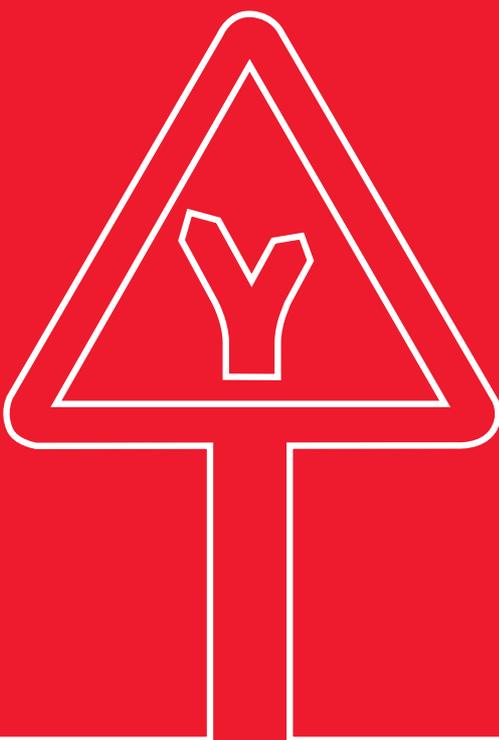




**Full Report**  
for CPRE and the Countryside Agency

# Beyond Transport Infrastructure

Lessons for the future from recent road projects



***Beyond Transport Infrastructure: Lessons for the future from recent road projects***

**Final report for CPRE and the Countryside Agency**

by:

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## Foreword

Using your past mistakes as part of a learning experience is an important lesson for life. And yet, frequently the desire to look forward and tackle the next challenge means that little time is spent looking back to consider whether what's been achieved has actually helped. The place of road building in transport policy is often controversial. In-depth appraisal studies and heated debates accompany most proposals for new or widened road schemes. But do roads deliver what it is said they will 'on the tin'? It is a question that we must answer if transport policy is going to build a broad consensus.

If you are responsible for managing transport networks or tackling congestion it is important to understand whether new road building will help or hinder your aims. If your interest lies in protecting the countryside or wider environment you'll want to know the effects of increasing road capacity. Those responsible for managing public expenditure will be keen to find out if money going into (increasingly expensive) road building is actually delivering results. And elected representatives at all levels need to be confident that a road scheme will genuinely improve conditions, before they can even begin to consider whether the environmental damage it may cause is justified. This report looks at the evidence, selecting three case studies: the Polegate Bypass (East Sussex), Newbury Bypass (Berkshire) and the M65 Blackburn Southern Bypass (Lancashire). In addition, the research team examined ten of the 12 existing One-Year After studies undertaken by the Highways Agency.

The research shows that the evaluation process needs to be improved – and our report contains specific proposals for this. The profile of the post-opening evaluation studies should be changed dramatically, making them available to all and ultimately reaching Ministers' desks. But there are important implications for future transport policy too. Greater use of evaluation studies should be made before guidance is issued and finance provided for new road building. We also need a better understanding of the effects of the Targeted Programme of Improvements in generating traffic and development pressures, and increasing carbon dioxide emissions. And alternative approaches to solving transport problems should be seriously investigated before new roads are built. Local authorities' approaches to road building should also be better informed by evaluation studies.

The consultants conclude that, 'far from learning from our mistakes, we are continuing to repeat them'. The combined cost to the countryside, to the public purse, and to public expectations means that this situation needs to change urgently. This report makes a forceful case for improving the evaluation process and ensuring future transport policy and practice benefits from a sound evidence base.



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## Executive Summary

To date little attention has been focussed on what happens to road schemes once they have been built. The Highways Agency operates a Post Opening Project Evaluation (POPE) process for road schemes one and five years after construction. However, the resulting reports are often delayed in being produced, with the majority of those examined during the course of this study formally unpublished and having little impact on the formation of policy for roads.

This report has been commissioned by the Countryside Agency and CPRE to help throw further light on the issue. In particular, it seeks to learn about the consequences arising from road schemes in terms of traffic growth, landscape impact and related development pressure. It also assesses the effectiveness of current post-construction evaluation methods used by the Highways Agency in handling such issues. Its conclusions and recommendations, however, are highly relevant to local highway authorities as well.

The report includes a detailed examination of three case study roads: the A27 Polegate Bypass; the A34 Newbury Bypass; and, the M65 Blackburn Southern Bypass. The aim of the case studies was twofold. First, to examine whether the actual impact of the road schemes in question – in terms of traffic flows, landscape and development impacts – was as anticipated at the time that planning consent was granted. Secondly, to throw light on how well the post-opening evaluation process is working in practice.

A review of a further ten POPE One-Year After studies was also carried out to enhance understanding of the second point.

## Findings

The case studies findings show that:

- **Traffic growth** on the routes considered was higher than forecast, sometimes quite dramatically so. For example, in all three case studies the current traffic flows are near, or already in excess of, what was predicted for 2010. In towns with bypasses, such as Newbury and Polegate, the new roads did significantly reduce the town centre traffic levels. However, these reductions were not as large as originally forecast and there has been subsequent re-growth in traffic levels on the bypassed roads. The net effect in combination with the new road is generally a considerable overall increase in traffic.
- **Landscape impacts** can be severe. All three case study areas were affected with a permanent deterioration in landscape quality: including the impact of the A34 on the North West Wessex Downs Area of Outstanding Natural Beauty (AONB); the large and highly visible A27/A22 Cophall Roundabout; and the domination of the Stanworth Valley by the M65 viaduct, made even worse by fly-tipping of rubbish off the bridge. Lighting of roundabouts and the increase in noise experienced in the countryside around these roads combines to erode the tranquillity and rural feel of these areas.

- **New development** is often used as a justification for new road building and this is scored positively in terms of ‘integration’ (between land use and transport) in the Appraisal Summary Tables (AST) and Evaluation Summary Tables (EST) for schemes. However, the road itself is seldom considered as a factor in stimulating this new development. As a result, traffic pressures arising from new development are generally considered to be an ‘external factor’ affecting the road – even though the road may have been built to serve development in the first place. New development pressure (arising from development identified in Local Development Plans and as well as speculative development) was experienced in both the M65 and A27 case study areas, and in each case there is local pressure for further road construction in response.
- **Wider lessons:** the inertia in the appraisal and decision-making processes for new roads appears incapable of stopping the momentum of a scheme once it has been in the roads programme for a number of years. Despite the introduction of a New Approach to Appraisal (NATA) and reformed methods of considering induced traffic, routes do not appear to be looked at completely afresh in the appraisal process. Rather, new arguments are found to justify the same schemes. In addition, the evaluation process uses the original appraisal framework as the base case for reference. If the appraisal is not robust, neither will be the evaluation process.

The wider review of POPE One-Year After studies demonstrated that they focus almost exclusively on reassessing the economic benefits of schemes. Issues of induced traffic growth, landscape impact and development pressures are rarely addressed adequately in the evaluations. In addition, other issues which are specifically meant to be covered in POPE – such as the impacts on accessibility and severance – are often only considered in a limited way.

In several cases the local authorities responsible for the areas affected by new road schemes appear to have failed to seize the opportunities to make the most of the new town centre road space freed up by the construction of a bypass. Rather, town centre traffic levels have been allowed to creep back up and insufficient action has been taken to improve accessibility by foot, bike and public transport. In addition, there is evidence that local authorities are continuing to lead the case for further road building in their areas.

It is easy to gain the impression that POPEs are carried out in consultancy back offices for the interests of Highways Agency officers only. A greater priority and profile should be attached to these reports. The existing narrow technical remit of the POPE reports, coupled with the fact that they are not published in a timely way, nor widely circulated, means that there is little learning whereby transport policy, and specifically decision making on the roads programme, is modified in response to experience. The Highways Agency states that it is now preparing a report on the lessons for appraisal from evaluation, and this ‘technical’ learning is to be welcomed. However, there remains a

need for the lessons from evaluation to feed into the development of transport policy for roads. Far from learning from our mistakes, we risk continuing to repeat them.

## **Recommendations**

In light of this research, we make the following recommendations for national roads policy and the future evaluation of road schemes:

*At national level:*

- The Government should accord a higher importance to the outcomes of road evaluations. This requires increased resources being dedicated to the exercise, with a commitment to ensuring that the evaluation process becomes a learning process, with clear feedback into policy making, as opposed to simply ‘box-ticking’;
- The Department for Transport (DfT) should commission a strategic study of the traffic generation resulting from all road schemes completed in the last ten years. This should review ‘before’ and ‘after’ traffic levels, and should be sufficiently detailed to enable an evaluation of the additional CO<sub>2</sub> generated as a result of the roads programme.
- The appraisal process should be improved to include a more detailed assessment of accessibility and integration impacts, and the likely CO<sub>2</sub> impacts of a scheme.
- Greater weight should be given to landscape and environmental impacts in the decision-making process for road schemes. This should help balance the current emphasis placed on the theoretical benefits derived from savings to drivers’ time and provide a fuller picture of the likely impacts.
- There should be a presumption against schemes that are likely to stimulate unsustainable, car-dependent development patterns and increased car use.
- More attention should be paid to the development of alternative solutions in areas where traffic congestion is a problem. The appraisal process should be changed to require that road scheme promoters show that they have considered whether a smart choice transport programme, coupled with small-scale capital investment, might obviate the need for the road scheme altogether.

*The Post Opening Project Evaluation process*

In proposing that the POPE process be expanded to consider a range of issues in greater detail, we recognise the resource implications of this extra work. It is therefore recommended that the ongoing POPE process is maintained for all schemes, with more detailed studies being carried out on a substantial proportion of new projects.

In all cases, it is important that reports are written in plain English, published on time and made widely available. In addition, more attention should be given to ensuring that historic information on road schemes – from initial appraisal and inquiry documents through to evaluations – is recorded and kept in an accessible form for future reference.

In taking forward these more detailed studies, the following issues should be addressed:

- Improving the analysis of induced traffic in One-Year After and Five-Year After reports. Comment should be made in these reports on whether actual traffic levels experienced are higher than predicted, and what the causes of this are.
- Including analysis of the effects of the road construction and traffic on CO<sub>2</sub> emissions. At present, One-Year After reports do not seem to consider the issue at all. We also suggest that there is a need for a cumulative assessment to be made of how much CO<sub>2</sub> is being generated by the entire trunk roads programme, based on annual 'after' data of the type collected through the POPE work. This would build on the information on transport-related emissions currently contained in the Government's updated Climate Change Strategy.
- Comprehensive consideration of the effect of road schemes on integration and land use. This should take account of the impacts of road construction on a range of issues affecting integration (e.g. community severance, physical connections between different types of transport and impacts on other policy areas, as well as land use/transport interaction). In terms of evaluating the impacts on land use and development, a more sophisticated approach is required which recognises the two-way interaction between the provision of road infrastructure and new development.
- Improved assessment of the impact of road schemes on the landscape and tranquillity. This should move beyond considering whether impacts were 'as expected', to draw lessons on how such impacts can be reduced in future. The experience of the *cumulative impacts* from road schemes in terms of increased noise, landscape damage, associated development and road lighting combine to have a serious detrimental impact on the countryside. Such impacts are not easily quantified in monetary terms, but nevertheless must be more effectively accommodated in evaluations in future.
- Consideration of the actual regional and local economic effects of road schemes – especially in the Five-Year After studies – as an alternative to the current emphasis on the theoretical economic benefits arising from schemes.
- Better evaluation of safety. This should include a breakdown of 'before' and 'after' casualties by severity (fatality, serious injury, slight injury). The evaluation should also include a breakdown of 'before' and 'after' casualties by: location; type of road user (pedestrian, cyclist, driver etc); and causation factors. This evaluation is particularly important for the Five-Year After report, by which time sufficient data should be available to draw meaningful conclusions.
- More in-depth treatment of accessibility, which is largely superficial at present and takes reduced in-town traffic levels as a proxy for improved accessibility.

In addition, regional planning bodies and local authorities have an important role to play in managing future built development and road space in the wake of new road construction. There is a need for informed spatial planning decisions that avoid inappropriate infill development, and work with road schemes to provide 'cleaner, safer, greener' places for people to live and work, in line with Government policy. Local

authorities should also strive to manage the de-trunked network to resist new traffic generation and to ensure appropriate reallocation of road space in favour of journeys by public transport or to encourage walking and cycling. Many authorities are seeking to provide better facilities for these modes, and are creating a wide range of good practice to learn from.

There are important lessons to be learnt from the evaluation of road schemes. The research set out here has helped highlight some of them. It is crucial in future that national roads policy is better informed by what has actually happened as a result of the schemes that have been built.

*A more detailed summary of the findings is available in hard copy and through the Countryside Agency's website at [www.countryside.gov.uk](http://www.countryside.gov.uk) and through CPRE's website at [www.cpre.org.uk](http://www.cpre.org.uk)*

## **Part 1: The Policy and Technical Background**

### **1.1 Introduction**

Do new roads deliver the congestion relief and other benefits that their proponents often promise? Or, do they actually make the problem worse; encouraging new journeys and traffic and ‘opening up’ new areas for development? Do they leave an indelible scar on the landscape, or do time and mitigation measures enable roads to be accommodated without long-term impact on the countryside?

These are central issues in the debates surrounding new roads – often argued long and hard by proponents and opponents of schemes in the course of the decision whether to build or not. But what is notable is how little attention has been given to *after studies* of road schemes: to go back and look at roads that have been built, and in the light of experience, to examine whether the promised benefits or feared impacts have actually materialised in practice.

This report has been commissioned by CPRE and the Countryside Agency to help answer such questions. It looks at the current approach in the UK to evaluating the impacts of road schemes and considers the wider lessons from this for transport policy. It concentrates, in particular, on the consequences arising from road schemes in terms of traffic growth, landscape impact and related development.

The research builds on the detailed work by Oxera *et al* in a report for the DfT which looked at: *How should the ex post evaluation of trunk road schemes be enhanced?* (2005). Oxera’s work provided a wealth of useful analysis and a number of important recommendations for improving the trunk road evaluation process. Nevertheless, it stopped short in interpreting the implications of its findings for current transport policy. As such, we aim to build on Oxera’s work through our own case study and interview work, and to provide analysis of how such findings should be interpreted to help to improve current transport policy.

#### **1.1.1 Methodology**

The research is based on a five stage process:

- a literature review of relevant material;
- selection of three case studies of road schemes that have been built in the last ten years with detailed interviews and site visits taking place;
- review of a further ten POPE One-Year After studies;
- contact with transport experts and consultants handling the POPE process; and
- discussion of the findings and recommendations at an expert seminar on 22 March 2006.

### 1.1.2 Structure of the report

The report is set out in three parts.

- Part 1 discusses the policy and technical background to current roads policy and appraisal and evaluation processes.
- Part 2 outlines the practical case study research. It summarises the findings from the three case studies, as well as from the wider review of POPE studies.
- Part 3 sets out the conclusions and recommendations emerging from the research. This section looks both at the overall experience of road building, as well as the suitability of current evaluation techniques.

## 1.2 Understanding UK roads policy

### 1.2.1 The evolution of the roads programme

The publication of a new *National Road Traffic Forecast* in 1989 by the previous Conservative Government proved a catalyst in the development of the UK Roads Programme. With the forecasts suggesting a startling increase in traffic of between 83% – 142% by 2025, the response was to come forward with a £6bn investment increase in the inter-urban road programme and a Roads White Paper including hundreds of road schemes. Not surprisingly, as the environmental implications of such development were realised, a strong body of counter-opinion formed. In time, this erupted into outright protests, such as those seen during the construction of the M3 at Twyford Down and the A34 Newbury Bypass.

Opposition parties at the time were well aware of the political heat being generated by the Roads Programme and the Labour Party's Environmental Policy Statement, *In Trust for Tomorrow*, from 1994 stated that:

*'Building new roads offers at best temporary relief from traffic congestion. It is now accepted by almost everyone apart from the Department of Transport, that new roads generate new traffic.... Widening existing roads will have much the same effect'.*

Since 1997, national transport policy for roads has evolved significantly. Successive Transport White Papers and roads reviews by the current government have emphasised at different stages that new road building would be an option of last resort, while also stressing the need to protect environmentally sensitive sites where new capacity was required. For example, both the *A New Deal for Transport: better for everyone* White Paper in 1998 and *The Future of Transport* White Paper, 2004, confirm that:

*'there will continue to be a strong presumption against schemes that would significantly affect environmentally sensitive sites or important species habitats or landscapes'.*

Such policy statements were paralleled by reviews of the Roads Programme. In 1998, a significantly trimmed list of 37 schemes representing a 'Targeted Programme of Improvements' (TPI) was announced.

The announcement of the *Ten Year Plan for Transport* in 2000 significantly changed the policy landscape again. Among other investment, the plan identified £60bn spread over ten years for 360 miles of motorway and trunk road widening and 100 trunk and local road bypasses, with more money for local roads. The TPI was extended to 53 schemes, and more money was made available through the Local Transport Plan (LTP) settlement for local roads. This represented an important shift away from the message of the Roads Review and Transport White Paper 1998 which both emphasised the need to manage demand.

Response was swift and critical from a range of voices. In particular, research by Professor Phil Goodwin (published in *Running to Stand Still? An analysis of the Ten Year Plan for Transport*, CPRE, 2001) concluded that:

*'the headline forecast of the plan – to reduce congestion at the same time as increasing traffic – depends heavily on the discussion below about how to measure congestion, the effect of extra road capacity, and the effect of changes in costs and speeds of travel.*

*'the suggested expansion of the road programme would be particularly vulnerable to the effects of induced traffic in the most congested locations'. [1]*

Four years on in 2004, the DfT realised that it was not tenable to continue to promote increased road capacity without demand management and *The Future of Transport* stressed the need to consider the option of road pricing stating that:

*'... we will not address the long term risk of higher congestion just by adding new capacity, even if it is tolled. And it will not resolve the problems on our current road network. We need to consider seriously the case for a different way of paying for our current road network'. [2]*

Meanwhile, though, the implementation of the TPI continues. The Highways Agency Business Plan for 2005/06 lists 35 national TPI schemes. In addition regional assemblies are busy selecting their transport priorities for the future. These debates affect a further 53 regional TPI schemes and include the future of environmentally controversial road schemes, such as the widening of the A47 through the Norfolk Broads and the A350 Weymouth Relief Road through the Dorset AONB.

Conservation and environment groups have continually sought to highlight the contradictions in policy and the environmental implications of large-scale road building. But such advice has largely fallen on deaf ears. The Conservative Government's *Roads to Prosperity* White Paper may now seem like a distant memory, yet several of the schemes that it proposed still feature in the current national roads programme. The reality is that however nuanced, current transport policy still includes the promotion of a sizeable roads

programme at national and local level. This has the potential to impact adversely on the countryside and on progress towards tackling climate change and achieving sustainable development.

### **1.2.2 Roads and decision making**

How do we ensure that issues of economic, environmental and social impact are properly reflected in decisions to approve road schemes? In *The Future of Transport* (2004), the Government stated that:

*'Road networks [will be] enhanced by new capacity where it is needed, assuming that any environmental and social costs are justified'.*

This policy approach rests on the assumption that it is possible to weigh all the different pros and cons arising from a road scheme and make an appropriate calculation of the different costs and benefits. Such an assumption puts a large responsibility on the appraisal process as part of decision making. If the transport appraisal, including a cost-benefit analysis (COBA) and other forms of assessment, suggests that the costs are justified, then the scheme is highly likely to proceed. But what if the appraisal process is shown to be flawed?

The Government's latest Sustainable Development Strategy stresses the importance of integrated solutions to problems, rather than relying on trading off different potential benefits (economic, social and environmental) in decision making. It states that:

*'that goal [sustainable development] will be pursued in an integrated way through a sustainable, innovative and productive economy that delivers high levels of employment; and a just society that promotes social inclusion, sustainable communities and personal wellbeing. This will be done in ways that protect and enhance the physical and natural environment, and use resources and energy as efficiently as possible'.[3]*

This stems from a concern that the last Sustainable Development Strategy was interpreted differently by the many agencies responsible for its implementation by focusing on the one or two most aspects most relevant to their operation to the detriment of the other aspects of sustainable development.

One way to learn whether appraisal processes are robust is by examining road schemes *after* construction to determine whether, in practice, they have delivered the benefits promised, at the costs predicted. This research seeks to learn from the experience of past road construction to provide a better understanding of the long-term effects of new roads on traffic generation, landscape impact and development. These lessons should help shape current transport policy by demonstrating some of the actual impacts of road building.

### 1.3 Appraisal and post-construction evaluation

*'The government uses a significant proportion of national resources providing services such as health, defence, the police and transport facilities. The government, and the nation as a whole, wants to make sure that there is value for money from investments in these services. Appraisal is the term used to describe the method of checking that such value for money is achieved'.[4]*

Before an individual, company, or public body decides to spend money on any good or service, some form of appraisal of the value of that product in relation to its costs is undertaken. This has been a central principle in the operation of Government for many years. The guidance to carrying out appraisal in Government is found in the *Green Book, Appraisal and Evaluation in Central Government* [5], the latest version of which was released in January 2003.

