'predict and provide' transport models has further far-reaching impacts:

New housing developments are usually car-dependent dormitory suburbs added onto big new roads (image: Shutterstock)

Draining public funds. The Government has set aside a £27bn road building budget over a five-year period, on top of local government spend on roads of £7.5bn per year and additional funding pots such as the £4.2bn Housing Infrastructure Fund (HIF).[1]

Eating into the countryside. Large new roads and low-density housing developments are very land-hungry. According to 2018 government data, greenfield development averaged a density of just 28 dwellings per hectare.[2]



Unpopular places. There is plenty of evidence that people will also pay more for walkable, mixed-use neighbourhoods and that proximity to large roads lowers the value of homes.[3,4]

Ever more congestion. Multiple studies have found that building new roads does not achieve the goal of reducing congestion. It simply generates more journeys and more traffic.[5] Housing developments designed around new roads make this worse by locking in long-term car dependency, requiring yet more driving and generating further congestion.

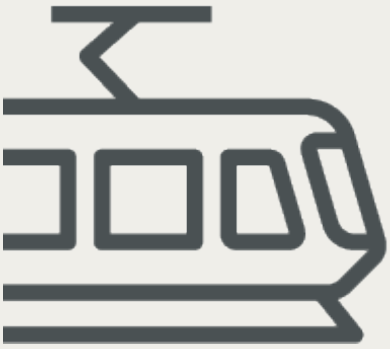
Worsening climate change and air pollution. The domestic transport sector in the UK emits 27 per cent of all our CO_2 - more than any other sector.[6] Air pollution from roads triggers respiratory diseases and can cause lung cancer.[7] The worst effects of road and traffic pollution are distributed unevenly, with poorer areas suffering the worst levels of pollution, in contrast to more prosperous neighbourhoods.[8]

Severing communities, social isolation and ill health. Fast, heavily-trafficked roads make it harder for residents to move around within their neighbourhoods, with damaging consequences

for personal connections, local social life, health outcomes and community cohesion. On top of this, car-dependency also entails more sedentary lifestyles.[9]

Exacerbating inequality. Built-in car dependency exacerbates inequalities for those unable or less likely to drive, such as women, people of colour, young adults, disabled people and those with low or no incomes, all of whom are less likely to own a car.[10] People with low incomes are less likely to own a car but bear the brunt of road collisions and traffic-related air pollution, while communities experiencing greater deprivation are more likely to live in traffic-dominated areas and therefore experience more dangerous and unpleasant walking environments.[11]

Undermining the viability of public transport. Low density development is more expensive to serve with public transport, so provision is often patchy, leaving residents in road-centric estates with no choice but to drive, locking in car dependency and reinforcing the assumption that road capacity is the primary constraint on new housing.