Historically, road schemes were largely justified on the basis of COBA in which the 'benefits' were mainly derived from the predicted time savings of drivers. The COBA approach was subject to a number of criticisms over the years, from the Buchanan Report in 1963 (HMSO, 1963), the Advisory Committee on Trunk Roads Assessment in 1977 (HMSO, 1977), through to the Standing Advisory Committee for Trunk Road Assessment (SACTRA)'s inquiry into *Trunk Roads and the Generation of Traffic* in 1994.

In the late 1990's the approach was modified with the introduction of NATA following the publication of the 1998 Transport White Paper, *A New Deal for Transport: better for everyone*. The aim of NATA was to consider the impacts of a road scheme against five objectives, which include:

- **Environmental impact:** this involves reducing the direct and indirect impacts of transport facilities on the environment of both users and non-users. There are ten sub-objectives including noise, atmospheric pollution of differing kinds, and impacts on the countryside, wildlife, ancient monuments and historic buildings;
- **Safety:** this is concerned with reducing the loss of life, injuries and damage to property resulting from transport incidents and crime. The two sub-objectives are to reduce casualties and improve security;
- **Economy:** this is concerned with improving the economic efficiency of transport. The five sub-objectives are to improve economic efficiency for consumers and for business users and providers of transport, to improve reliability and the wider economic impacts, and to get good value for public money;
- **Accessibility:** this is concerned with the ease with which people can reach different locations and facilities by different modes; and
- **Integration:** this aims to ensure that all decisions are taken in the context of the Government's integrated transport policy.

The NATA provided a framework for the assessment of a scheme's impacts through a number of stages which are usually defined as a 'transport study', and typically should include:

- agreement on a set of project-specific objectives which the solution should seek to satisfy;
- analysis of present and future problems on, or relating to, the transport system;
- exploration of potential solutions for solving the problems and meeting the objectives;
- appraisal of potential solutions, seeking combinations which perform better as a whole than the sum of the individual components; and
- selection and phasing of the preferred solution, taking account of the views of the public and transport providers.

The information is then summarised and presented in an AST, for each option being considered.

In theory, NATA represents a significant improvement on the old COBA approach. Its effect in practice, however, has been limited as the benefit-cost ratio has continued to be a dominating factor in decision making. As under the old COBA appraisal method, the 'benefit' is derived largely from drivers' time savings, monetised according to a notional 'value of time'. In addition, casualty savings are monetised according to estimates of the cost to society of each death, serious injury or slight injury. A benefit-cost ratio greater than one is generally taken to demonstrate that the benefits of a scheme outweigh the costs, even though many scheme disbenefits (such as the impact on the landscape or heritage) are not included in the calculation. Scheme impacts to which no monetary values are attached tend to be treated as less serious or important than those which can be quantified.

DfT has recently completed research on the monetisation of noise impacts and it has research projects underway investigating the potential of monetising the impacts on both CO<sub>2</sub> emissions and the landscape from transport. However, recent research exploring the potential to monetise such impacts on heritage and severance has shown this not to be straightforward. As such, there will always be sub-objectives in the AST that will remain difficult to quantify in monetary terms.

There is a further difficulty: the calculation of the 'correct' benefit-cost ratio, even under such narrowly defined terms, is far from being a precise science. Thus it remains possible for road scheme promoters to subvert the NATA process or 'jump through the hoops' in order to make the case for old road schemes which have been on the drawing board for many years, even if such schemes are no longer appropriate to current policy objectives. The appraisal process is not, therefore, a wholly neutral, objective or scientific process.

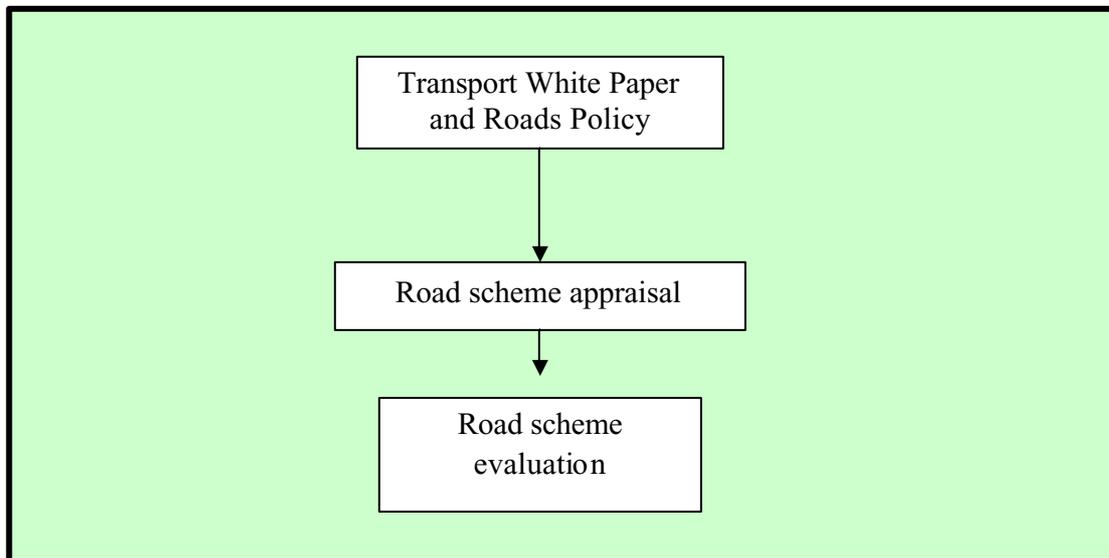
There are further weaknesses with the NATA method. In particular, criticisms which have been levelled at it include:

- The role of a new road in stimulating inappropriate out-of-town or rural car-based development (counter to national and local land use policy) is not factored into the appraisal process at all, and in fact the appraisal process assumes there will be no changes in land use.
- Future traffic flow forecasts can fail to allow for induced traffic, and for the traffic impacts of any new development which takes place as a consequence of the scheme. This can result in pre-scheme assessments which dramatically under-estimate future traffic flows and has the effect of substantially altering the economic cost-benefit case of the scheme.
- Safety benefits are narrowly defined and fail to take account of the effect of higher vehicle speeds on new sections, which increase risk for pedestrians and cyclists.
- Forecast 'other' economic benefits (for example, predictions that the scheme will create several hundred new jobs by opening up new sites for development) may fail to take account of the loss of jobs elsewhere, either locally or regionally.
- The appraisal process usually fails to compare the road scheme against fully developed and detailed alternative measures, which might deliver the same benefits at much lower cost. For example, dualling of a rural single-carriageway road may be justified largely on safety grounds, but these safety objectives could be met at a fraction of the cost by lower speed limits and traffic calming through the villages concerned.

It may seem remarkable that an appraisal process that is used to justify the spending of several billions of pounds per year can be flawed. One of the reasons is that for most of the recent past there has been relatively little effort to review schemes *after* they have been built and to assess whether the original appraisal was accurate and complete in terms of its prediction of future impacts. This fact is reflected in the budget spent by the Highways Agency on post-construction scheme evaluation. For example, in 2004/05, the Highways Agency evaluated around 50 schemes, at an average evaluation cost per scheme of £12,000. The total cost of evaluation represented 0.1% of the £507m major improvements budget.[6]

Where evaluations have taken place, it is not evident that they have then been considered in current policy debates. Without this feedback of information, the gap in knowledge between what was anticipated, and the reality of road construction remains. In effect, we have a policy framework (illustrated below), wherein policy making, appraisal and evaluation all take place, but there is little interaction between these different areas of activity.

**Figure 1: Lack of interaction between transport policy, appraisal and evaluation**



### **1.3.1 New evaluation methods – the transition from PIES to POPE**

*‘evaluation is the review of the processes that led to a road scheme coming to fruition, and the impacts that the scheme has had since its implementation. It should not be confused with appraisal, which is applied to determine whether a scheme should go ahead’.*[7]

The DfT introduced some limited post-scheme evaluation of projects in 1981. This included Scheme Forecasting Monitoring which compared observed traffic flows on completed trunk roads with forecast traffic flows. Indeed some of this monitoring information was presented to the SACTRA (Standing Advisory Committee for Trunk Road Assessment) inquiry in 1993. This showed that at aggregate level, the forecast and observed traffic flows were not distinctly different. However, when considered at a detailed level, some traffic figures differed by very large margins, indicating that induced traffic could have been generated.

In 1994, the Post Implementation Evaluation Studies (PIES) were started. The objective was to compare outturn journey times, traffic matrices and casualty rates from completed trunk road schemes with the forecasts made when their designs were finalised at the Order Publication Report stage. Twenty PIES in total were carried out. The PIES process was in turn replaced by the next evolution in evaluation studies, the POPE. In addition Traffic Impact Studies (TIS) have been continued to assist in the understanding of the traffic impacts of new schemes immediately after opening.

### 1.3.2 Understanding the POPE process

POPE was introduced by the Highways Agency in 2001, as the programme for evaluating post-implementation impacts of major road schemes. It looks at 'before' and 'after' traffic flows on new roads, journey times and casualty data. It is mandatory for all schemes within the TPI. Each road scheme should now undergo the same analysis one year and three to five years after opening. The aim is to deliver a systematic approach to evaluation and improved data retention to aid analysis.

The reports are published as One-Year After and Five-Year After studies. The studies include a re-examination of the original AST for the scheme and report the conclusions in an EST which uses the same headings as the original AST.

To date, all the POPEs have been carried out by Atkins consultants under contract to the Highways Agency. A Highways Agency Procedure Note [8] has been produced on the process and this is being updated and expanded by Atkins for future re-publication. The note replaces advice set out in the *Design Manual for Roads and Bridges* (chapter 16).

The Highways Agency Procedure Note describes the various stages in obtaining comparable 'before' and 'after' data on traffic flows, journey times and casualties. It establishes who is responsible at each stage and what information they should collect. A procedural diagram on the process is included in Annex 1.

### 1.3.3 The local authority approach to highways evaluation

It is worth noting that while POPE is mandatory for all TPI schemes, local authorities are also required to evaluate their schemes. For local authority schemes, local highway and transport authorities are required to produce LTPs and justify any major scheme (costing more than £5 million) in a similar way to national schemes. Government guidance on this states that:

*'An evaluation ... is an independent quantitative and qualitative assessment of the processes of implementing a scheme and its impacts. Evaluating major schemes will help the Department meet its commitment to assess the impacts of its policies, and provide the Department and authorities with valuable evidence to inform future scheme development and decision making'.* [9]

The criteria established for local authority evaluation recommend that they should:

- be proportionate and cost-effective. Usually the extent of evaluation effort should reflect the costs and scale of the scheme. However, innovative or controversial schemes may require more significant evaluation;
- start before the implementation of the scheme, to ensure that baseline data have been collected;

- include some assessment of the processes of implementing and constructing the scheme, and how these have affected its impacts;
- go beyond checking the accuracy of appraisal predictions, by assessing whether a scheme achieved its objectives and whether it had any wider and unexpected results (positive and negative);
- include an assessment of what the scheme added, against what might otherwise have happened;
- identify any problems with the scheme and recommend potential improvements; and
- report regularly, with findings effectively disseminated so that other authorities can identify transferable lessons for their schemes.

#### **1.3.4 Progress and pitfalls with POPE of trunk roads**

To date 20 – 30 TISs have been undertaken by the Highways Agency looking at the immediate after-effect on traffic volumes when a new road scheme opens. In addition, at least 12 One-Year After POPE studies have been completed. Seven out of ten of the One-Year After studies reviewed in this study, as well as the One-Year After Study for Polegate, were only available on request and were not on the Highways Agency's website, despite the roads now being several years old. [10]

Among the One-Year After studies, a few have looked in more detail at the environmental impacts of the scheme one year on (e.g. the Hedon Road in Hull), using a methodology known as POPE-E (Post Opening Project Evaluation – Environment). It is, however, the Highways Agency's intention that environmental issues are considered in more detail in future POPE studies. [11]

Only one Five-Year After study has been completed. This evaluates the A34 Newbury Bypass, but the study has not yet been published and was not made available for this study. It is unfortunate that so many of the POPE studies are not readily accessible, or greatly delayed in their publication: the Newbury Five-Year After study is not available eight years after the scheme opened, while the A27 Polegate One-Year After study is still not formally published three and a half years after opening (though an unpublished draft was made available on request). This suggests that such studies are viewed as low priority within the Highways Agency and DfT. It also makes it difficult, if not impossible, for their findings to be taken into account in the development of policy on road schemes.

These and other findings were highlighted in work published by the DfT on evaluation. In 2005, the DfT published a major study by Oxera in conjunction with Mott McDonald, Social Research Associates, Tavistock Institute and the Transport Studies Unit at Oxford University which looked at '*How should the ex post evaluation of trunk road schemes be enhanced?*'. The work was overseen by a steering group comprising representatives of the Highways Agency and the DfT.

The Oxera report was fairly narrow in focus – concentrating on consideration of the POPE process *per se*, with less comment on its implications for wider policy. Nevertheless, its findings are useful. Following consideration of over 300 transport evaluations and six detailed case studies, Oxera *et al* concluded the following:

- there is unmet demand for evaluation evidence from a wide range of potential customers;
- there are important issues that evaluations currently do not cover – the greatest demand is for evidence on landscape, severance, local air quality and reliability impacts, as well as on the processes involved in delivering schemes;
- there is no mechanism for drawing together and addressing different interests and the dissemination of findings is ineffective; and
- it would be feasible to address the demand for wider evaluation evidence – the DfT/Highways Agency can learn from other transport evaluations, both in the UK and internationally, that have covered a wider range of issues, and proved more effective.

The recommendations were that the POPE framework should be retained, but further enhanced. The report recognised the strength of POPE methodology in capturing and recording pre-implementation data, which was not previously collected systematically. In future, it was suggested that POPE should cover a wider range of issues while allowing individual evaluation to be more flexibly tailored to address key information needs. It was argued that the benefits of additional evaluation would exceed additional costs.

The findings of Oxera’s work are clearly relevant to this research project. Nevertheless their study did not go beyond examining the available transport evaluations to look at road schemes themselves, and the reality of their post-construction impacts. In the next section of this report, we outline our case study research, and through the findings arising from this work, aim to build on the work of Oxera and others.

## **Part 2: The Case Study Research**

### **2.1 Case study research and methodology**

Initially a case study long list of 11 road schemes was prepared drawing on the research team's own knowledge of recent road development, and also through suggestions solicited via the Transport Activists' Roundtable network.

From this list, three road schemes were selected for detailed study based on the availability of official pre- and post-construction monitoring data; the relevance of the case study to the three particular issues being studied (traffic generation, landscape impact and pressure for development); and ensuring that sufficient time had passed since construction to allow for post-scheme land use changes to have occurred.

Ideally this report would have also included consideration of a local authority road in the case study research. However, it was found extremely difficult to identify suitable local authority schemes for which robust evaluation information was available and which had been constructed for a sufficient period of time to demonstrate some of the after-effects of their construction. Nevertheless, the findings relating to trunk road schemes are likely to offer important lessons for other road schemes.

The road schemes selected for study were:

- A27 Polegate Bypass;
- A34 Newbury Bypass; and
- M65 Blackburn Southern Bypass.

Full case study write-ups are included in Annexes 2 – 4. In the following paragraphs we summarise the key characteristics of the roads and draw out the lessons resulting from the case studies.

**Table 1: Case study summary**

	<b>A27 Polegate Bypass</b>	<b>A34 Newbury Bypass</b>	<b>M65 Blackburn Southern Bypass</b>
<b>Date of opening</b>	2002	1998	1997
<b>Length</b>	2.8 km	13.5 km	21 km
<b>Nature of scheme</b>	<ul style="list-style-type: none"> <li>• Strategic trunk road improvement</li> <li>• Bypass</li> </ul>	<ul style="list-style-type: none"> <li>• Strategic trunk road improvement</li> <li>• Bypass</li> </ul>	<ul style="list-style-type: none"> <li>• Strategic trunk road improvement</li> <li>• Bypass</li> </ul>
<b>Main objections at time of inquiry</b>	<ul style="list-style-type: none"> <li>• Landscape damage by junctions/ roundabouts</li> <li>• Loss of land to development</li> </ul>	<ul style="list-style-type: none"> <li>• Damage to landscape, ecology and archaeology</li> <li>• Loss of land to development</li> </ul>	<ul style="list-style-type: none"> <li>• Damage to landscape and ecology</li> </ul>
<b>Main case study findings</b>	<ul style="list-style-type: none"> <li>• 76% total traffic increase in the Polegate corridor one year after opening – of which up to 27% may be generated traffic</li> <li>• Casualties across the area increased</li> <li>• Major development planned in wake of bypass</li> <li>• Cophall Roundabout remains intrusive in the landscape</li> </ul>	<ul style="list-style-type: none"> <li>• A34 traffic growth far above both predictions and national average</li> <li>• Peak-time congestion in town back to original levels</li> <li>• Traffic relief to old road is being eroded by development-generated traffic</li> <li>• Development towards bypass so far less than feared, but growing pressure for more</li> <li>• Landscape impacts as bad as predicted</li> <li>• Noise impacts worse and more widespread than predicted</li> </ul>	<ul style="list-style-type: none"> <li>• M65 traffic in excess of predictions leading to pressure for road widening</li> <li>• Traffic generation by developments omitted from appraisal process</li> <li>• Landscape impacts of developments omitted from appraisal process</li> <li>• Noise impacts extend much wider than the appraisal</li> <li>• Destruction of rural landscape at Stanworth Valley</li> </ul>

In each case study, a range of source documents was examined including: Environmental Statements, NATA appraisals, submissions to public inquiries, Local Development Plans, LTPs, data available through the Highways Agency TRADS2 database, and post-construction evaluation reports where available. Case study visits were undertaken during December 2005 and January 2006 and supported by telephone and written enquiries.

The aims of the case studies were twofold. First, to examine whether the actual impact of the road schemes in question – in terms of traffic flows, landscape and development impacts – was as anticipated at the time that planning consent was granted. Secondly, the case studies aimed to throw light on how well the post-opening evaluation process was working in practice. A review of a further ten POPE One-Year After studies was also carried out to enhance understanding of the second point. This is discussed further in Section 2.5.

In analysing the case studies we sought to answer the following questions:

- How do actual **traffic flows** compare to pre-scheme predictions? How are these flows justified/described in the post-scheme evaluation?
- What **land use and development** changes have taken place along the line of the road? Were these foreseen (i.e. identified in Local Plans in advance of scheme development)? Is there evidence that land has been released for development as a result of the road scheme? Has this resulted in other suitable development land being underused (e.g. brownfield land)? Are any new developments giving rise to additional traffic pressure which is in turn leading to demand for further increases in capacity?
- Were the **landscape** impacts adequately captured by the appraisal processes? Have any mitigation measures (i.e. landscaping, tree planting) succeeded in reducing the landscape impact over time? Have unforeseen landscape issues arisen (e.g. damage to local landscape character, noise intrusion)?
- What were the original grounds on which **the scheme was justified?** (e.g. road safety, economic regeneration, reducing congestion, reducing community severance etc). To what extent have the stated benefits that justified the original scheme been achieved?
- Does the **post-scheme evaluation** go through each of the original grounds for building the road and assess whether the forecast benefits have been achieved? Do the conclusions appear to be robust? What aspects of the schemes' impacts have not been adequately captured by POPE?

## **2.2 Case study 1: The A27 Polegate Bypass**

### **2.2.1 Introduction**

Polegate Bypass is 2.8 km of dual carriageway which routes the A27 to the north of the small Sussex town of Polegate near Eastbourne. It opened in 2002.

The scheme was promoted on the basis that it was part of the strategic Folkestone to Honiton trunk road, that it would relieve the local Polegate community from through traffic, and that it would facilitate regeneration in East Sussex.

The landscape is gently undulating farmland with the Pevensey Levels to the east, Sussex Weald further to the north and the South Downs to the south. The road did not pass through sites designated for their landscape or ecological value and was not the subject of intense environmental opposition at the time of construction, though particular local concerns about the impact of the major Cophall Roundabout were raised.

### **2.2.2 Status of Post Opening Project Evaluation**

The One-Year After study for the Polegate Bypass was due to be prepared in June 2003. A draft was prepared by January 2004, but has yet to be published two years later. Nevertheless, a draft of the One-Year After study for Polegate was made available for this study. Analysis of the study, led us to the following conclusions:

- There appears to be signs of induced traffic on the route, with a 76% total increase in traffic in the Polegate corridor (represented by the A27 and B2247 'old' route) in the one year after opening. After possible local reallocation has been accounted for, traffic growth still appears to be in the region of 27% in the one year after opening. [12] This is not discussed as part of the evaluation;
- Whilst significant, the expected reduction in town centre traffic was not as large as forecast, and traffic levels there have increased from 2003 to 2005;
- The expected reductions in casualties have not been delivered. A saving of 18 casualties per year was predicted whereas an increase of eight per year was observed. The total number of casualties in the area has increased, and the casualty rate along routes including the 'old' A27 has also increased (though not on all roads in the area);
- The economic evaluation of the scheme was recalculated using two different methodologies. The first re-evaluation – using the POPE methodology – estimated that the time and casualty benefits of the scheme had increased from the predicted £29.63m to £79m. But the One-Year After study concludes that this approach is unreliable. The second re-evaluation using a full COBA assessment shows outturn benefits of £22.85m which is very similar to that forecast at £22.23m, suggesting that the scheme has largely delivered the economic benefits (as defined by COBA) expected;

- The discussion of severance and accessibility in the evaluation refers to reductions in town centre traffic levels as a proxy for concluding that a positive benefit has been delivered in terms of reducing severance and improving accessibility;
- POPE One-Year After studies are not required to examine landscape, biodiversity, heritage and water issues. However, they do comment on the likely impacts on noise and local air pollution. In particular, the One-Year After report for Polegate states that the main premise for the benefits claimed in the AST was that more properties in Polegate would experience improved air quality and noise reduction following reduced town centre traffic levels. The EST concludes that this is likely to have occurred as traffic levels in the town centre were reduced by 62% in 2003. Nevertheless, this approach ignores possible increases in noise intrusion faced by properties on the edge of town near the bypass, which have been affected by traffic levels higher than forecast. There was anecdotal reporting of this problem during the case study visit to Polegate, and it deserves more careful analysis in the One-Year After study.

### 2.2.3 Findings from the Polegate Bypass case study

In addition to the conclusions drawn from the Highways Agency's draft One-Year After study, on-site research and detailed examination of background documents as part of the case study research enabled further conclusions to be drawn. In particular:

#### *Traffic*

- Traffic growth on the Polegate Bypass and on the contiguous A22 New Road has been higher than forecast and is likely to exceed the volume forecast for the design year [13] of 2010 in the next year or so.
- The predicted strategic traffic benefits of the bypass have largely not been realised. The South Coast Corridor Multi-Modal Study (MMS) showed that *'the average car journey is less than 25 km and very little interaction occurs between towns more than 50 km apart'*. [14] In response, other proposed neighbouring trunk road schemes to the east and west of Polegate have been abandoned for the time being, though local pressure for their construction continues.
- There is evidence to suggest that people are now bypassing Polegate and accessing Eastbourne for shopping trips. This may be contributing to the difficult economic problems facing Polegate retailers, with a number of shop closures since the bypass opened. The Town Centre Health Check programme is now pushing for signs to be installed on the bypass encouraging shoppers to drive back into the town.
- The traffic levels on the old A27 through Polegate have increased slightly (9%) in recent years, suggesting that the bypass has been partly successful in helping to relieve town centre traffic congestion but that care is needed to avoid traffic levels creeping back up. Residents continue to report problems of severance, and noise pollution is reported by residents living on the bypass-side of the town.

- Wealden District's revised Plan makes provision for 850 new houses, with new land to the west of the bypass and north of the A22 allocated for 600 houses. The local council and Highways Agency have stated that this development should only go ahead when further trunk road improvements can be delivered – creating further pressure for road construction.
- It is too early to conclude whether the landscape planting along the bypass will enable it to blend in with the surrounding countryside. [15] Nevertheless, the very large Cophall Roundabout (elevated and with grade-separated junctions) has a significant impact on the landscape to the north of the town. The scale of the roundabout appears over-engineered for the roads it serves and it lacks landscaping to soften the impact.
- A major roadside service area has now received planning permission and is under construction adjacent to the Cophall Roundabout. This will include a number of services, including a family pub/restaurant and convenience shop which may further impact on town centre businesses. This is a very large development located in open countryside which is likely to have a major urbanising impact on the landscape and further compound the visual intrusion created by the size of the Cophall Roundabout.
- The site for the proposed Polegate Business Park has been selected on land bordered by the old A27 and the new bypass. This will further erode the rural environs of the town. Its development is said to be dependent on further trunk road improvements in future. The need for such a business park is in doubt as there are several other available sites in the Eastbourne area.
- Too little significance has been given to the role of planned development driving trunk road improvements in the Polegate area. Although pressure for housing, commercial and business development did not feature in the justification of the scheme at public inquiry, they have subsequently taken on central importance in providing the case for further road expansion. At the same time, the evaluation processes are not adequately assessing what impact recent and planned development is having (or will have) on traffic growth in the area.

## **2.3 Case study 2: The A34 Newbury Bypass**

### **2.3.1 Introduction**

Newbury Bypass is 13.5 km of dual carriageway which routes the A34 to the west of the large Berkshire town of Newbury. It opened in 1998. The scheme was promoted on the basis that Newbury was the congestion hotspot for trunk road traffic travelling on the A34 between the Midlands and the south coast ports, and that the town would be relieved of the impact of through traffic.

The landscape is rolling chalk downland including the picturesque Kennet Valley. The route included sites designated as of landscape and ecological value, as well as severing famous archaeological sites. It became a cause célèbre for direct action resistance.

### **2.3.2 Status of Post Opening Project Evaluation**

Eight years after opening, a Five-Year POPE study of the Newbury Bypass has been completed by Atkins for the Highways Agency but is yet to be released, and has not been made available to the authors of this study.

At the behest of West Berkshire Council, Atkins has recently completed a further substantial study to assess the continuing congestion in the town. The results of this study were made available and helped inform the case study.

### **2.3.3 Findings from the Newbury Bypass case study**

- Traffic growth on the bypass, for reasons other than underlying national traffic growth, has vastly exceeded the Highways Agency's 1995 worst case estimate that there would be no more than 10% induced traffic. The Highways Agency prediction based on low National Road Traffic Forecasts has already been exceeded by 46% (13,800 additional vehicles per day – vpd), six years before the 2010 estimation date. [16]
- Since the bypass was constructed HGV traffic growth on the A34 corridor has grown nearly four times as fast as the national average.
- The present traffic level on the old road past the centre of Newbury is already approaching the 2010 prediction and on current trend will much exceed it by 2010.
- Although the bypass has reduced traffic in general on the original road, traffic at the morning peak on the old road has nearly returned to pre-bypass levels.

- The only alterations actually implemented on the original road have been such as to tend to encourage more traffic. Moreover it appears that the newly available road space has partly been used to access new developments.
- The bypass diverted much HGV traffic but the old road still experiences high levels of HGVs, at least in part because of new industrial and business sites close to Newbury accessed via the old road.
- Development between Newbury and the bypass has not, so far, been on the scale that the anti-bypass campaign feared. Smaller housing developments in this area have been built or zoned in the Local Plan. There is considerable pressure for at least one much larger development and in the context of Government figures for housing requirements in this area it would seem naïve to expect that the local council will be able to resist such proposals forever.
- Developments around services at junctions on the bypass itself at Tot Hill and further north at Chieveley M4 junction have encroached into the North Wessex Downs AONB and provide worrying precedents for future development in these locations.
- The bypass has enabled edge-of-town development on the old road, most notably Vodafone's HQ. It also appears to have aided further development of industrial and business parks accessed via the old road. These will have generated traffic on the old road which was not allowed for in the scheme appraisal.
- The Advisory Committee on the Landscape Assessment of Trunk Roads strongly objected to the bypass, but nevertheless the road went ahead.
- A recent landscape assessment of the bypass concluded that the severance of landscape and visual continuity in the Kennet Valley were as expected – i.e. as severe as officially predicted. The impact on the North Wessex Downs AONB was assessed as worse than expected, with potential for further damage as a result of future development around the Chieveley M4 intersection. Mitigation measures to reduce some of the adverse impacts on landscape have, however, been fairly successful.
- The bypass itself is unlit, in accordance with the Landscape Advisory Committee's advice that the countryside hereabouts was very sensitive to light pollution. However, the lighting at roundabouts, services and associated high bridges over the bypass have created sources of light pollution.
- The official assessment of noise impacts of the road gave very little weight to its impact across a broad zone of countryside, an impact worse than forecast because of much higher than predicted traffic levels and the very high growth in HGV traffic on the bypass.

## **2.4 Case study 3: The M65 Blackburn Southern Bypass**

### **2.4.1 Introduction**

Blackburn Southern Bypass is 21 km of mainly dual carriageway motorway which routes the M65 south of the large Lancashire town of Blackburn. It opened in 1997.

The scheme was promoted on the basis that it was necessary for regeneration of Blackburn and other former mill towns in the Calder Valley, that it would relieve traffic on the existing road network and thereby reduce accidents.

To the west, the landscape is rolling farmland which changes near Blackburn into Pennine landscapes with moorland on the tops and a string of towns along the Calder Valley. The route passed through designated landscape areas and Green Belt. There was direct action against the construction where the road severed Cuerden Valley Park and where mature woodland was felled for the road to cross the Stanworth Valley.

### **2.4.2 Status of Post Opening Project Evaluation**

The project pre-dates inception of the POPE processes. No PIES exists either.

### **2.4.3 Findings from the M65 Blackburn Southern Bypass case study**

- The predicted maximum design year flow on the M65 has been exceeded six years ahead of the design year 2010.
- Peak flow congestion is now a problem at some junctions, particularly Junction 6 where there is a queue of vehicles in the inside lane waiting to exit during morning rush hour.
- Local councils now regard widening of the M65 as essential to further industrial development. Blackburn with Darwen Borough Council call for widening between junctions 5 and 6 in their second Local Transport Plan in order to facilitate the expansion of the Whitebirk site into a strategic regional investment location. This is supported by the North West Development Agency and promoted through the Draft NW Regional Spatial Strategy.
- Traffic reduction on the original trunk road was, at least initially, similar to predictions. However, other roads in and out of the Blackburn area now experience congestion hotspots due to traffic generation by new employment sites at car-dependent locations alongside the motorway. This traffic generation was not taken into account by traffic modelling for the scheme.
- Construction of the motorway itself and associated junctions destroyed Green Belt and areas of Special Landscape Value, as predicted in the Environmental

Statement. Subsequent erosion of Green Belt for industrial development has been significant and greater development into the Green Belt is forecast. Such development was omitted from the Environmental Statement.

- Mitigation measures to reduce visual impacts at Cuerden Valley Park have been comparatively successful.
- The viaduct across Stanworth Valley is extremely visually intrusive and the Environmental Statement gave no consideration to the need for a sensitive design at this location. Littering from the viaduct, also unforeseen by the Environmental Statement, visually pollutes previously clean country woodland.
- Views from the moorland south of Blackburn are strongly affected by the large industrial sheds that have been built on sites adjacent to the motorway. This impact was omitted from the Environmental Statement even though it was foreseeable.
- Cuerden Valley Park, especially at the northern end, experiences a constant background of motorway noise, but this would have been the case to some degree even without the M65 due to the proximity of the M6.
- Although the M65 itself is largely unlit, the industrial developments adjacent to the motorway are a source of light pollution.
- The noise of the road is noticeable even on the moors to the south. This is far outside the range considered by the Environmental Statement.

## **2.5 The wider review of ten POPE One-Year After studies**

In addition to the detailed case studies, the study team reviewed the POPE One-Year After studies which were made available for the following schemes:

- A6 Clapham Bypass;
- A5 Nesscliffe Bypass;
- A66 Stainburn and Great Clifton Bypass;
- A500 Basford, Hough and Shavington Bypass;
- A1033 Hedon Road;
- A6 Rushden and Higham Ferrers Bypass;
- A41 Aston Clinton Bypass;
- A6 Great Glen Bypass;
- A43 Silverstone and Syresham Bypasses; and
- A46 Newark to Lincoln Improvement

These studies constitute ten of the 12 One-Year After studies that have been produced so far. In the absence of the publication of the Newbury Five-Year After Study, they represent most of the available POPE literature to date.

The purpose of the review was to gain an overview of the evaluation experience in terms of traffic and environmental impacts, and to look for parallel experiences and differences between schemes in the evaluation process.

The review highlighted a number of issues, including:

- traffic growth;
- carbon dioxide emissions;
- environmental impacts, including landscape and noise;
- safety;
- economic impact;
- accessibility; and
- integration and land use impacts.

These issues are discussed further below.

### 2.5.1 Traffic growth

Of the reports examined, most do not examine whether the new road may have generated new traffic. Yet in several cases, careful scrutiny of the traffic flow data suggests that traffic growth after the scheme opened has been significantly higher than growth on other nearby road corridors or national traffic growth. This is consistent with the findings from the case studies discussed above.

The POPEs do not on the whole comment on whether this above-trend traffic growth was anticipated from the outset, but it would seem likely from our experience of the case studies that it was not. Nor do the POPEs generally investigate the possible reasons for this growth, and in particular how much of it is due to re-routing of traffic from other roads, as opposed to new or longer car or lorry trips. Where no account is taken of any extra traffic that has been generated as a result of the increase in road capacity, it becomes impossible to evaluate the actual effect of the scheme on CO<sub>2</sub> emissions. This is discussed further below.

The Highways Agency rightly comments [17] that it makes no effort to ‘hide’ ‘before’ and ‘after’ traffic data. It is clear from the plans and figures given in the studies what the sum of the traffic flow on the old road and the new is and it can be compared with the flow through the village before the scheme was opened. While this is true, it is surprising that the Agency does not go further in the studies in drawing out such conclusions and analysing the issue of induced traffic as it is of central importance to future decisions on road building, climate change and sustainable development.

By contrast, the reports that deal with bypasses of existing settlements set out clearly what the effect of the new road has been on the traffic volume in the bypassed village or villages in comparison with the ‘before’ situation. Generally, there have been substantial reductions in traffic through the villages concerned, although these are not always as large as predicted and in some cases are disappointing. For example, traffic flows on the ‘old’ A6 through the Rushden and Higham Ferrers have only reduced by 16% (from 21,700 (vpd) to 18,100 vpd) and 46% (from 15,000 vpd to 7,940 vpd) respectively. [18] This is in contrast to forecast predictions in the AST of 20% reductions in Rushden and 78% reductions in Higham Ferrers.

Below we summarise the evidence of above-trend traffic growth in four POPE studies.

The evaluation of the A1033 Hedon Road scheme does explicitly consider traffic generation. The study comments that at the eastern end of the scheme, the total ‘after’ traffic flow on the new and old roads is 20% higher than ‘before’ flows on the old road.[19] At the congested western end of the scheme, where it might be expected that there would be less potential for traffic generation, the ‘after’ traffic flow is 6% higher than the ‘before’ figure. Flows measured on two roads leading off north from Hedon Road have risen 10% and 14%, suggesting surrounding roads now also experience greater traffic. On one road, the A165 Holderness Road, which is a radial route to the

north east, there have been small falls in traffic, suggesting some trip diversion, but the POPE report does not indicate that trip diversion alone is sufficient to account for the growth in traffic on the A1033. Background traffic growth during the period, assessed from count sites unlikely to have been affected by the scheme, was on average 6%. The report comments that where traffic growth, on or near, the A1033 is greater than this, it *'can be taken to reflect additional traffic induced by the road improvement'*.

On the A6 Clapham Bypass, it appears from the data in the POPE report that combined traffic flows on the old road and the new bypass one year after opening were some 18% higher than the volume of traffic on the old road immediately prior to opening of the bypass (the increase is from 22,700 vpd to 26,700 vpd). [20] None of this increase should be attributed to external factors, as the figures have been adjusted to a May 2004 baseline to allow for national traffic growth, and adjustments for seasonal variation have also been made. The POPE report does acknowledge that there has been 'above trend' traffic growth on the bypass itself, with flows increasing from 17,100 vpd immediately after the bypass opened to 18,400 vpd one year later (an increase of 9%), and attributes this increase to *'new trips and re-assigned traffic'*, but no evidence is offered as to the extent of re-assignment from nearby roads. There is no comparison with traffic growth on other corridors in the region, and no explanation in the text of the rapid increase in traffic shown by the 'before' and 'after' data.

On the A5 Nesscliffe Bypass, it appears that 'after' traffic on the bypass and the old road one year after opening is some 7% higher than 'before' flows on the old road, even after adjustments have been made for underlying traffic growth and seasonal effects. [21] Other traffic data presented in the report suggests that the increase may be even higher than this, and possibly as high as 25% (from 16,500 vpd 'before' to 20,700 vpd on the old road and the bypass). Again, there is no explanation or discussion of these above-trend increases in traffic.

On the A66 Stainburn and Great Clifton Bypass, there is again no clear consideration of whether net new traffic has been generated. [22] 'Before' traffic flows on the old road averaged 10,400 vpd and 'after' (in this case two years after, rather than one year after) flows on the old road and the bypass were around 14,000 vpd. This suggests a traffic increase of around 35%. The report mentions that the County Council has adopted a new routing strategy in the vicinity of the bypass, and this may be a possible explanation for some of the traffic increase, but no evidence of traffic reductions on other roads is presented to enable an assessment of the likely contribution made by the new routing strategy.

Consideration of these schemes does not necessarily mean that the 'extra' traffic seen is all induced traffic. Indeed, the Highways Agency comment on these schemes was that the traffic analysis was 'inconclusive' on this issue. In addition, the Agency notes that POPE has not been asked specifically to quantify the level of generated traffic as this would necessitate traffic counts on all roads in the area and on all potential strategic alternatives to ensure that all re-assignments are considered. [23]

**Nevertheless, in view of the fact that many of the schemes reviewed have demonstrated significant increases in traffic volumes (in the range of about 10-35%, within a period of one to two years after opening), there would seem a strong case to consider the issue of induced traffic in more detail in future evaluations.**

### **2.5.2 Carbon dioxide emissions**

The original ASTs for the schemes are usually reproduced in the POPE One-Year After reports. These include an estimate of how much additional CO<sub>2</sub> is likely to be generated as a result of the construction of the road, although in some cases no figure is given. Where an estimate has been provided in the AST, it is identical at 0-2000 tonnes – regardless, it seems, of the length of road in question.

The POPE One-Year After reports do not include any attempt to evaluate whether the original CO<sub>2</sub> impact from the AST is accurate. Rather, this element of the EST is generally left blank. Given that so many of the schemes appear to have generated substantial increases in traffic, and given the increasing concern at the impact of climate change and the need for CO<sub>2</sub> emissions from the transport sector to be reduced, it would clearly be desirable to assess how much additional CO<sub>2</sub> has been generated as a result of these roads, on a year by year basis.

We also suggest that there is a need for a cumulative assessment to be made of how much CO<sub>2</sub> is being generated by the entire trunk roads programme, based on annual ‘after’ data of the type collected through the POPE work. The Government’s recently updated Climate Change Strategy asserts that road improvements have a small impact on CO<sub>2</sub> emissions, [24] but so far as we are aware this view is not informed by empirical analysis of data from road schemes. Such analysis could be provided through improved evaluation methods.

At present, it is not clear whether the additional CO<sub>2</sub> generated by induced traffic over, say, a 10 – 20 year timescale is large or small compared to the additional CO<sub>2</sub> generated by underlying traffic growth, but it is clearly important to understand this. This should help inform the DfT’s assessment of progress in meeting its joint Public Service Agreement target to reduce CO<sub>2</sub> emissions by 12.5% below 1990 levels and in moving to a 20% reduction in CO<sub>2</sub> emissions by 2010 (shared with the DEFRA and the DTI).

### **2.5.3 Environmental impacts, including landscape and noise**

So far, only three of the 12 POPE One-Year After studies which have been completed have included assessment of the environmental impacts of the schemes. Of the POPE studies considered in this review, two included an assessment of environmental impacts, using what is described as POPE-E methodology.

We understand that the Highways Agency intends to extend the environmental evaluation of schemes in future. This is likely to adopt a more flexible, case by case approach to

establishing which issues to monitor in the light of Oxera's recommendations. We strongly recommend that this should be the case, while also identifying the need to continue to gather information on a core range of issues to allow for comparison across schemes in future.

Two schemes where an evaluation of the environmental impact has taken place were the A5 Nesscliffe Bypass and the A1033 Hedon Road scheme. The following specific points arise from these evaluations:

- On *noise*, the evaluation of the A1033 Hedon Road scheme seems acceptable. However, the evaluation of the impact of the A5 Nesscliffe Bypass is problematic in that it concentrates exclusively on the effect of the new road in the bypassed village, and makes no mention of the noise impact of the bypass. Clearly, in rural areas the increased noise resulting from a new high-speed road may be substantial, and may have a significant adverse impact on the amenity of the surrounding countryside for walkers, cyclists, horse-riders and other users, as well as impacting on landscape character. It would be desirable for the evaluation report to include actual measurement of noise in the area around the bypass, ideally by means of a map of decibel 'contours'. This should be overlaid with a map of footpaths, bridleways, open access land, viewpoints, and other key receptors, so that a judgment can be made of the degree of intrusiveness of noise from the new road.
- Evaluation of the *landscape* impacts of the road schemes is by means of a site visit. It would be desirable for the Countryside Agency, and other relevant organisations such as AONB units, to become engaged with the evaluation process where appropriate.
- It appears that the terms of the POPE-E methodology preclude consultation with anyone other than the four statutory environmental bodies. For example, the A1033 Hedon Road report states that the four statutory agencies were contacted for their comments on the scheme, but all apart from the Environment Agency were unable to comment. It goes on to say that: '*English Nature, while not offering any comments, did suggest contacting the Hull City Council Ecologist. This was not done because the POPE-E Methodology currently only permits consultation with the stipulated environmental statutory bodies.*'

#### **2.5.4 Safety**

All the One-Year After studies include an evaluation of the safety effects of the scheme. This focuses on a comparison of casualty data before and after scheme construction. The studies acknowledge that it is difficult to make a definitive evaluation of the effect on casualty numbers in the One-Year After study, because casualty numbers may vary substantially from one year to the next, and insufficient data is available to derive a three-year average of casualty numbers after the scheme has opened.