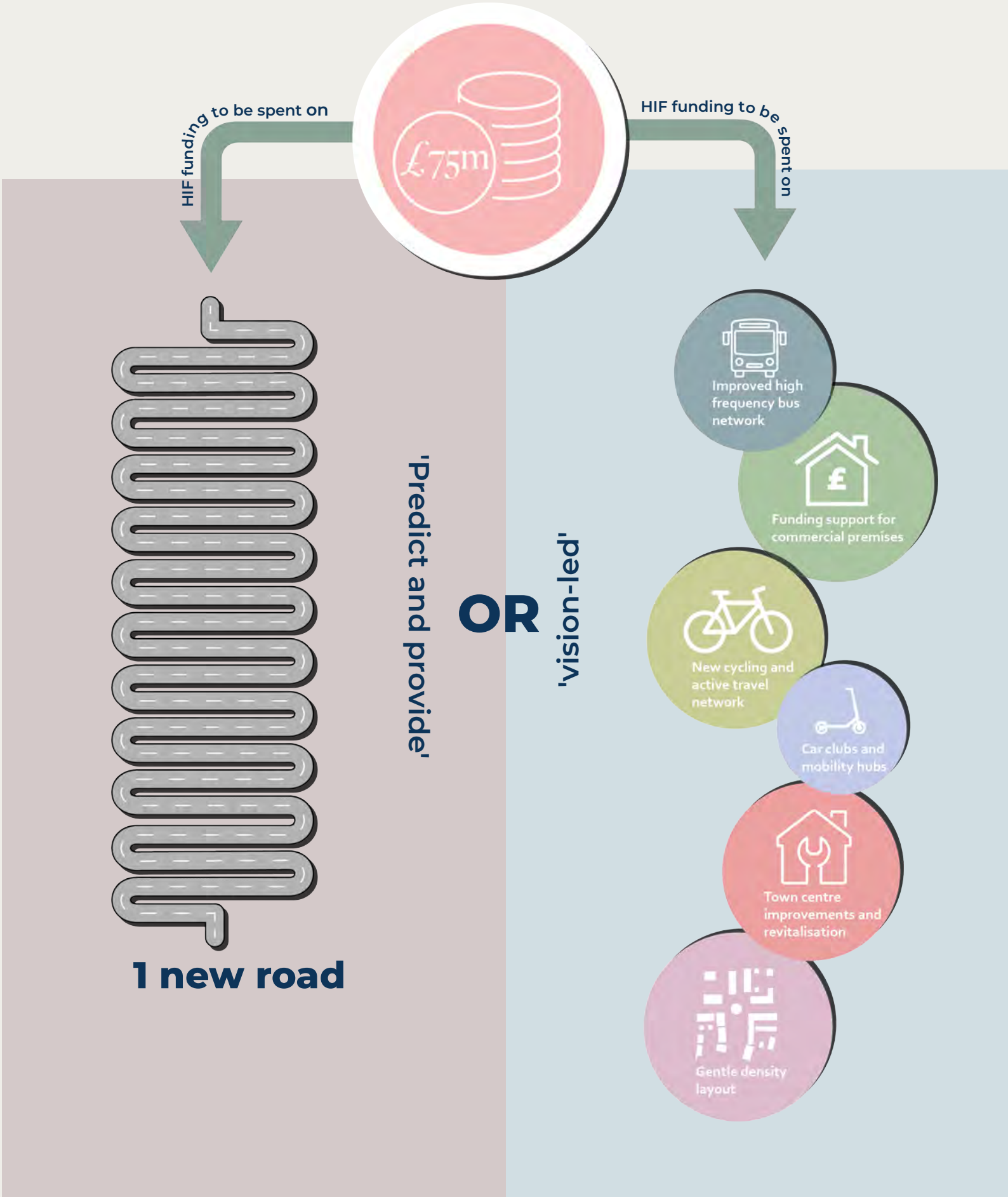


An alternative route: communities turning to 'vision-led' transport planning

Challenging the default post-war assumptions of endless traffic growth means working with residents, local authorities and developers to set a vision for how we want places to be and designing the transport and behavioural interventions to help us achieve this vision. This approach is known as **'vision-led' transport planning**: unlike 'predict and provide' it focuses on the outcomes desired, not on predicting vehicle journeys based on historic data.

Putting this approach into action can make significant savings, as well as improving outcomes. For example, at the new Silverstone research and technology park, the £25m cost of standard 'predict and provide' development plans led to a rethink. A 'vision-led' approach created cycle paths, more pedestrian crossings, pavements and lower speed limits. Instead of a new roundabout, money went on improving bus routes and subsidising on-site gyms and nurseries to reduce car journeys. This made for happier workers making sustainable commutes. The spend on roads was reduced to just £2m, freeing up £23m to be spent on facilities for the whole community.[12]

Despite these huge potential gains, the transition from 'predict and provide' to a 'vision-led' approach remains frustratingly slow. There are many reasons for this inertia - but perhaps the biggest is a shortage of real-world examples that can allow people to experience better development and demonstrate that alternatives are not only possible but eminently practical. This is what this report seeks to provide.


£75m
HIF funding to be spent on
HIF funding to be spent on
1 new road
'Predict and provide'
OR
'vision-led'
Improved high frequency bus network
Funding support for commercial premises
New cycling and active travel network
Car clubs and mobility hubs
Town centre improvements and revitalisation
Gentle density layout

The gentle density masterplan (in green) takes up two-thirds less land on the edge of Chippenham than the original road-led masterplan (in red)

A road less travelled: applying 'vision-led' planning to Chippenham

Create Streets and Sustrans selected a 'predict and provide' led road scheme attached to a plan for 7,500 new homes on the outskirts of Chippenham, which was supported by central government with £75m from the Housing Infrastructure Fund.

We worked together to use the 'vision-led' approach to improve early-stage masterplans for Chippenham, demonstrating how investing this £75m into placemaking and a range of sustainable transport solutions could result in a healthier, happier, more productive and sustainable place. Our resulting 'gentle density' plan is for a walkable, well-connected and integrated extension of the existing town, with good air quality, less congestion and vibrant neighbourhoods. The plan shows how the same number of homes can be delivered, within the same budget, and with a far smaller land take – simply by reducing the assumed need for a major road.

Key Statistics:

9,300
more people walking and cycling every day with an active travel-orientated masterplan

2000
tonnes fewer carbon emissions per year due to fewer vehicular trips

12,000
fewer car trips per day with a denser masterplan of 7,500 homes

Cost breakdown of the Big Moves

A summary of our Big Moves and their costs shows the huge variety of public goods that can be achieved when the vast sums spent on a single road instead pays for improving existing infrastructure and beautifying our towns and cities:

	What	Cost	Impact
1	Intensify masterplan for gentle density design	**£0m**	Significantly reduced land take
2	Infill underused brownfield land with remediation and street votes	**£2.5m**	More homes within the existing town
3	A rail passing loop at Melksham	**£15m**	More trains at commuter frequency. Less congestion.
4	Improve streets within new development (down from initial £75m)	**£10m**	Accommodate expansion and road connectivity
5	Contribution to an improved high frequency bus network for 5 years.	**£7.5m**	More use of sustainable transport choices enabled. Less congestion.
6	Create car clubs and mobility hubs	**£3m**	Enable shifts to more sustainable transport choices
7	Contribute to town centre revitalisation and improvements	**£10**	Improved town centre for existing and new residents
8	Support local businesses during development phase	**£6.25**	Provision of more amenities for new residents within walking distance
9	Protected cycle links from new developments to key locations in town	**£11m**	More active travel and less car use
	Contingency / inflation or money returned to the government	**£9.75m**	
	Total	**£75m**	