As new roads are generally built to higher design speeds, it is possible that the effect of a road scheme may be to reduce the absolute number of casualties, but to lead to more

severe casualties than was the case before. In addition, the overall sense of road danger may increase. For example, a bypass that removes traffic from a village may result in a fall in the number of injuries (because there is less conflict between relatively low speed traffic and pedestrians), but an increase in the number of serious injuries or fatalities (because speeds on the new road are higher). It is therefore important that the evaluation includes a breakdown of casualties by severity (fatality, serious injury, slight injury). This was done in some but not all of the evaluation reports.

Further, we suggest that the evaluation should provide a breakdown of 'before' and 'after' casualties by location, type of road user (pedestrian, cyclist, driver etc) and causation factors. This would enable a more meaningful evaluation of the safety impact of a road scheme than is possible from the data currently presented in the POPE reports.

### **2.5.5 Economic impact**

All of the One-Year After studies include an evaluation of the economic benefits of the scheme. Indeed, this is generally the main focus of the report.

The Highways Agency has suggested that the One-Year After studies focus on economic benefits and casualty data because this is the data most readily available to the Highways Agency, which they routinely collect. [25] The analysis concentrates mainly on a recalculation of the theoretical economic benefit of the scheme, as indicated by drivers' time savings and casualty savings, using actual (measured) journey time savings or traffic flows and casualty figures, as opposed to the figures predicted prior to scheme construction. Two methods are used: a re-calculation using COBA methodology and a simplified POPE methodology.

In some cases, these calculations demonstrate that the time savings and casualty savings predicted before scheme construction have proved to be accurate. However, there are some notable exceptions which serve to illustrate the problems of an approach based on aggregating the relatively small time savings made by many thousands of drivers as a proxy for the national economic benefit of a road scheme.

For example, in the case of the A43 Silverstone and Syresham Bypass, the actual traffic flows recorded one year after opening exceeded those forecast by 60% at Silverstone and 77% Syresham. [26] The One-Year After Study does not make any comment whether the original underestimate is a problem. Rather, it uses the additional traffic volumes in recalculating the COBA for the bypass. As the study says: *'When the actual traffic volumes are inserted into the assessment, the benefits increase substantially to around £37m for Low Growth (a 70% increase) and £53.5m for High Growth, which represents a 33% increase'*. [27]

It goes on to explain that *'the inclusion of actual traffic volumes and journey times significantly increases the level of economic benefits accruing for these related improvements. The most important factor in this increase is the level of traffic growth in the corridor, which has been larger than predicted, thus the expected time savings are accruing to a greater level of traffic volumes'* [our emphasis].

We have not been able to study exactly how these transport 'economic benefits' have been calculated, however it seems likely that there are three causes of error in the calculation which are likely to reduce the 'economic benefits' substantially:

1. the time and operating cost benefits are normally calculated as a difference between the time and costs in the do-minimum situation (the predicted future without the scheme) and the with-scheme situation. It appears as if the new actual post-implementation traffic volumes, including any induced traffic from the scheme, has now been included in this do-minimum – this will artificially increase the congestion and time costs and so the with-scheme situation would have more congestion relief and time saving benefits than would actually be the case;
2. from post-scheme traffic count data there is no knowing exactly where the additional induced traffic is travelling from and to. Much of the extra traffic could be travelling considerable extra distances in order to make use of the improved road. It will not have the same origins and destinations as the original traffic so assuming (as is probably the case) that the economic benefits are calculated on the basis of the pre-implementation trip matrix or pattern could substantially inflate the calculated benefits; and
3. a common criticism of the COBA performed to justify schemes is that any extra traffic generated by the scheme could create extra congestion outside the study area used in the assessment (and indeed post-implementation evaluation). For example comment was made in Section 2.4.3 above, that there is extra congestion at Junction 6 on the M65; the extra flows generated in Blackburn town from the extra traffic would cause significant extra congestion costs throughout the town not just in the immediate vicinity of the M65.

Apart from these potential technical reasons why the post-implementation transport 'economic evaluations' may be flawed, it seems remarkable that a scheme which has attracted such high and unexpected levels of traffic growth should be judged 'a success' in economic terms. It seems clear that the original under-estimation in traffic flows will mean that the design capacity of the route is reached more quickly than anticipated at inquiry stage. Further, if the bypass is resulting in some journeys being made that were not made before, or longer journeys than would otherwise be made, is it legitimate that this new driver time is counted as a saving? **Leaving aside the wider argument as to whether aggregated drivers' time savings are a valid proxy for the national economic benefit of a road scheme, an approach which treats all traffic growth as economically beneficial seems to be fundamentally problematic.**

What also seems to be missing from this analysis is any sense of the ‘real life’ economic implications of such schemes. Instead, we believe that it would be more meaningful to assess the effect of a road scheme on the local and regional economy. The Government’s requirements for Economic Impact Reports for all major infrastructure projects takes us some way forward in terms of appraising schemes. The DfT has produced guidance on the preparation of these, indicating that they should measure the employment effects of transport schemes on regeneration areas. [28] Nevertheless, this wider focus has yet to impact on the way evaluations are being carried out.

### 2.5.6 Accessibility

The treatment of accessibility in the One-Year After studies is disappointingly brief. Where ASTs have highlighted the benefits of a new road scheme in improving accessibility, we believe these should be evaluated in the One-Year After study.

ASTs sub-divide the accessibility criterion into three sub-criteria: effects on public transport; effects on severance; and effects on ‘pedestrians and others’. The qualitative descriptions of likely effects are often general rather than specific. For example, the AST for the A6 Clapham Bypass describes the accessibility benefits of the scheme as reducing peak journey times of existing local bus services; reducing severance by removing 80% of traffic from the village; and improving accessibility for residents to local services.

The One-Year After evaluation of the A6 Clapham Bypass points out that the actual reduction in traffic through the village was less than forecast, and that the severance relief is thus likely to be less than anticipated. However, it does not make any evaluation of whether peak journey times for local bus services have improved, nor of whether accessibility for residents to local services has increased.

Similarly, Oxera’s work, which included a case study on the A27 Polegate Bypass, was critical in how severance issues were handled in the draft One-Year After study for that scheme. Their work recommended that:

*‘This [severance] is an important area for further investigation as current severance appraisal is based on a direct relationship between the percentage change in traffic levels brought about by a scheme and the level of severance experienced or relief of severance. The study team’s first proposed approach could be used in the first instance and this would identify whether the mitigation measures agreed at the public inquiry and reported in the inspector’s report have been implemented. It would also identify changes in occupancy of local businesses, possibly any visible local downturn indicated by the number of vacant premises or premises closing down, and changes in location of any community facility, which may also affect travel patterns’. [29]*

Too often, it seems that lower traffic levels in town centres are taken as a proxy for improved accessibility and reduced severance without reporting on further examinations. For example, the AST for the A6 Great Glen Bypass suggested that the scheme would result in, *‘large benefits to severance and ‘pedestrian modes’ forecast by statement of*

*removal of 80% of traffic from the London Road in Great Glen*'. [30] The POPE One-Year After Study concludes simply that:

*'Outturn traffic volumes one year after opening suggest that traffic volumes are much reduced: south of the station road junction, traffic is down by 92% and north of the junction, it is down by 72%, again suggesting that the accessibility benefits outlined in the AST are fair. The reduction in traffic volume in the village should also have reduced access time for local bus services'*. [31]

It should be noted that even if bus services may be speeded up because of less traffic congestion in the town centre, the other effect of the improved new road is to encourage more car dependency. This in turn, could be likely to result in fewer passengers, higher fares and reduced frequency of services. These knock-on effects have not been thought through in evaluations.

We believe that POPE should treat the issue of accessibility more carefully. It is not sufficient to conclude that reduced traffic levels necessarily equate with improved accessibility. The post-scheme evaluation should go beyond simply commenting on the extremely brief summaries of predicted effects in the AST, and instead should consider afresh, the *actual* effect of the scheme on accessibility. If POPE reports were to pay greater attention to accessibility effects, it would encourage future scheme promoters to be more specific in their entries under the accessibility criteria in the AST.

The issues which it might be appropriate to consider in evaluating the accessibility impact of a scheme would include:

- Has there been a change in the number of buses serving the area (for example, because shorter journey times and reduced congestion has enabled operators to run more services at the same cost)?
- Have bus services become more reliable, or have journeys become quicker?
- Has it become easier and safer to cross the road in a village which has been bypassed?
- How many public rights of way have been made less direct, or have been obstructed, by the new road?
- What effect has the scheme had on the convenience with which pedestrians and cyclists are able to access key destinations, such as schools, parks or playgrounds, shops, health facilities and workplaces?

### **2.5.7 Integration and land use impacts**

The final criterion used in ASTs (and thereby the ESTs) is 'integration'. This is most often taken to mean compatibility with other regional or local policies, as expressed in Regional Spatial Strategies, Sub-Regional Strategies and Local Development Frameworks.

This is unsatisfactory as it fails to reflect the understanding of ‘integration’ as a multi-faceted concept, as expressed in the 1998 Transport White Paper, encompassing:

- integration within and between different types of transport;
- integration with the environment;
- integration with land use planning; and
- integration with other policies for education, health and wealth creation.

The approach taken in both appraisals and evaluations is simplistic. It appears that whenever a road scheme is included within the relevant development plan, this is considered a strong positive for integration. This completely ignores the fact that according to government guidance, such as that set out in Planning Policy Statement 12: *Local Development Frameworks* (2005), trunk road schemes are required to be included in Local Development Plans. [32] This is not a question of choice or good integrated planning – simply the reflection of a top-down decision-making process, whereby decisions on road schemes taken by the DfT are subsequently reflected in Local Development Plans.

For example, in the One-Year After Study for the A6 Great Glen Bypass, the AST denotes a positive assessment for integration in stating that the:

*‘Scheme is identified in the Leicestershire Structure Plan 1991 and in draft Harborough Local Plan’.*

In turn, the EST for this scheme simply repeats the positive score and states that: *‘the scheme is part of local plans’*. This superficial approach to appraising and evaluating the impacts of road schemes on transport integration severely undermines the usefulness and validity of the concept.

The One-Year After studies therefore do not appear to make any useful evaluation of integration. When they do touch on the issue of integration with land use, it is always to consider land use and development pressures as *an external factor* in the process. For example, the One-Year After Study for the Rushden and Higham Ferrers Bypass acknowledges that there has been an overall increase in traffic along the A6 corridor and says that *‘New housing and retail developments in the area will result in more vehicles observed in the centre of Rushden’*. The study, however, ignores any possible cause and effect between the road being built and the development following.

This oversight is of particular concern as the EST for the scheme gives a strong positive scoring for ‘integration’ in stating that;

*‘The building of the road will now help to facilitate the East of Wellingborough Development Area plan by improving the infrastructure available to more than 1780 homes and 56ha of land identified as potential ‘employment’ status’.*

At present, therefore, the evaluation (and appraisal) process seems to recognize that roads may be required to serve development, but fails to take any account of what this development will mean for the future functioning of the road.

In the One-Year After studies examined, only one came close to recognizing the dynamic interaction between land use and infrastructure. The *A46 Newark to Lincoln Improvement Scheme POPE One-Year After Study*, for example, includes discussion of the role of the road improvement in helping to ‘*stimulate the development of several ‘gateway’ sites*’. [33] It also recognises that:

*‘the scheme may counteract the efforts of Local Authorities for Self Containment and stabilisation of the local population by providing opportunities for commuting to/from areas further away’.*

Nevertheless, the EST for this scheme still awards a positive score to ‘integration’, based on the fact that the road serves several planned developments.

## **Part 3: Conclusions and Recommendations**

### **3.1 Conclusions**

At the beginning of this report we questioned whether new roads deliver the traffic relief and other benefits that their proponents promise. We also asked whether new roads can actually encourage extra traffic, create pressure for new development and damage the landscape. The evidence emerging from the case study and review research done here suggests that the answer to the latter question – in a significant number of circumstances – is yes.

This is perhaps not surprising, and accords with the message of caution about road building often expressed by environmental organisations like CPRE and the Countryside Agency. Nevertheless, in this case it is based on the real experience of what has happened in the wake of new road construction in a range of circumstances. What is surprising is that no feedback mechanism is in place to ensure that national and local transport policy is informed by real experience and evolves accordingly.

In terms of the three main areas of focus for the research – traffic flows; landscape impact; and development pressures – the following conclusions were drawn.

#### **3.1.1 Traffic flows**

The case studies and wider POPE review demonstrated that traffic growth on the new routes in question was higher than forecast, sometimes quite dramatically so. For example, in all three case studies the current traffic flows are near or already in excess of what was predicted for 2010. In towns with bypasses, such as Newbury and Polegate, the new roads did significantly reduce the town centre traffic levels. However, these reductions are not as great as originally forecast and there has subsequently been re-growth in traffic levels on the bypassed roads. The net effect in combination with the new road is generally a considerable overall increase in traffic.

While the Highways Agency says (rightly) that it does not hide information about above-forecast traffic growth, neither do the POPE studies effectively examine it. If new roads are systematically resulting in induced traffic, then this is an issue of wider relevance to roads policy. At present, however, these policy debates are not properly informed of the significance of this issue and the illusion remains that increased road capacity will somehow tackle the problems of congestion.

### 3.1.2 Landscape and noise

All three of the detailed case studies include elements which are damaging to the landscape and represent a permanent deterioration in its quality: including the impact of the A34 on the North Wessex Downs AONB; the large and highly visible A27/A22 Cophall Roundabout; and the domination of the Stanworth Valley by the M65 viaduct, made even worse by fly-tipping of rubbish off the bridge.

Development generated by the road may have as strong a visual impact on the landscape as the road itself (e.g. Blackburn industrial parks), but this impact is not taken into account in the appraisal of the road. Landscape issues are not considered at all in the POPE One-Year After studies, though they should be considered as part of the Five-Year After studies. Nevertheless, even without such evaluations, it is clear that road schemes – such as those considered in this report – can have a major, long-term impact on the landscape. Landscaping, design and tree planting can help mitigate negative impacts in some circumstances, but not in every case.

A questionable feature of the present appraisal process is that it scores a road scheme more highly if it is routed through attractive countryside and thereby provides a pleasant ‘view from the road’. The current edition of the *Design Manual for Roads and Bridges* also refers to ‘disbenefit which may arise where a road passes through heavily industrialised or other visually unattractive areas’. This appraisal methodology provides an unacceptable incentive to route schemes through open countryside.

Noise impacts are generally not considered beyond a narrow zone close to the road. For example, traffic on the M65 near Blackburn is audible as a continuous noise from the surrounding high moorlands some miles distant. The same is true of background noise in the Kennet Valley from the Newbury Bypass. In this instance, HGV traffic has grown sharply since construction of the scheme, with considerable noise impact across a broad zone as a result of the high speeds achieved on the bypass. The wider noise impacts are not considered in the appraisal or the evaluation process, yet noise has a major impact on the rural character of the countryside.

Further, the cumulative impacts of noise, road lighting associated with schemes, and visual intrusion of ‘man-made’ infrastructure can combine to reduce the remoteness and wildness of a landscape and its tranquillity. These complex and interacting factors are generally overlooked in the appraisal and evaluation processes.

### **3.1.3 Land use and development**

In all the case studies new development pressures have been associated with the road construction, though these issues are seldom considered at the appraisal or evaluation stage. Green Belt land has been de-designated for development following road construction (e.g. M65 Blackburn Southern Bypass) and other sites not previously considered suitable for housing on environmental grounds have been released following road improvements (e.g. at Polegate).

Development is often used as a justification for new road building (i.e. the new road will 'serve' the development of 400 new homes) and this is scored positively in terms of 'integration' (between land use and transport) in the AST and the EST. However, the road itself is seldom considered a factor in stimulating new development. As a result, traffic pressures arising from new development are generally considered to be an 'external factor' affecting the road – even though the road may have been built partly to serve development in the first place (e.g. M65 and A27).

Blackburn provides a particularly worrying example, because the out-of-town industrial parks that were part of the justification for the road have both filled up the motorway itself and generated congestion hotspots on roads the M65 was predicted to relieve. Now a further employment site, this time a strategic regional site, Whitebirk, is proposed in the draft North West Regional Spatial Strategy. The Blackburn with Darwen Borough Council's second Local Transport Plan flags up the need for widening the M65 in order to service this and other sites. Only now is the council considering how it can provide non-car-based travel options to these out-of-town sites, which lie far from the nodes of its existing public transport infrastructure.

### **3.1.4 The wider experience of road building**

The current POPE process does not re-examine schemes against their original objectives. If it was to do so, this research indicates that in many cases discrepancies between planned benefits and those actually delivered would become evident. In the absence of such analysis, there is continuing optimism that new roads will tackle a host of transport problems and, in most of the case studies, the pressure for further road building remains.

For example, at Polegate, the Wealden Local Plan [34] continues to state the need for road improvements to the west of Polegate along the A27 to serve planned development, despite the Secretary of State for Transport having called in 2003 for more environmentally sensitive solutions to be found. Too often the construction of a road scheme is seen as providing 'one piece in the jigsaw', with the assumption that the other pieces will follow. This emphasis shapes the local approach to tackling traffic and providing realistic alternative solutions to car transport. In addition, it shapes the local land use plans, which then become 'dependent' on the delivery of further road infrastructure.

At the same time, the inertia in the appraisal and decision-making processes for new roads appears incapable of stopping the momentum of a scheme once it has been in the roads programme for a number of years. Despite the introduction of NATA and reformed methods of considering induced traffic, routes do not appear to be looked at completely afresh in the appraisal process. Rather, new arguments are found to justify the same schemes.

For example, the A27 Polegate Bypass was originally given planning consent in 1993 on the basis that it provided a strategic trunk road link along the south coast; and that it would help relieve town centre traffic. However, the road was not taken forward until 2002, at which point the strategic trunk road benefits were no longer justified due to the removal of other schemes from the roads programme. When the AST for the A27 Polegate Bypass was finally presented to Ministers in 2002, part of the justification for the scheme had changed so that now the Hastings Regeneration Area was said to be dependant on the scheme. [35] It is not clear that any fundamental re-examination of the justification of the scheme actually took place. Rather, it appears that new reasons were found for its construction and approval was duly given.

### **3.1.5 Shortcomings in the current process**

In the light of the evidence from the case studies and the POPE studies, it appears that the current approach to road building, scheme appraisal and evaluation is marked by a series of shortcomings:

#### ***Shortcomings in the appraisal process***

- The appraisal of road schemes places undue emphasis on monetised COBA as a method for assessing the merits or otherwise of individual schemes, and consequently neglects important – but non-monetised – impacts.
- There is a tendency for pre-scheme appraisal to *under-estimate* future traffic growth on the new road. For example, the Newbury Bypass already carries 46% more traffic than the pre-scheme appraisal predicted it would carry in 2010. Traffic on the M65 has similarly exceeded the predicted 2010 maximum flow six years early.
- There is a tendency to *over-estimate* the traffic relief that the scheme will deliver to existing roads. For example, traffic on the old road at Newbury is now almost back to pre-bypass levels during the morning peak period.
- The appraisal process generally fails to take account of the effect of a new road in stimulating car-based development. It consequently also fails to take account of the resulting congestion on the new road and feeder roads, arising as a result of new car trips to new housing, retail and business parks.
- There is also a failure to take account of the landscape impacts arising from extensive new development adjacent to a new road. For example, the negative visual impact of ‘tin shed’ development alongside the M65, as viewed from the hills above

the motorway, was not foreseen by the appraisal process. In addition, the increased noise impacts across wide areas of countryside are not factored into the appraisal.

- The NATA methodology is weak in its appraisal of the impact of a scheme on accessibility, integration, and CO<sub>2</sub> emissions.

These and other shortcomings in the appraisal process are hugely important. They not only form the basis on which decisions whether or not to construct a road are based, but they also set the framework for the ensuing evaluation once a scheme is built. If the appraisal is not robust, neither will be the evaluation.

### ***Shortcomings in the evaluation process***

- The evaluation process places undue emphasis on calculations of whether the theoretical economic benefits of a scheme, as predicted at scheme appraisal, are accurate. It places insufficient emphasis on all other impacts of a road scheme, as described below.
- Evaluation seems to be very narrowly defined. The POPE and POPE-E methodologies allow consideration of whether the AST is telling ‘the truth’, but not whether it tells ‘the whole truth’. Thus, important scheme impacts that were not foreseen or mentioned in the AST will not be picked up by the subsequent evaluation. In addition, evaluation does not explicitly consider whether a scheme has met its original objectives, and the extent to which these were valid.
- Evaluation rarely includes explicit consideration of induced traffic. Data on ‘before’ and ‘after’ traffic flows is presented in the POPE reports, but there is generally no analysis of what proportion of any above-trend traffic growth may be due to traffic generation, as opposed to re-assignment from other routes.
- Treatment of the landscape impact of schemes is inadequate. The current POPE-E methodology does not allow for dialogue with groups who are likely to have an opinion on the landscape impacts of a scheme such as AONB bodies, local landscape officers and environmental groups. POPE-E would also benefit from greater engagement from the Countryside Agency and its successor organisation, Natural England.
- Treatment of noise impacts does not extend to examining the impact of noise on the wider countryside. The evaluation considers noise impact in places where noise is likely to have been reduced (e.g. bypassed villages), but ignores noise impact on the countryside through which a new road now passes.
- Treatment of CO<sub>2</sub> and accessibility impacts is either non-existent or superficial.

- There is no meaningful consideration of whether the road scheme has contributed towards wider transport integration and little examination of the effects of a road scheme on changes in land use.

Unless the evaluation process is improved to reflect these issues, its potential to inform future roads policy effectively will be unrealised.

### *Failures of transparency*

There is a lack of transparency in publishing the findings from the evaluations. Eight out of the 11 One-Year After studies reviewed were only available on request and were not on the Highways Agency's website, despite the roads now being several years old. [36] In addition, the Five-Year After Study for Newbury was not made available, despite it being in final draft for a considerable period of time.

### *Failure to impact on policy*

Discussion with officials in the DfT suggests [37] that until now there has been little circulation of POPE information between the Highways Agency and DfT. The narrow remit of the POPE reports, coupled with the fact that they are not published in a timely way, nor widely circulated, means that there is no learning process whereby transport policy, and specifically decision making on the roads programme, is modified in response to experience. Far from learning from our mistakes, we thus continue to repeat them.

### *Failures of the roads programme*

As a consequence of the failures described above, the roads programme continues to deliver schemes which, at best, have unproven benefit. At worst, these schemes increase car dependency, generate traffic, and hence fail in the medium-term to achieve the stated aim of relieving congestion. At the same time, they cause serious environmental damage, including despoliation of the countryside and increased emissions of CO<sub>2</sub>.

## **3.2 Recommendations**

The following section sets out our recommendations arising from this work.

### **3.2.1 Improving the Post Opening Project Evaluation process**

The future value of the POPE process is largely dependent on increasing the level of resources and priority invested in, and attached to it. The POPE process currently consumes 0.1% of the amount the Highways Agency spends on construction – an average of £12,000 per study in 2004/05. [38] **Oxera, in its work on project evaluation, has already argued the case that a more expensive, tailored and effective approach to POPE would be value for money. We support this conclusion.**

We recognise that the POPE process is still evolving and welcome the recent moves by the Highways Agency to include a sum of money to cover post-scheme evaluations as

part of the original costings for new roads. The Agency made a number of useful contributions to the development of this research. In particular, it stressed that the POPE process is likely to increase in sophistication in the wake of the Oxera report and that it already considers some of the issues contained in the recommendations below as part of its Five-Year After studies, to which authors of this research did not have access.

There is a potential risk that the management of the evaluation process by the Highways Agency itself could lead to a conflict of interest if evaluation findings are challenging. We hope that such issues will be avoided in future by the Highways Agency recognising the importance of evaluation in developing learning within the organisation and recognising the wider lessons for national policy.

It has been suggested that existing POPEs focus on accident and economic benefits of road schemes because this data is already being collected by the Highways Agency and local authorities and is therefore readily available for analysis. Understanding the wider impacts of road schemes will require commissioning new monitoring information. We believe, however, that it is crucial to have a *fuller understanding* of road construction impacts by consistently looking in more detail at a sample of schemes. **This should involve commissioning new work on issues such as: traffic generation; landscape and noise impacts; development pressures; severance; and accessibility.**

It is easy to gain the impression that POPEs are carried out in consultancy back offices for the interests of Highways Agency officers only. A greater priority and profile should be attached to these reports and their production. They have much to tell us about the effectiveness of public investment in road building and its wider transport impacts. **To achieve their goal, these reports should be written in plain English and they should be published on time and made widely available. In addition, more attention should be given to ensuring that historic information on road schemes – from initial appraisal and inquiry documents through to evaluations – is recorded and kept in an accessible form for future reference.**

In proposing that the POPE process be expanded to consider a range of issues in greater detail, we recognise the resource implications of this extra work. It is therefore recommended that the ongoing POPE process is maintained for all schemes, with more detailed studies being carried out consistently on a substantial proportion of new projects.

In taking forward these more detailed studies, the following issues should be addressed:

- **Increase the depth of analysis of induced traffic**

This should be explicitly considered in evaluations and comment made on whether actual traffic levels experienced are higher than predicted, and what the causes of this are.

- **Analyse the effect on CO<sub>2</sub> emissions**

POPEs should give greater consideration to how much additional CO<sub>2</sub> has been, and will be, generated as a result of a new road on a year by year basis. We also suggest that there is a need for a cumulative assessment to be made of how much CO<sub>2</sub> is being generated by the entire trunk roads programme, based on annual ‘after’ data of the type collected

through the POPE work. While the Government's recently updated Climate Change Strategy claims that road improvements only have a small impact on CO<sub>2</sub> emissions, [39] this view is not informed by the real-life analysis that could be provided through improved evaluation methods.

This should help inform the DfT's assessment of progress in meeting its joint Public Service Agreement target to reduce CO<sub>2</sub> emissions by 12.5% below 1990 levels and in moving to a 20% reduction in CO<sub>2</sub> emissions by 2010.

- **Greater consideration of the impact on landscape, noise and tranquillity**

This should move beyond considering whether impacts were 'as expected', to draw lessons on how such impacts can be reduced in future. The POPE-E methodology should be changed to ensure that information is gathered from relevant organisations and experts that are likely to have local knowledge of the scheme. These might include local representatives of CPRE, the Ramblers' Association, and country park rangers. To assist the Highways Agency in its evaluation of landscape impact, the Countryside Agency (and its successor Natural England) should also become more involved in the evaluation process.

In considering noise impacts, the analysis should extend beyond the narrow corridor of the road 'relieved' (i.e. the town centre), to consider wider noise impacts on the surrounding countryside. Actual measurement of noise in the area around the bypass should be ideally by means of a map of decibel 'contours'. This should be overlaid with a map of footpaths, bridleways, open access land, viewpoints, and other key receptors, so that a judgment can be made of the degree of intrusiveness of noise from the new road.

The *cumulative impacts* from road schemes in terms of increased noise, landscape damage, associated development and road lighting can combine to have a serious detrimental impact on the countryside. Such impacts are not easily quantified in monetary terms, but nevertheless must be more effectively accommodated in evaluations in future.

- **Consider the regional and local economic effects of road schemes**

There should be a qualitative and quantitative assessment of the 'real' regional and local economic effects of road schemes. This may take several years to manifest itself and is thereby most relevant in the Five-Year After studies. This is likely to be more important than the current analysis of theoretical economic benefit. It should include consideration of factors such as:

- the number and type of small and medium businesses, including but not limited to retailers, before and after scheme construction;
- the number and type of large employers within a defined catchment area re-locating as a result of the road construction;
- specific development/regeneration outcomes that were forecast prior to scheme construction; and
- specific development/regeneration outcomes that were not forecast prior to scheme construction.

- **Give more thorough consideration to biodiversity and heritage impacts**

In order to fully understand the biodiversity and heritage impacts of schemes, the POPE-E methodology should be broadened to allow for contact with relevant organisations and experts with local knowledge of the scheme, in addition to the statutory agencies. For example, this might include ecologists based in the local authority, Wildlife Trusts and RSPB (for biodiversity issues) and organisations such as CPRE and the National Trust (for heritage issues).

- **Carry out a more detailed evaluation of safety**

Safety evaluation should include a breakdown of ‘before’ and ‘after’ casualties by severity (fatality, serious injury, slight injury). This is currently done in some, but not all, of the evaluation reports. The evaluation should also include a breakdown of ‘before’ and ‘after’ casualties by: location; type of road user (pedestrian, cyclist, driver etc); and causation factors. This evaluation is particularly important for the Five-Year After report, by which time sufficient data should be available to draw meaningful conclusions.

- **Consider the impact on accessibility**

Current treatment of accessibility impacts is not meaningful. It should include consideration of questions such as:

- Has there been a change in the number of buses serving the area (for example, because shorter journey times and reduced congestion has enabled operators to run more services at the same cost)?
- Have bus services become more reliable, or have journeys become quicker?
- Has it become easier and safer to cross the road in a village that has been bypassed? Have average traffic speeds increased/decreased on town centre high streets?
- How many public rights of way have been made less direct, or have been obstructed, by the new road? Has their level of use declined?
- What effect has the scheme had on the convenience with which pedestrians and cyclists are able to access key destinations, such as schools, parks or playgrounds, shops, health facilities and workplaces?
- Have any local shops/services closed or relocated since the construction of the road?

In order to be able to answer these questions, it will be necessary to speak to bus operators, the local authority and selected community and amenity user groups.

- **Consider the effect of road schemes on integration and land use**

Evaluations should take a more comprehensive view of integration. This should take account of the impacts of road construction on a range of issues affecting integration (e.g. community severance physical connections between different types of transport; impacts on other policy areas, as well as land use/transport interaction).

In terms of evaluating the impacts on land use and development, a much more sophisticated approach is required which recognises the two-way interaction between the provision of infrastructure and new development. While reportedly the approach taken by the Highways Agency in its Five-Year After reports does consider whether unexpected development has followed road construction, this does not examine further whether the development is car-dependent and what its likely impacts might be. In considering the effect of a road scheme on land use, the following information should be reviewed:

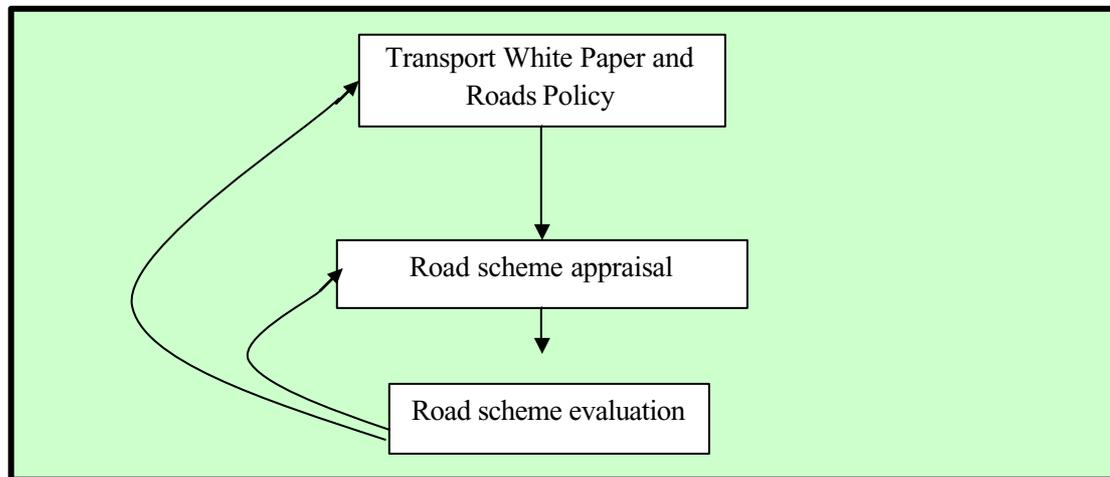
- emerging Local Plan policies/major planning applications submitted and pending decision or rejected, in a corridor within, say, three miles either side of the road;
- interviews with the development control section in the local authority to gain an overview of development trends;
- any change, or proposed change, in land use zoning designations within three miles of the new road; and
- evidence on whether the scheme has encouraged average longer journey lengths or led to new journey destinations by transference of development from one location to another (e.g. from a town centre to out-of-town location).

### **3.2.2 Implications for national roads policy**

While evaluation may be recognised as a key process in public policy, the post-construction evaluation of road schemes currently has little priority or impact at national level. DfT acknowledges that evaluation attracts little attention within the department, although this may change for the better in future once the national programme board for POPE is established in the light of Oxera's recommendations.

In view of the substantial investment planned by national Government in the future expansion of the road network, it is crucial that more attention is given now to learning from the evaluation process and in understanding its implications for appraisal and decision making. These interactions between evaluation, appraisal and policy making are illustrated in Figure 2 below.

**Figure 2: The potential impact of evaluation on policy**



We understand that the Highways Agency is currently looking at how interaction between the evaluation and appraisal processes can be improved and progress in this area may help to address some of the concerns expressed above. Nevertheless, unless the lessons emerging from post-opening evaluations are also taken into account in the development of national transport policy itself, the overall direction of policy will not reflect the realities of road construction.

To help move in this direction, we recommend that:

- DfT commissions a strategic study of the traffic generation resulting from all road schemes completed in the last ten years. This should review 'before' and 'after' traffic levels, and should be sufficiently detailed to enable an evaluation of the additional CO<sub>2</sub> generated as a result of the roads programme.
- Increased resources are dedicated to the process of evaluating road schemes, with a commitment to ensure that the evaluation process becomes a learning process, with clear feedback into policy making, as opposed to simply 'box-ticking'.
- The appraisal process is improved to include a more detailed assessment of accessibility and integration impacts, and the likely CO<sub>2</sub> impacts of a scheme.
- Greater weight is given to landscape and environmental impacts in the decision-making process for road schemes. This should help balance the current emphasis placed on the theoretical benefits derived from savings to drivers' time and provide a fuller picture of the likely impacts.
- There is a presumption against schemes that are likely to stimulate unsustainable, car-dependent development patterns and increased car use. Experience from the Newbury, Blackburn and Polegate case studies demonstrates that such schemes

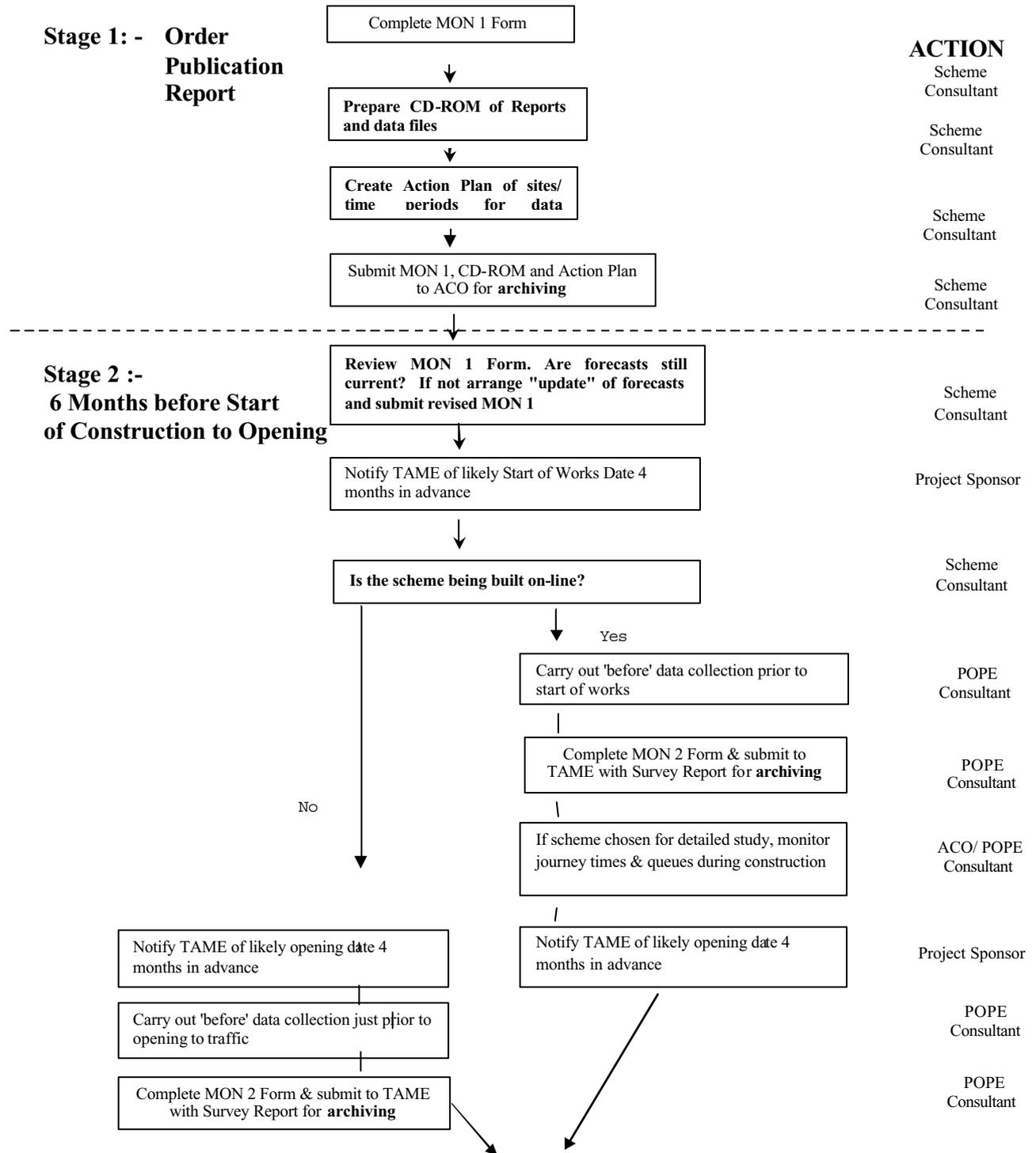
provide only temporary relief from congestion, stimulate traffic growth, and do not deliver the promised local regeneration benefits.

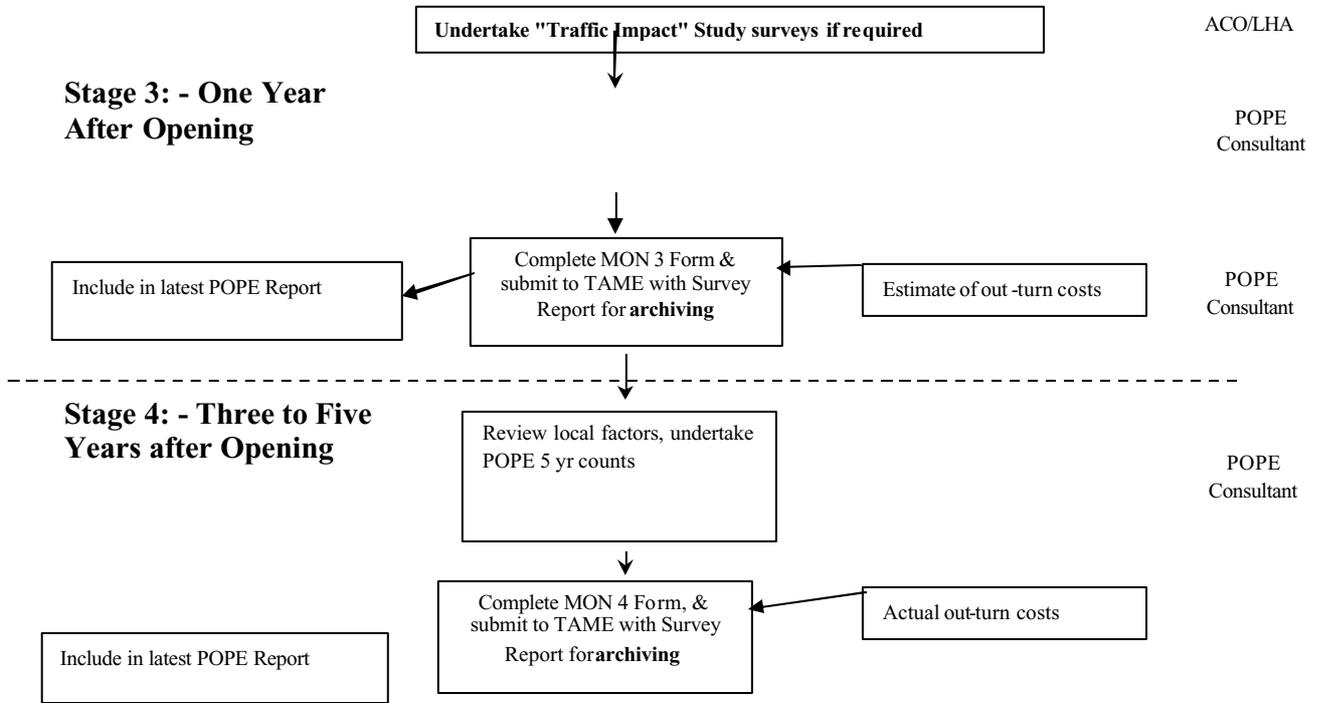
- More attention is paid to the development of alternative solutions in areas where traffic congestion is a problem. Options such as congestion charging, workplace parking levies, and ‘smarter choices’ programmes (i.e. travel plans etc) should be considered before road schemes. The appraisal process should be changed so that scheme promoters are required to show that they have considered whether a smarter choices programme coupled with small-scale capital investment might obviate the need for the major road scheme altogether.