An alternative 'gentle density' masterplan using 230ha less land than the road-led masterplan

By redeploying the £75m HIF road investment into more sustainable transport infrastructure, additional services and improvements to the existing town, our gentle density masterplan can achieve better place qualities, health and well-being than the original road-led masterplan whilst still giving people the freedom to move around at will:

- **Less land.** Land take will be reduced from 350 hectares to 120 hectares, for the same 7,500 homes. This is achieved by increasing density to 58 dwellings per hectare, the same as historic parts of central Chippenham.
- **Easier to get to the station.** Almost all the new homes will be within 2.5km of Chippenham Station and half will be less than 1.5km away.
- **More shops.** 125 new shops and amenities will be supported from the beginning of the new development.
- **Easier access to nature.** The number of new and existing homes within a 10-minute walk of countryside will almost double, from 6,420 (in the road-led masterplan) to 12,400 (in our 'gentle density' masterplan).[13]
- **Less wasted space.** Due to a better transport offering the amount of land used for car parking will reduce from 28ha to 11ha - enough for around 20 new small parks or 700 new homes.[14]

Key Statistic:

230ha:
the amount of countryside saved by using a gentle density masterplan

The road ahead: policy recommendations

Our gentle density revisioning of the proposed extension to Chippenham shows what can be achieved by taking a different approach to transport modelling for new development. To make this way of doing development the norm rather than the rare exception, we need to change policy and practice at the level of national government, local authorities and communities – and most importantly we need to change the assumptions and models behind development projects themselves.

The good news is that these proposals very much follow on from the proposals for Homes England funding made in *Living with Beauty*, the 2020 final report of the Building Better Building Beautiful Commission which the government accepted warmly in principle.

Recent announcements by the Labour Party also indicate a clear willingness to move in this direction as the right way to create better and more sustainable places using less land. We are confident that public policy will move in this direction as it makes it easier to build more homes and supports happier and more prosperous lives. It is just a question of when.

For National Bodies	
1	The Department for Transport (DfT) should issue guidance mandating that local transport plans (LTPs) and Transport Assessments (TAs) use the 'vision-led' process for any transport modelling.
2	The DfT should provide a clear definition and technical guidance of what best practice 'vision-led' transport modelling looks like.
3	The DfT should create a role responsible for light rail (tram) within its Roads and Local Group division
4	The DfT should update Transport Analysis Guidance (TAG) to increase the share of costed benefits from broader social impact and reduce the dominance of 'time saving' as a costed benefit.
5	Active Travel England should prioritise financially supporting schemes that use 'vision-led' transport modelling, as well as using their role as a statutory planning consultee to implement 'vision-led' modelling on planning applications.
6	The Department for Levelling Up, Housing & Communities (DLUHC) to ensure Homes England prioritises financially supporting housing schemes using 'vision-led' transport modelling through a new Housing Infrastructure Fund (HIF) process that supports a more holistic package of financial support.
7	Homes England should conduct a rapid review of existing HIF funded schemes that have a 'road only' component to investigate if alternate cheaper and more sustainable infrastructure can instead be provided.
8	DLUHC should update the NPPF section 9 on promoting sustainable transport, and include wording in the upcoming NDMPs, to require a 'vision-led' approach when modelling for new developments. DLUHC should also update section 9 to allow easier implementation of parking maximums to support car-lite development. For full suggested text we will share an accompanying appendix'

9	DLUHC should update the NPPF sustainable transport section 9 to require that 'the design of schemes and sustainable transport has been provided that ensures a sustainable transport trip share aligned with the targets set in the local transport plan.'[15]
10	DLUHC should create National Development Management Plans (NMDPs) on sustainable transport and active travel, with topics including the importance of walkable proximity and connectivity to services; and the protection and delivery of strategic walking, wheeling and cycling routes.
11	The DfT should update Section 16 of the Traffic Management Act 2004, which provides network management duty, to add in a placemaking and public health duty alongside expeditious movement duty.
12	The Road Traffic Reduction Act 1997, is in place and should be reviewed to update national targets.
13	DLUHC should adopt Manual for Streets as policy within the NPPF.

For local government and regional bodies

14	All Local Transport Plans (LTPs) should mandate the 'vision-led' process for any transport modelling.
15	Local planning authorities should allow reduced back-to-back distances (beyond the default 20 metres) to enable low-rise high-density urban extensions.
16	Local authorities should run a 12-hour transport model (ideally 24), instead of peak hour, for housing developments, especially when developments are held up by accompanying highways works.

For community groups and neighbourhood forums

17	Visions created by neighbourhood forums through the Neighborhood Planning or Local Development Order mechanisms (2011 Localism Act) should be material considerations for any vision-based modelling carried out in the area.