In addition, regional planning bodies and local authorities have an important role to play in managing future built development and road space in the wake of new road construction. There is a need for informed spatial planning decisions that avoid inappropriate infill development, and work with road schemes to provide ‘cleaner, safer, greener’ places for people to live and work, in line with Government policy. Local authorities should also strive to manage the de-trunked network to resist new traffic generation and to ensure reallocation of road space in favour of journeys by public transport or to encourage walking and cycling. Many authorities are seeking to provide better facilities for these modes, and are creating a wide range of good practice to learn from.

## Annex 1: The POPE process

Taken from the Highways Agency Procedure Note, Before & After Monitoring.





## **Annex 2: The A27 Polegate Bypass**

### **Project background**

Polegate is a town of around 7,900 inhabitants in Wealden District, East Sussex. It is close to Eastbourne and the area in general is relatively affluent with less than 1% unemployment and scoring 307 out of 354 on the indices of deprivation 2004 (where 1 = the most deprived areas). [40]

In 1980 the Department of Transport (DoT) consulted the public on alternative routes for a combined Pevensey and Polegate Bypass and announced a Preferred Route in 1982. The Pevensey section was taken forward as a separate scheme and opened to traffic in 1990.

The original proposals for the Polegate section were for a single carriageway route. [41] This was subsequently upgraded to dual carriageway standard by the time proposals for the A27 Polegate Bypass were presented to the public again at an exhibition in December 1991. A public inquiry followed in June 1992, and Orders were published in March 1993. It was intended to build the Polegate Bypass as part of a larger Design, Build, Finance and Operate contract which included other schemes on the A27 and the A21 in Sussex and Kent, but this was cancelled in the mid 1990s.

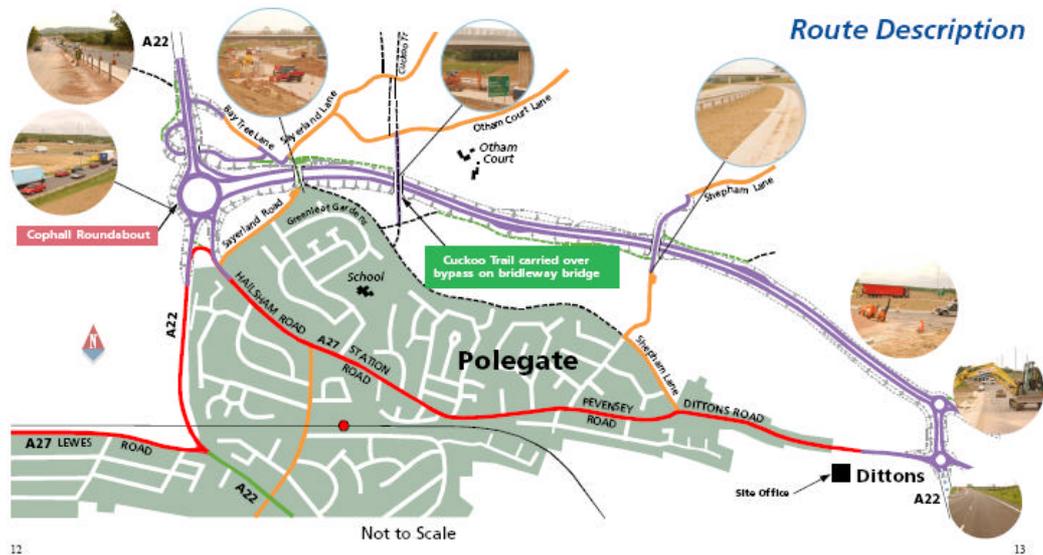
Following the review of the road construction programme after the current Government was elected, however, the Polegate Bypass was one of 37 schemes (since increased to 53 schemes) included in the Targeted Programme of Improvements announced in 1998, to be started within seven years. The scheme was finally built in 2002 and opened to traffic in June that year.

An extension of the bypass from the Cophall Roundabout westwards towards Wilmington and improvements to the A27 between Polegate and Lewes were included in the South Coast Corridor MMS covering the whole of the A27 from Southampton to Folkestone. The report of the MMS was published in 2002 and this recommended some further improvements to the A27 west of Polegate. Alistair Darling announced his rejection of these proposed improvements in July 2003 in consideration that they were felt to:

*'have unacceptable and avoidable consequences to the local environment, calling instead on local planners to find less damaging alternatives'.* [42]

Nevertheless, there continues to be pressure from local government for the continued upgrading of the A27 west of Polegate and the construction of the Folkington Link (a new link road from the Cophall Roundabout leading westwards to the A27). A study on the route between Beddingham and Polegate is due to report to ministers in 2006. [43]

## Map 1: The A27 Polegate Bypass



Source: Highways Agency

### The scheme

The A27 Polegate Bypass is a 2.8 km dual carriageway bypass passing to the north and north east of Polegate. The scheme was taken forward at the same time as an East Sussex County Council scheme to improve the A22 south of the Dittons Junction to Lottbridge Drove and subsequently to central Eastbourne, called the A22 New Route. In addition, the Council also widened the A22 to the north of the Cophall Roundabout to dual carriageway standard. Taken together these improvements essentially provide a new dual carriageway route around Polegate and into Eastbourne.

The County Council made it clear at the public inquiry for the bypass that its proposals to take forward the A22 improvements to the north and south of the bypass were directly dependant on the bypass being given the green light. These schemes and the bypass were seen by the County Council as a crucial element in its policy to create an upgraded trunk road 'box' enclosing the area of the County's High Weald and to the provision of better access between that box and the coastal towns.

The close relationship between the A22 improvements and the A27 Polegate bypass was also evident in the AST for the bypass seen by Ministers in 2002. This referred to the imminent A22 improvements worsening traffic conditions in Polegate in the absence of the bypass and thereby strengthened the case for its construction. [44]

At the stage of planning permission being granted for the bypass, the proposed Folkington Link was not taken forward.

## Justification for the scheme

There was apparently little debate about the *need* for the bypass at inquiry. [45] Most objectors appeared convinced of the need to improve traffic conditions in Polegate.

The decision letter for the scheme states that:

*'the A27 is part of a route forming the Folkestone to Honiton trunk road, the only strategic east to west route across England south of the M25 and M4', it continues 'there is an overwhelming need to remedy the deficiencies of the A27 and that the published scheme would establish a safe new bypass of Polegate. It would also provide sufficient capacity to meet current and future traffic demands whilst bringing to an end the present conflict between through traffic and the local community'. [46]*

Similarly, the Environmental Statement sets out the justification for the scheme in the context of it forming part of the Honiton to Folkestone trunk road:

*'The A27 between Portsmouth and Pevensey forms part of the Honiton to Folkestone Trunk Road. The proposed Polegate Bypass is one of a number of schemes in the DoT's National Trunk Road Programme for the improvement of the A27/A259 south coast route'. [47]*

The Inspector's Report also remarked that *'the Department noted the need for an early completion of an A27 Polegate bypass and a recognition of the important role it would play in helping to meet local economic development and conservation objectives'*.

The Polegate Bypass was therefore originally justified on the basis of delivering:

- strategic traffic benefits for the trunk road system;
- local safety and environmental benefits, such as reduced severance and traffic in town; and
- undefined local economic development and conservation objectives.

Subsequently, when the scheme was finally given the green light by Ministers for construction in 2002, the AST for the bypass makes further claims in its favour, noting that the *'Hastings Regeneration Area is dependent on the scheme'* and that *'land use & development policies are strongly reliant on scheme'*. [48]

The Highways Agency leaflet [49] published on the opening of the bypass summarised well the anticipated benefits of the bypass, as a result of the joint improvements on the A27 and A22:

*'This not only means faster, more reliable connections to and from the town centre and coast, but provides for the regeneration of the area. It also means that residents whose town has been divided in two by the A27 trunk road and had suffered from its noise, air pollution and traffic delays, will be able to create a closer community again'*.

By the time the draft POPE One-Year After Study for the scheme was made available in early 2006, the objectives seemed to have evolved further:

*'This scheme was implemented to address the following problems ... :*

- *Safety problems due to traffic through the village of Polegate; and*
- *Environmental problems in the village of Polegate'. [50]*

At this stage, claims about the strategic traffic benefits of the route seem to have been dropped.

## **Current situation**

### **Traffic**

#### ***Traffic forecasts for the route***

Traffic forecasts for the route presented at the public inquiry, assuming high growth rates and a design year of 2010, were as follows [51] :

**Scenario 1 'do minimum'**: localised diversion of some traffic would result from increasing congestion, at the same time traffic levels would increase along the existing A27 (through Polegate) by nearly 80% to 25,000 vpd;

**Scenario 2 'constructing the Polegate Bypass in isolation'**: traffic flows along the bypass in 2010 forecast to be 20,900 vpd, with a 70% reduction in traffic using the existing A27 through the town.

**Scenario 3 'the Polegate Bypass together with the A22 New Route and a westward extension of the bypass to join the A27 at Folkington (the Folkington Link)'**: traffic flows in 2010 forecast to be 32,100 vpd. In reality, only the A22 element of the additional improvements was built, with the Folkington Link not taken forward.

The diversion of traffic away from the existing A27 road was meant to significantly reduce both the severance between the northern and central parts of the town and the conflicts between vehicles and vulnerable road users such as pedestrians and cyclists.

### *Actual traffic levels on the route*

A period of ten years passed between the public inquiry for the bypass and its actual construction. When the scheme opened in June 2002, before and after studies for the bypass showed that [52]:

- in the first week of opening, the bypass was used by some 23,500 vehicles (two-way) per day;
- there were reductions of nearly 10,500 (54%) vehicles on the old A27 Hailsham Road through Polegate where two-way traffic volumes fell from 19,400 to 8,900 vpd;
- north of Polegate, the A22 Automated Traffic Count site showed an increase from nearly 25,000 vpd to 30,400 vpd, an increase of 22%; and
- similarly, the A27 (T) Automated Traffic Count east of Polegate showed an increase from 9,200 vpd to 12,900 vpd, an increase of nearly 40%.

The TIS concluded that:

*'Clearly, additional traffic had been drawn into the corridor in that the 23,500 vehicles per day using the new A27 bypass, has not been matched by a 23,500 reduction through the town. The increase in traffic observed on the A22 north of Polegate and the A27 east of the town confirmed that extra vehicles were using these roads to access the new bypasses'.*

As mentioned above, the Polegate Bypass was opened at the same time as the A22 New Route, while the Folkington Link – which had been considered as part of the strategic improvements in terms of calculating traffic forecasts – was not taken forward. This makes comparisons with forecast traffic levels difficult. Obviously, the construction of the A22 New Route at the same time as the bypass means that a comparison with Scenario 2 above is not appropriate. Neither, however, is comparison with Scenario 3, as not all the other improvements have been completed.

Nevertheless, it is interesting to note that the daily use of the bypass on opening exceeded the 2010 forecast for the use of the bypass if constructed in isolation (20,900 vpd) and that the forecast reduction in traffic using the town centre route was not as large as hoped for (54% immediate reduction, 62% reduction after one year, as opposed to 70% reduction forecast).

Traffic information gathered on the route since opening, [53] shows the following:

**Traffic Flows on the Polegate Bypass**

<b>Year</b>	<b>June 2002</b>	<b>April 2005</b>
<b>Average Annual Weekday Traffic (AAWT) 2-way</b>	23,500	30,157
<b>% Change since opening</b>	<b>+28%</b>	

Traffic has grown significantly on the bypass since its opening. This suggests that if traffic growth on the bypass continues at the same rate in future, the levels of traffic will exceed the 32,100 vpd forecast for the design year 2010 in the next two years, despite the full strategic improvements to the route not having been completed. Indeed, the draft One-Year After Study for Polegate states that:

*'This demonstrates that the predicted 2010 low growth flows on both the B2247 and Polegate Bypass are comparable with the observed 2003 traffic levels. Predicted flows on the A22 are 18% above and below observed 2003 flows for the low and high growth respectively'.*

This suggests that the traffic flows in 2003 were already at comparable levels to that forecast for 2010.

**Traffic on neighbouring routes**

It was clear from the TIS that traffic levels on smaller routes neighbouring the bypass were reduced to some degree following its construction. As the bypass essentially was part of the same project to improve the A22, it is worth examining traffic changes on this route.

**Traffic Flows on the A22 New Route [54]**

<b>Year</b>	<b>June 2002</b>	<b>July 2003</b>	<b>July 2004</b>	<b>September 2005</b>
<b>AAWT 2-way [55]</b>	22,000	25,974	28,022	28,252
<b>% Change since opening</b>				<b>+28%</b>

The A22 New Route has clearly attracted substantial new traffic. In the absence of more detailed traffic analysis it is difficult to discern how far this is traffic drawn from smaller less appropriate roads, and how far this represents new traffic in its own right.

### **Traffic in the town centre**

Traffic monitoring information is also available for the ‘old’ A27, which runs through Polegate town centre. This route has been traffic calmed to a degree since the construction of the bypass, as roadside parking has been introduced in stretches.

<b>Year</b>	<b>June 2002</b>	<b>July 2005</b>
<b>AAWT 2-way [56]</b>	8,900	9,714
<b>% Change since opening</b>	<b>+9%</b>	

The draft One-Year After Study for Polegate reports that by 2003, traffic levels on the old A27 had further dropped to around 7,700 vpd. Since then, as can be seen above in the figure for 2005, traffic levels have subsequently increased and it was noted in interviews with local shopkeepers and residents for this report that there is a perception that the traffic is ‘creeping back’.

### **Traffic volume monitoring in the draft One-Year After Study**

The draft One-Year After Study on the A27 Polegate Bypass and A22 New Route offers further insight into traffic changes in Polegate. This information is presented separately here as the traffic figures used do not tally exactly with those reported in the Highways Agency’s original TIS discussed above. The One-Year After Study is helpful in including detailed traffic screenline data that enables localised traffic changes to be pinpointed.

The One-Year After Study concludes that:

- The A27 Polegate Bypass was being used by 24,400 vpd in September 2002. This increased by June 2003 to 27,600 vpd, a 13% rise (in 9 months).
- The new route of the A22 was used by 23,400 vpd in September 2002, rising by 11% to 27,600 vpd in June one year after opening.
- On the key route being relieved, the B2247 through Polegate (formally the route of the A27), traffic volumes were reduced by 54% initially. During the year, traffic volumes continued to drop so that one year after the bypass opened, the traffic on this road was down by 62% from the ‘before’ rate of 20,000 vpd to 7,670 vpd.
- Routes parallel to the new A22 route which showed traffic relief were the A2270 in Lower Willingdon and the B2104 Friday Street. These saw traffic volumes one year after the two schemes opened reduced by 4,500 vpd (15%) and 10,300 vpd (49%) respectively.

On closer examination of these figures it appears that the building of the A27 Polegate Bypass (together with the A22 New Route) has resulted in extra traffic being generated in the area. If we consider that the original traffic flow in 2002 on the old A27 was reported at 20,000 vpd, by June 2003 the flows on the new bypass had increased to 27,600 vpd, while 7,670 vpd continued to use the old route through the town. These total over 35,000 vpd, or a 76% increase in traffic in the Polegate corridor (represented by the two roads) in the one year after opening.

Clearly, some traffic has been drawn off other roads in the area, and therefore this figure does not represent entirely 'new' traffic. For example, the study reports that on the parallel A2270 at Willingdon, traffic volumes in 2003 were 15% less than in the 'before' situation, representing a decrease of 4,500 vpd. In addition, the B2104 Hailsham Road provides another parallel route to the A27, and this saw traffic levels fall by 4,500 vpd in the one year after opening of the bypass. There has also been some wider reallocation of traffic, with small decreases on the A259 to the west of Polegate (-800 vpd). Nevertheless, even if all these decreases can be attributable to traffic relocation onto the Polegate Bypass, **traffic growth in the Polegate corridor stands at 27% in the one year after opening.** [57, 58]

### **Development – history and current trends**

Polegate is part of Wealden District. The *Wealden Local Plan 1998 – 2004* (adopted December 1998) established policies to protect the landscape setting of Polegate and its role as a local shopping centre. At that stage, the Local Plan made provision for 300 new houses in the Polegate area, mainly as a result of infill development, redevelopment and conversion of existing buildings. [59]

The Plan identified the need for new roadside facilities (in policy PW3) following on from the planned road improvements to the A27. These were to include a petrol filling station, restaurant, motorist shop facilities, overnight accommodation, lorry parking, toilets, telephones, a tourist information centre and a picnic and children's play area. Planning permission for this development has now been granted and it is under construction.

The Plan also identified the need to identify a site of a new business park in line with draft Structure Plan policies at that time (1991-2011) for East Sussex.

Subsequently, the Local Plan was revised in 2002/2003 (at the time that the bypass was under construction) and policies for the business park and service area were further developed. In particular, the site for a '*high quality, modern business park in a landscaped setting*' on land north of the old A27 and south of the bypass – i.e. on the land isolated by the creation of the bypass [60] – was identified.

In addition, the revised plan responded to the East Sussex and Brighton & Hove Structure Plan which required Wealden District to make provision for 4,400 new homes between

2006 and 2011, of which 3,300 are to be found through new allocations of housing land, largely focused on Polegate, Hailsham and Uckfield.

Areas of land not previously considered suitable for housing suddenly came into the spotlight as the requirement to provide land for up to 950 new houses in the Polegate and Willingdon area was confirmed. [61] In particular, land on the north west side of Polegate to the west of the A22 and the north of the A27 (i.e. in the triangle of land previously defined by the proposed 'Folkington Link Road'), was identified as a major site for 600 new houses. [62]

According to the Plan, access to the site would be from the A22 *'on the basis that this road will be reclassified as a local road once the A27 West Polegate Trunk road improvements are in place'*. [63] The 'West Polegate Trunk Road Improvements' are not specified, but are likely to include renewed pressure for the reinstatement of the Folkington Link Road and other improvements along the A27 towards Lewes. In addition, the Plan makes it clear that:

*'Neither the Highways Agency nor East Sussex County Council would permit any occupation on the site or the permanent use of the A22 access points until completion of the A27 West Polegate Trunk Road improvements and other trunk road junction improvements'*. [64]

The situation at Polegate is an interesting one. The Polegate Bypass was originally justified on the basis of its importance in serving long-distance traffic using the strategic Honiton – Folkestone trunk road. Subsequently, studies such as the South Coast Corridor MMS have shown that only a small proportion of total traffic actually travelled long distances along the south coast route stating that: *'the average car journey is less than 25 km and very little interaction occurs between towns more than 50 km apart'*. [65] The MMS stated that as little as 700 to 1,000 vpd used the route and that coach and HGV operators generally use the more appropriate motorways to the north.

In response, the Secretary of State for Transport rejected proposals for the Wilmington and Selmeaton Bypasses on environmental grounds in 2003. [66] Nevertheless, the pressure for continued upgrading of the trunk road network continues, and now is justified on the basis of it being necessary to serve planned development. This was reflected in the AST for the bypass prepared in 2002, which claimed that the scheme was essential to serve the Hastings Regeneration Area and local development.

East Sussex County Council, Wealden District Council and the Highways Agency have undertaken a series of transportation studies [67] – most of which seem to justify further trunk road improvements and further public consultation on the issues is expected to take place in future.

In summary, it is clear that major development has been foreseen in the Polegate area for a number of years. It is not clear whether the bypass was the catalyst for the development or vice versa. Certainly, issues such as the provision of a Polegate Business Park, a large roadside service area and access for major new housing development, did not feature as

part of the justification of the road at public inquiry. Rather, it seems that development issues were largely ignored by the assessment and post-construction evaluation procedures as ‘external’ to the decision-making process. However, subsequent discussions about the ‘need’ to continue with road improvements in the Polegate area to serve planned housing development, make it clear that land use issues are in fact central to the debate and underlying the case for further road expansion.

### **Landscape – expected and actual impacts**

Polegate lies in gently undulating countryside, extending northwards towards the Sussex Weald and to the north east with the Pevensey levels. To the south and west are the South Downs. [68] According to the Inspector’s Report the Department for Transport said that the scheme would not affect any nationally or locally designated sites of landscape or nature conservation interest; there were no Sites of Special Scientific Interest close to the route and it lay wholly outside the Sussex Downs AONB. The land directly affected by construction was improved agricultural land of ‘limited ecological interest’. It was acknowledged that some fragmentation of small sections of mature hedgerows, scrub and trees would take place. It was also recognised [69] that the bypass would introduce an urban element in the rural character of the farmland north of Polegate and that this would detract from the quality of the environment. However, it was generally considered that such damage would be *‘compensated for by the extensive planting which was proposed’*.

In response, the Department proposed:

- noise protection barriers, mainly in the form of earth bunds with some acoustic fencing; and
- landscaping and tree planting.

Objectors to the scheme made the case that the proposed grade separated junction at Cophall Farm Roundabout at the A22 junction with the A27 would be visually intrusive. Initially, the proposal was to have a raised roundabout 5 m above the existing road level to be used by the A22 traffic, while the A27 traffic would pass underneath it and connect with the future planned westward extension of the A27. Following representations to the DoT, the height of the roundabout was subsequently lowered slightly to reduce its landscape impact.

## **Aerial view of the Polegate Bypass and Cophall Roundabout**



Source: Highways Agency

The Cophall Roundabout remains, nevertheless a major feature in the landscape (see photo above). It appears to be more appropriate in scale to a motorway, than to a town bypass. The roundabout is very large with an inscribed circle diameter of approximately 150 m and 12 m carriageway widths. The central grassed bowl lacks planting or any landscaping to soften the effect and the large road capacity encourages traffic to enter and exit the roundabout at fairly high speeds. On the northern section of the A22, which joins the roundabout, the County Council has had to install speed reduction measures following its dualling of the route in view of the excessive speeds occurring on the route.

Beyond the Cophall Roundabout, the landscape impact of the bypass is less noticeable and there has been extensive tree planting on the earth banks. It is still too early to assess the ultimate impact of the planting in mitigating the landscape impacts. It can be seen, however, that the planting pattern tended to follow formal, straight rows (see photo below) and did not greatly increase the 'natural' effect of the landscape.

### **Tree planting on the Polegate Bypass during construction**



Source: Highways Agency

### **Progress against stated objectives**

The Polegate Bypass was originally justified on the basis of delivering:

- strategic traffic benefits for the trunk road system;
- local safety and environmental benefits such as reduced severance and traffic in town; and
- undefined local economic development and conservation objectives.

In the wake of the South Coast Corridor MMS, the view of the A27 as part of a strategic route along the south coast has somewhat changed. There is a greater awareness that few long distance journeys depend upon this route, and the impact of improvements to roads – such as the Polegate Bypass – are more likely to impact on the distribution of local journeys, than long distance ones. In addition, several of the proposed strategic improvements to the trunk road network that were scheduled to take place at the time as the Polegate Bypass have not taken place, thereby influencing its impact on strategic traffic.

It is noticeable from traffic counts along the old A27 that there has been fairly marginal re-growth in traffic in Polegate town centre. On this basis it would appear that the bypass has succeeded in helping to improve traffic conditions in the town centre. However, the

old A27 is still fairly busy and has not seen the level of traffic reduction predicted. A local resident's view is that: *'the town is now split by three east to west roads, one of which is high speed creating extra traffic, extra noise, and extra pollution'*. [70]

An even more worrying picture appears however, when the economic health of the town is considered. Interviews with local shopkeepers, members of the Chamber of Commerce and the Town Centre manager have revealed that shops in Polegate are in trouble. Five shops closed during the second half of 2005 and several more are struggling or are for sale. There is a view that despite wider affluence, Polegate is suffering economically. Reportedly 80% of the businesses in Polegate are retailers and they are vulnerable to people now making use of the faster road connections with Eastbourne for shopping. A key aim of the Town Centre Health Check campaign is for facilities signs to be put at the roundabouts at either end of the bypass to encourage people to come back into the town centre.

A look back at the original COBA estimates for the study showed the scheme to have a negative weighted Net Present Value (NPV) (-0.03). At the time, the DoT justified this by saying this calculation assumed that the scheme would be built in isolation from the A22, Folkington Link and westward A27 improvements, which would *'clearly provide a positive return for the Polegate bypass'*. [71] There followed a series of recalculations up until the time of the inquiry in June 1992, at which point it was estimated that if the bypass was constructed in isolation a Present Value Cost (PVC) of £8.16m was obtained with a NPV of +0.65m. With the Folkington Link the PVC increased to £11.50m and the weighted NPV + £11.8m.

According to the Inspector's Report *'the Department considered that those figures showed that an A27 Polegate bypass would be an investment that could only just be interpreted as worthwhile when considered in isolation, but that when it was considered as part of a strategy which linked the A27 through to the west the economic case for its construction was robust'*. In reality only the A22 improvements were delivered, raising questions about estimating future benefits for schemes on the basis of related schemes that are not part of the current planning consideration. [72]

What does this show us about the effectiveness of decision making? It is clear in the case of Polegate that the *inertia* in the decision-making system was critical to keeping the scheme going. The very fact the bypass had been discussed since the 1980s and before became a factor in its favour. Similarly, once the idea of the south coast trunk road route had been formulated, this too became a strong justification for the scheme – reflected in the traffic forecasts and COBA used to justify the scheme. The fact that these strategic benefits were not justified has not been discussed in any post-construction analysis. Indeed, the draft One-Year After Study for Polegate continues with the assumption that the route is part of a strategic South Coast Corridor scheme:

*'The A27 Polegate and Pevensey Bypasses provide for strategic East-West movements along the **South Coast Corridor** while the A27 Polegate Bypass and the A22 New Route in tandem provide a new route into Eastbourne'*. [our emphasis] [73]

The result has been a large dual carriageway bypass and major roundabout continuing onto the single carriageway A27 westwards beyond Polegate. Within Polegate the promised economic benefits do not seem to have materialised, though the planned Business Park remains a possibility in future.

The issue of inertia remains: road proposals for improvements to the west of Polegate and the Folkington Link continue to be discussed as critical by local government. The justification now appears to be based on the need to handle development-generated traffic, rather than to serve a strategic need. Nevertheless, the planned solution is the same and relies on road schemes originally conceived of over 20 years ago.

### **Status of Post Opening Project Evaluation**

The One-Year After Study for the Polegate Bypass was due to be carried out in June 2003 [74] and published soon after. A draft was prepared by January 2004, but has yet to be formally published two years later. Such delays are unfortunate in informing the policy process of the impacts of road schemes. Nevertheless, a draft of the One-Year After Study for Polegate was made available to Oxera in its study [75] of post-construction evaluation of road schemes. In particular, Oxera made the following comments on the draft:

- The original justification for the bypass had concentrated on the economic benefits to be derived from it. Consequently, Oxera noted that the one-year evaluation focused on assessment of transport economic efficiency, but paid too little attention to reliability or wider economic impacts. In terms of the latter, Oxera's report criticises the One-Year After evaluation of the Polegate Bypass for accepting assertions, such as that *'the development of the Hastings Regeneration Area is dependant on the scheme'* without further examination.
- The AST for the bypass had indicated a large positive gain due to the reduction of severance in the town following the bypass construction. However, the evaluation was weak in not considering this issue in detail. The report noted that: *'the A27 area study suggested that, while some two-thirds of traffic has been removed from the town centre, a number of concerns remain that negative severance effects predicted by the local residents at the OPR [Order Publication Report] stage have materialised and that this also includes the existing A27 through the town'*. Oxera considered that the One-Year After Study should have included mapping of the facilities and interviews with community representatives to gain a fuller picture of possible changes.
- Issues such as noise, air quality, landscape, biodiversity, water and accidents were also identified as of high or medium importance for the evaluation, but were considered to be poorly or ineffectively considered in the draft One-Year After Study. [76]

In addition, this current research project was furnished with a copy of the draft One-Year After Study on which we had the following comments:

- there appear to be clear signs of induced traffic on the route, with a 27% increase in traffic in the Polegate corridor (represented by the A27 and B2247 'old' route) in the one year after opening, after possible local reallocation has been accounted for. This is not discussed as part of the evaluation;
- although initially significant, the expected reduction in town centre traffic was not as large as forecast and traffic levels have increased in the last two years;
- the expected reductions in accidents have not been delivered. A saving of 18 accidents per year was predicted whereas an increase of eight per year was observed. The total number of accidents in the area has increased, and the accident rate along routes including the 'old' A27 has also increased (though not on all roads in the area);
- the economic evaluation of the scheme was recalculated using two different methodologies. The first – the POPE methodology – relies on measuring changes in annual vehicle-hours and accidents on selected key links on the route to derive economic benefits. The revaluation estimated that the time and accident benefits of the scheme had increased from the predicted £29.63m to £79m. But the One-Year After study concludes that this is unreliable. The revaluated full COBA assessment shows outturn benefits of £22.85m, which is very similar to that forecast at £22.23m;
- the discussion of severance and accessibility in the evaluation refers to reductions in town centre traffic levels as a proxy for concluding that a positive benefit has been delivered in terms of reducing severance and improving accessibility; and
- the evaluation does not examine landscape, biodiversity, heritage and water issues at the One-Year After stage. However, it does comment on the likely impacts on noise and local air pollution. In particular, it reports that the main premise for the benefits claimed in the AST was that more properties in Polegate would experience improved air quality and noise reduction following reduced town centre traffic levels. The Evaluation Summary Table concludes that this is likely to have occurred as traffic levels were reduced by 62% in 2003. Nevertheless, this approach ignores possible increases in noise faced by properties on the edge of town near the bypass, which have been affected by traffic levels higher than forecast. There was anecdotal reporting of this problem during the case study visit to Polegate, and it deserves more careful analysis in the One-Year After Study.

## Overall conclusions

- Traffic growth on the Polegate Bypass has been higher than forecast and is likely to exceed its forecast design year of 2010 in the next year or so. There are also clear signs of induced traffic on the route.
- The strategic traffic ‘benefits’ of the bypass have not materialised and the South Coast Corridor MMS found that very little traffic was travelling further than 25 km in the area. Nevertheless, the idea that the A27 is part of a strategic South Coast Corridor route remains and creates further pressure for road building in the area.
- Traffic has rerouted to use the bypass together with the improved A22 corridor to Eastbourne. The A22 has also experienced high traffic growth (28% 2002-2005) as a result.
- There is evidence to suggest that people are now bypassing Polegate and accessing Eastbourne for shopping trips. This may be contributing to the economic problems facing Polegate retailers and the high number of shop closures since the bypass opened.
- The traffic levels on the old A27 through Polegate have increased slightly (9%) in recent years, suggesting that the bypass has been partly successful in helping to relieve town centre traffic congestion but that care is needed to avoid traffic levels creeping back up. Residents continue to report problems of severance and noise pollution is reported by residents living on the bypass-side of the town.
- Wealden District’s revised Plan makes provision for a revised figure of 850 new houses, with new land to the west of the bypass and north of the A22 allocated for 600 houses. The local council and Highways Agency have stated that this development should only go ahead when further trunk road improvements can be delivered.
- The major roadside facilities area located adjacent to the Cophall Roundabout has now received planning permission and is under construction. This will include a number of services, including a family pub/restaurant and convenience shop which will further impact on town centre businesses and may affect other service stations in the immediate area.
- The site for the proposed Polegate Business Park has been selected on land bordered by the old A27 and the new bypass. Its development is said to be dependant on further trunk road improvements in future. The need for such a business park is in doubt as there are several other available sites in the Eastbourne area.
- Too little significance has been given to the role of planned development driving trunk road improvements in the Polegate area. Although pressure for housing, commercial and business development did not feature in the justification of the scheme at public inquiry, they have subsequently taken on central importance in providing the case for further road expansion. At the same time, the evaluation processes are not adequately assessing what impact recent and planned development is having (or will have) on traffic growth in the area.

## **Annex 3: The A34 Newbury Bypass**

### **Project background**

Newbury is a prosperous large town lying in the Kennet Valley amongst rolling Berkshire chalk downland. This area experiences some of the highest pressure in the UK for new house-building. Newbury is also one of the prime options for businesses seeking to position themselves along the M4 corridor, with Chieveley Junction on the M4 just a few kilometres to the north of the town. The buoyant economy of the area is reflected in a high level of car ownership with 1.3 cars per household and unemployment below 1%. The population of Newbury itself is over 30,000, rising to over 60,000 including associated nearby settlements such as Thatcham [77]

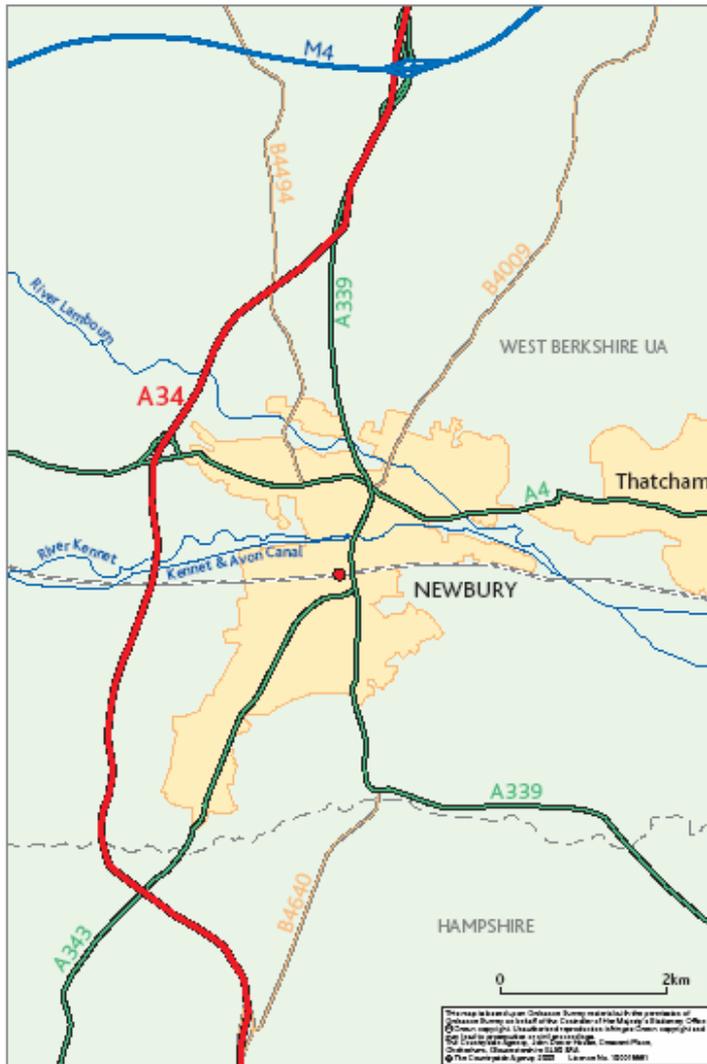
The A34 runs from the Midlands to the south coast (see map below) and, prior to the bypass, the section through Newbury was the only remaining section of single carriageway. The Newbury Bypass is 13.5 km long and passes to the west of Newbury.

The first public consultation on the scheme was in 1982. The Preferred Route was announced in 1984. The first and major public inquiry started in June 1988, followed by a second public inquiry to consider subsidiary issues such as the details of junctions in March 1992. Contractors started construction in January 1996 and were confronted with one of the largest anti-road direct action campaigns ever seen in Britain, giving the scheme a very high profile. The Highways Agency recorded a cost of £100m for the scheme and estimated the cost of security at £30m. [78]

The reasons that the scheme became so controversial included landscape, archaeology and ecological issues. The official advisors to Government on landscape said that the route was *'in landscape terms unacceptable ... it is massively destructive of a largely intimate countryside, unable to absorb the impact of a major highway'*. [79]

Archaeological issues included destruction of part of the site of the First Battle of Newbury and close proximity to the Second Battle site. Ecological issues included damage to nationally and locally designated wildlife sites including Snelsmore Common Site of Special Scientific Interest (SSSI) as well as various undesignated nature-rich sites known to house rare species.

## Map of the A34



Source: Countryside Agency

### Justification for the scheme

The Highways Agency 1995 Fact Sheet [80] said that *'the bypass will achieve two main purposes:*

- *The town of Newbury and the local population will benefit from the removal of trunk road traffic, including an estimated 400 heavy lorries per hour at peak times, which currently passes through the centre of the community;*

- *The 8.5 mile (13.5 km) bypass, running from Tot Hill to the A34 Donnington Link, will replace the only remaining section of single carriageway road on the important A34 route between the Midlands and the south coast ports.'*

The opening press release stated that *'The bypass will remove 20,000 vehicles a day from the heart of Newbury'*. [81]

The Highways Agency also suggested that the existing road would benefit from traffic management measures:

*'by removing a large component of the traffic a bypass would offer an opportunity for a significant change in the management to be applied on and around the existing road ... an alternative approach, in which the local and public transport needs of the town are given a higher priority, could be applied'*. [82] *'It would be possible to introduce traffic management measures to ensure that any relieved capacity benefited non-car users'*. [83]

## Traffic

### Newbury traffic flows

	Highways Agency forecast for 2010	Actual traffic in 2004
	AADT	AADT
<b>Newbury Bypass</b>	30,000-36,000	43,800

All figures are AADT, two-way Average Annual Daily Traffic. Forecasts are from *The Newbury Bypass Study Report*, July 1995. The relevant prediction is 30,000 because it uses the low growth *National Road Traffic Forecast* of 1989, which most closely tallies with the subsequent actual national traffic growth.

### Traffic forecasts

Baseline pre-bypass traffic figures for the existing road were quoted in the Highways Agency update report of 1995 as:

- Donnington Link 40,000 vpd;
- Inner Relief Road 50,000 vpd; and
- Newtown Straight 25,000 vpd.

The proportion of goods vehicles – Other Goods Vehicles (OGVs) and Public Service Vehicles (PSVs) (OGVs + PSVs) was between 14% (i.e. 7,000) on the Inner Relief Road and 19% (i.e. 7,600) on the Donnington Link. [84] The report noted that these figures showed considerable OGV growth on the A34 since the previous analysis by the DoT in 1983.

The DoT presented figures to the inquiry that immediate traffic reduction on the existing road would be 76% at the south (Newtown Straight), 36% on the sections past central Newbury, and 44% at the north (Donnington Link). [85]

The Inspector 1988 [86] accepted the DoT argument that nearly 100% north-south through traffic would be removed, and records that removal of this element would strip out 65% of traffic at Tot Hill and 36% of traffic at Donnington. In addition accounting for diversion to the bypass of traffic going to the A4 westbound, he concluded that total traffic reduction would be 74% at Tot Hill and 45% at Donnington.

For HGVs, the 1988 Appraisal Framework Table summarised the anticipated reduction at 63-88%. [87] DoT's evidence to the inquiry forecast that the Inner Relief Road near central Newbury and on the Donnington Link would see removal of 2,300-2,900 OGVs per day, corresponding to 63% relief (remnant flows of 1,400-1,600 OGVs/d). OGV traffic on the central section of the new bypass was predicted to be 2,600-3,100 per day at 2009. [88]

Some of the Newbury traffic forecasts were updated (increased) by the Highways Agency in a review study of 1995, in light of increased national forecasts calculated for the *National Road Traffic Forecasts* (1989). This study re-asserted the view that '*the current situation on the A34 in Newbury is intolerable*'. [89]

Updated forecasts for the bypass itself were in the range of 22,000 to 30,000 vpd (24hr AADT) in 2010 for the low national traffic growth scenario and in the range 27,000 to 36,000 vpd (24hr AADT) in 2010 for the high growth national road traffic forecast.

Updated forecasts for flows on the existing Inner Relief Road were 40,000 to 48,000 vpd at 2010 with the new bypass in place. [90]

The scope for induced traffic on the new bypass was assessed to be '*limited*' by the 1995 Highways Agency report, and none of the predicted traffic figures make any allowance for induced traffic. However, in a review of the then new SACTRA findings on induced traffic, the 1995 report concludes that the estimated worst case could be an additional 10%. [91]

This 1995 Highways Agency report did not estimate possible induced traffic levels on the existing Inner Relief Road but noted that '*the highway authorities would be able to manage the network, including the relieved A34, to control the growth of traffic*'. [92] '*The growth of induced traffic could be restricted or prevented. For example, some of the existing road space released by the bypass could be allocated to public transport*'. [93]

The report goes on to note that: '*the forecasts at both inquiries showed that future traffic growth would erode the relief gained by the bypass to the extent that flows on the existing A34, near to the centre of the town, could be around base levels by 2010 ... however, the relief on the approaches to the town, north and south of the central area would be more lasting and goods vehicle traffic throughout the existing A34 would remain well below current levels*'. [94]

### *Actual traffic levels on the bypass*

The *Movement framework for Newbury* records that 2003 traffic levels on the section of the bypass due west of Newbury were 45,700 (Average Annual Weekday Traffic – AAWT). [95] Like-for-like comparison with Highways Agency forecasts requires AADT data, which the Highways Agency TRADS2 database shows to be 43,800 in 2004 (43,300 in 2003) at the same monitoring point used by the movement study. [96]

Even taking the Highways Agency highest growth estimation, traffic flows in 2004 already considerably exceeded the figure officially anticipated for 2010. However, the high growth estimation is not the relevant comparator, because subsequent national traffic growth real data is now available, and it actually plots slightly lower than even the low growth *National Road Traffic Forecast* of 1989. So if the Highways Agency had in 1995 had the benefit of our present hindsight, it would have been able to rule out the high growth scenario. Their low growth forecast maximum was 30,000 vpd AADT for 2010. This has already been exceeded by 13,800 vehicles (46%) six years before the estimation date. [97]

HGVs constituted 23% of weekday traffic on the bypass in 2004, according to TRADS2 database data for monitoring points due west of Newbury (24hr AAWT). This means 10,700 HGVs per day. This is more than triple the high-end forecast to the 1988 inquiry – i.e. 200% above the forecast. No updated OGV forecast appeared in the Highways Agency 1995 study, but their figures do allow calculation that even prior to the bypass, OGVs had already increased to 7,600 on the Donnington Link. After construction of the bypass there was 9,060 HGVs/day (24hr AAWT) in 1999 according to the TRADS2 database. [98] So, between 1999 and 2004, HGVs traffic on the Newbury Bypass has increased 18.1%. This is nearly four times as fast as the national average growth in goods vehicles, which over the same period was 4.6%. [99]

It should be noted that major junction works at Chieveley have caused significant obstruction to A34 traffic flows during much of the period in question. [100] So, whilst the recorded traffic increases are considerable, it is conceivable that they are lower than they would have been had they not been suppressed by road works.

### *Actual traffic on the Inner Relief Road*

The *Movement Framework for Newbury* records 1997 pre-bypass, 1999 post-bypass and 2003 traffic levels. Immediate percentage reductions resulting from bypass construction were 52% for the Donnington Link in the north, 26% past central Newbury, and 70% on Newtown Straight to the south.

At Donnington this was a significantly greater cut than the DoT predicted to the inquiry. In the central zone the cut was significantly less than predicted. To the south it was somewhat less of an immediate cut than predicted, but this road was downgraded to B-road status after the bypass and has subsequently bucked the general trend so that by

2003 it had seen a further 6% decrease in traffic so that the total cut was very close to DoT forecasts.

If the DoT's predicted percentage cuts presented to the inquiry for the central zone of the Inner Relief Road are applied to the 1997 pre-bypass recorded traffic flow figures, the predicted resultant post-bypass traffic in 1999 would have been of the order of 34,000 (AAWT). The real figure was 39,100 (AAWT). By 2003 traffic on this central zone had grown to 42,000 (AAWT). Extrapolation of this rate of growth out to 2010 would fall just below the upper limit to the Highways Agency's 1995 update of forecast traffic flow, but as noted above, actual national traffic growth over this period corresponds to a curve closer to (in fact below) the low growth curve, which corresponds to the Highways Agency forecast of 42,000 (AADT) at 2010. Even allowing for the different methods of averaging between these two figures, it is clear that the present traffic level past the centre of Newbury is already approaching the 2010 forecast and on current trend will much exceed it by 2010.

The Highways Agency 1995 report made no forecast of levels of induced traffic on this road, just noting that such traffic could be controlled by management measures. But, as the *Movement Framework for Newbury* notes, '*the A339 remains broadly unchanged from the original layout in operation before the A34 bypass was opened in November 1998, apart from the signalisation of the roundabouts at Robin Hood and Bear Lane, which was designed to improve the flow through the junctions*'. [101]

The thrust of the Highways Agency 1995 report's discussion of induced traffic was that the possibility of management measures to control it meant that it should not be a determining factor in deciding about the construction of the bypass. However, the only alterations actually implemented on the original road have been signalling intended to remove congestion at junctions. Moreover it appears that the newly available road space has partly been used to provide access to new developments.

The Atkins' Movement framework notes that '*traffic levels on the A339 corridor immediately reduced following the opening of the Newbury bypass in 1998 but have since increased again. It is thought that a significant proportion of this increase may be local traffic, including traffic generated by recent developments. It is apparent that increasing traffic levels of the A339 corridor have resulted in junctions along the A339 corridor operating close to or at capacity as well as acting as a barrier and reducing accessibility into Newbury Town Centre for all road users including cyclists and pedestrians*'. [102] Now that the situation is one of resurgent congestion, it will clearly be a much harder task for the highway authority to reallocate road space.

It additionally appears that peak morning flows have seen a much steeper increase, presumably because there was considerable pent-up demand for road travel at this time. The Newbury Movement Framework graphs (p.B1, B2) show increases over the period 2000-2003 of around 26% and 24% for peak hour flows through the Donnington Link and Inner Relief Road central section. If this rate of growth has been sustained from 2003 to the present the morning peak flow could already be back to pre-bypass levels

(analysis of TRADS 2 shows that 1997 pre-bypass average May Wednesday morning peak hour flow on the central section of the Inner Relief Road was around 3,900; in 2003, the latest TRADS2 data, the same figure stood at 3,500). This is significant because the DoT evidence to the first inquiry made the point that the peak period was a prime cause of the 'severe conditions' that the bypass was seeking to remedy. [103]

HGV levels average 10% of vehicle movements on the Donnington Link according to surveys for the *Movement Framework for Newbury*. This translates to some 2,300 HGVs per day. This is 700-900 above the figures predicted by DoT evidence to the inquiry. No updated OGV forecast was calculated for the Highways Agency Report of 1995 (and neither does the TRADS2 database hold flow data classified according to vehicle type for the Inner Relief Road). The result is that it is not possible to analyse how HGV traffic has grown on the Inner Relief Road since the construction of the bypass. However, the *Movement Framework for Newbury* survey data shows that there is still a considerable volume of HGV traffic on this road.

As the framework notes, there has been significant development at industrial and business parks in recent years on sites within and adjacent to Newbury. The importance of this point is that the Inspector's Report noted how, in its case to the inquiry for the need for a bypass, 'The Department placed particular emphasis on the higher than average number of OGVs that travel through the town'. However, in practice, the old road has not seen the traffic management measures mentioned in the 1995 Highways Agency document, rather the spare capacity of the old road is, at least in part, being used to facilitate HGV access to further business and industrial development in or on the edge of the town.

#### *Actual traffic elsewhere*

Unanticipated growth in HGV traffic became a key issue on the B4000 after construction of the bypass. This road initially suffered much increased HGV traffic because it formed a cut-off between the new bypass and the westbound M4 to such an extent that it generated a local campaign from Stockcross and the other villages that were affected. This campaign resulted in a weight limit being applied to that section of road. This problem was raised in evidence to the 1988 inquiry by David Starkie, who happened to be both a local resident and a traffic expert. The DoT did acknowledge in its proof of evidence that 'the traffic model does also allow for some traffic travelling from the south to M4 west to route via the B4000 from the A4 junction'. Its report did not mention this road in its section on OGV forecasts, even though it contains a diagram that shows that this is the one location where their model predicted OGV flows in 2009 to be worse with the bypass than without it. [104] According to David Starkie, the DoT did not accept that the increase in HGV traffic would be problematic. [105]

## Development

At the 1988 public inquiry the Inspector's conclusions noted that Newbury District Council did not accept that the bypass would lead to development on the land between Newbury and the bypass, and noted that such development was not provided for in the Structure Plan. [106] Inspector therefore decided to disallow induced development as a relevant consideration in determining the merits or demerits of the bypass: *'I can only conclude that it must be left to the local planning authority, together with the Secretary of State, to regulate development in accordance with normal planning criteria'*.

The highest profile planning applications in the zone between Newbury and the bypass are those of Sir Richard Sutton's Settled Estates. In 1994, in the midst of the bypass controversy, proposed developments lodged on file at local planning offices were compiled by the bypass opposition campaign and published in the local paper as a map. [107] Between the bypass and Newbury, the map identifies four prospective housing sites amounting to some 1,700 houses on 156 acres, and a further two sites amounting to 107 acres which at the same density would add a further 1,165 houses, bringing the total potential housing to about 2,865. None of these sites has been developed as yet, which probably gives some indication of the sensitivity created by the campaign.

The scheme that has subsequently been most energetically promoted by Sutton Estates concerns housing on two of these sites, amounting to some 750 new houses on 70 acres, in conjunction with a planning gain proposal that in return for planning permission they would ensure *'restoration of the principal areas of the battlefield on which the first Battle of Newbury was fought in 1643... [and thereby] protection of 533 acres of open land between Newbury and the new by-pass against future development'*. [108] Sutton Estates' promotion leaflet put the scheme in the context of central Government's requirement that West Berkshire provide large numbers of new homes over the next ten years. The leaflet was timed to coincide with council consultation on proposed new housing sites, one of which was proposed for the north east corner of the site in question, with space for 45-55 houses. This corner of the site has indeed now been designated for housing development on the Local Plan. The future of the rest of the site will be partly determined by the results of ongoing consultation by West Berkshire Council in preparing its Local Development Framework, which will lay down a West Berkshire Planning Strategy. [109]

In the south western zone between the bypass and Newbury, the village of Enborne Row has seen two sites (each of several acres) developed with housing since completion of the bypass which has enlarged the village considerably relative to its original size (see photo below). The development to the west of the village has filled the space between the original village and the bypass.

## New houses by the bypass at Enborne Row



Transport for Quality of Life

To the south of Newbury, Tot Hill services area has been built to the west of the bypass. This takes 5 acres of land and includes a Travelodge, Little Chef and MacDonalD's in addition to a Shell petrol station. These buildings were built on greenfield land on the opposite side of the bypass to Newbury and to the nearest village, Burghclere, and are within the North Wessex Downs AONB.

Chieveley Junction with the M4 is also a focus for development. Since the bypass was built the junction has been enlarged to facilitate flows of north-south traffic. As recorded above, new development focussed on this junction was highlighted by the landscape expert commissioned to review the impact of the bypass for West Berkshire Council, [110] who expressed her concern that this will lead to further development and encroachment on the AONB, which she already considered to have suffered impacts '*worse than expected*' in this area.

On the old road, it appears that development has been allowed to happen that would not have been allowed without the bypass. Vodafone has set up its world HQ with more than 3,500 employees just north of Newbury, which required an access roundabout on the old road (now the A339 Donnington Link). Sainsbury's used to be located right in the town centre and reportedly were initially refused planning permission to relocate on the basis that the old road would not cope with the traffic that a new Sainsbury's would generate until there was a bypass. In the event they actually gained permission to relocate before the bypass was built, so either the planners changed their mind or were persuaded that the bypass was sufficiently imminent. [111] As already noted, industrial and business park development within and bordering Newbury has proceeded apace in recent years and is listed in the *Movement Framework for Newbury* as one of the sources of increased traffic. [112]

## Landscape impacts

### *Visual intrusion*

The Inspector stated that from his own inspection of the route that his *'reaction was that there would have to be very good justification from the Department of Transport for driving a new dual carriageway road through such scenery'* [113] and went on to state that *'the contents of the Landscape Advisory Committee Reports came as no surprise'*.

In its third report [114] (1985) the Advisory Committee on the Landscape Treatment of Trunk Roads noted that its earlier 1981 report had recommended dropping the western routes for the bypass on the grounds that *'the damage by these routes to the Lambourne Valley and Snelsmore Common would be quite unacceptable'*. It complained that it was then being asked in 1985 *'to inspect a route which it had already found unacceptable on landscape grounds'*. It noted presciently that *'this will undoubtedly prove to be one of the most environmentally contentious proposals in recent history'*. Its strongest concerns were how the road impacted on an *'intimate rural landscape'*, with particular emphasis on the crossing of the Kennet Valley where it would *'create an enormous visual barrier right across the whole valley'*. It recommended a visually more transparent viaduct rather than the embankment approach actually adopted

The Appraisal Framework [115] recognised that the road would be *'intrusive across the valley of the Kennet and Avon canal and the River Kennet'* and *'considerably intrusive from local viewpoints to the east of Bagnor and near the River Lambourne where the route crosses a popular network of footpaths'*. In addition, it stated that *'more severe intrusion would result from the route through the rising open valley from Bagnor towards Snelsmore Common, which would be visible for a considerable distance from the south'*.

## Cutting through ridge east of Bagnor



Transport for Quality of Life

The most striking thing about this scheme from a landscape point of view is that the official processes of landscape assessment objected to the bypass as strongly as it was possible for them to do so, and that nevertheless, the road went ahead with the justification that the projected benefits would be worth the damage sustained. The Inspector's Report [116] even contended that there would be a net environmental benefit: *'I consider that the PR [Preferred Route] does pass the environmental test, for, whilst I accept in landscape terms on the west of Newbury the PR would be very damaging in places, it would provide considerable relief to the people of Newbury who live along the present route'*.

In response to a request by Atkins for input to their Five-Year study of the bypass, West Berkshire Council's planning department recently commissioned a landscape consultant to produce a brief two-page report on landscape impacts. [117] The consultant regards that the severance of landscape and visual continuity in the Kennet Valley are *'as expected'* and mirrors the original Landscape Advisory Committee opinion that a viaduct may have been preferable. She categorises the section through the AONB north of Mary Hare School up to the Chieveley M4 junction as *'worse than expected'*, noting that *'this section has seen a major increase in highway infrastructure (road widening, new carriageways, bridges, slip roads and access routes). Consequently the character of this part of the AONB has been changed considerably despite the presence of a motorway, trunk road and separated junction in the past. The creation of such a major interchange and the need to provide access to Newbury, hotels, the service area, etc, inevitably destroys the natural beauty of the immediate area affected. The influence of the road*

*corridor has therefore encroached into the AONB. Great care needs to be taken to avoid a knock on effect from intrusive secondary development on the AONB. There is a risk that, as a result of the erosion of the immediate area of the AONB, further development will be justified on these grounds.'*

Although some of these impacts relate to the Chieveley M4 junction works rather than the bypass itself, they need to be seen in the context of the fact that it was the construction of the Newbury Bypass which shifted the perceived congestion hotspot from Newbury north to Chieveley Junction. More positively the landscape report takes the view that *'the measures to mitigate adverse impacts seem to have been fairly successful'* and that the suitability of materials and finishes is *'better than expected'* so that *'structures are better integrated into the landscape'*. These conclusions have been corroborated in separate research commissioned by the Countryside Agency. [118]

This consultant says that *'as a driving experience the landscape design and mitigation of the road scheme has been successful. Views out are varied and interesting'*. This approach, however, draws attention to a systematic problem that continues to be built into the appraisal process: such *'views out'* inevitably mean that roads such as the Newbury Bypass are highly visible from the surrounding countryside.

The AST for Newbury contained a section on the *'View from the Road'*. According to this section motorists on the bypass could expect to see *'pastoral and woodland views through rolling downland countryside with occasional glimpses of residential and farm buildings'*. [119] The then-current DoT *Manual of Environmental Appraisal* [120] had a chapter on *'view from the road'* stating that *'the existence of the new road will also enable more people to see the landscape than hitherto'* and explicitly stated that this was a *'benefit'* that *'can be brought into the appraisal process as the impact of the view from the road'*. The manual suggested that *'older heavily-industrialised areas'* should be regarded as a disbenefit. So according to this element of the appraisal framework the Newbury Bypass should have scored more highly in the appraisal because it was to be built through a highly scenic area. This perverse incentive to choose the most sensitive landscape location for a new road persists in the current addition of the *Design Manual for Roads and Bridges* which also refers to *'disbenefit which may arise where a road passes through heavily industrialised or other visually unattractive areas'*. [121]

## **Light pollution**

The 1985 report of the Advisory Committee on the Landscape Treatment of Trunk Roads pointed out the extreme sensitivity of lighting in the countryside around Newbury, saying that *'visual intrusions in such an area as this will be enormously increased unless lighting is kept to an absolute minimum'*. [122] The road itself is not lit. This does make a significant difference to the level of light pollution and it is to be hoped that any future pressure (e.g. to light junctions) will be resisted.

However, the bypass has generated new light pollution because roundabouts are lit. For example, at the A4 junction two roundabouts are lit and connected by a fully-lit bridge

high above the motorway which cannot therefore be screened. The bridge and services area at Tot Hill are also lit and although the services area is mostly surrounded by trees the bridge above the motorway is more visible.

## Noise

Although no post-construction assessment of noise levels has been made, since the actual levels of traffic on the bypass are higher than predicted, and particularly considering the very high levels of HGV traffic, it would seem safe to assume that the noise levels generally exceed those predicted by the original noise modelling.

The official deliberations seemed to give little weight to noise impacts on users of the open countryside and the way that this can fundamentally change its feel from being peaceful countryside to being semi-urban. The Inspector noted that *'a new route through virgin countryside is going to produce a strip in which there would be high increases in noise'* but went on to state that *'there is evidence [not referenced] to show that traffic noise does not prevent recreational areas from being used, and therefore I am not convinced that the PR would cause footpaths and public areas to lose their attraction'*. [123]

It is clearly an inadequate test for noise pollution to say that increased noise is acceptable until such point as people find a place unusable. No allowance was made for the fact that those who continue to use the affected zone may find that their enjoyment of the area is reduced by the noise, or that it no longer feels like countryside. One local resident who used to go for walks with his dog in the vicinity of the National Trust property no longer goes there because of the noise. [124]

The Appraisal Framework heading *'The Accessible Countryside'* entry for noise has a one sentence entry *'noise increases on footpaths in the vicinity of the route'*. [125] The 1983 *Manual of Environmental Appraisal*, still apparently current at the time of the 1988 inquiry, does detail amongst its affected *'users of facilities'*, *'users of the countryside such as ramblers, equestrians or ornithologists.'* It also advises that the appraisal should consider *'intrinsic value'*, but in trying to tackle this concept takes the limited view that the appraisal should only concern itself with *'impact on specific environmental and conservation policies'*, which for practical application it boils down to *'the extent to which the route cuts through, passes, is visible or audible from such sites as Listed Buildings, Ancient Monuments, National Parks, AONBs, SSSIs'*. [126] However, even within this restricted scope of analysis, noise impacts (and indeed visual impacts) fail to appear in the Appraisal Framework Table under the sections on policies for AONBs and SSSIs, the only consideration appearing to be whether the road actually impinges physically on these areas.

By comparison with its treatment of the open countryside, the Appraisal Framework gives noise relatively close examination as an issue for dwellings and other buildings. Nevertheless, it seems that it was necessary to return to fit noise baffle fences to counter noise to residences near Wash Common that turned out to be worse than expected. It is

not clear whether this was linked to the poor performance of the porous low-noise road surfacing, which had to be replaced after it cracked. [127]

One strange omission in the Appraisal Framework is noise impact in the village of Bagnor. The Framework recognises that the village is an area officially recognised as having '*special architectural, historic, or townscape character to be safeguarded and enhanced*' and that the route passes within 120 m of the Bagnor Conservation Area, but noise is not mentioned as an issue. On Bagnor village green today, which the Landscape Advisory Committee once described as enjoying '*a quiet and isolated situation alongside the river Lambourne*', [128] there is a constant background noise from the bypass. [129]

### **Progress against the scheme's stated objectives**

The road has completed the north-south A34 as dual carriageway throughout its entire length and removed the congestion pinch-point through Newbury. There are now concerns that the congestion pinch points have subsequently shifted first to the Chieveley Junction, and then to a section past Oxford.

Congestion and heavy traffic on the old route has only been relieved to a degree. It seems clear that there would be more HGV traffic on the old road without the bypass but there is still a high level of HGV traffic on the old road. It is also clear that traffic on the old road has increased faster than predicted and that the morning peak is nearly back to pre-bypass levels. This is partly because the old road is used to access new developments.

### **Status of Post Opening Project Evaluation**

Eight years after opening, a Five-Year POPE study of the Newbury Bypass has been completed by Atkins for the Highways Agency but is yet to be released, and has not been made available to the authors of this study.

At the behest of West Berkshire Council, Atkins has recently completed a further substantial study to assess the continuing congestion in the town. The results of this study were made available and helped inform the case study.

## Conclusions

- Traffic growth on the bypass, for reasons other than underlying national traffic growth, has vastly exceeded the Highways Agency's 1995 worst case estimate that there would be no more than 10% induced traffic. The Highways Agency estimate based on low National Road Traffic Forecasts (the forecast which is closest to the actual subsequent growth in national road traffic) has already been exceeded by 46% (13,800 additional vpd), six years before the 2010 estimation date.
- Since the bypass was constructed, HGV traffic on the A34 corridor has grown nearly four times as fast as the national average.
- The present traffic level on the old road past the centre of Newbury is already approaching the 2010 forecast and on current trend will much exceed it by 2010.
- Although the bypass has reduced traffic in general on the original road, the morning peak on the old road is already nearly as bad as ever.
- The only alterations implemented on the original road have been such as to tend to encourage more traffic. Moreover it appears that the newly available road space has partly been used to provide access for new developments.
- The bypass diverted much HGV traffic but the old road still experiences high levels of HGVs, at least in part because of new industrial and business sites close to Newbury accessed via the old road.
- Development between Newbury and the bypass has not, so far, been on the scale that the anti-bypass campaign feared. Smaller housing developments in this area have been built or zoned in the Local Plan. There is considerable pressure for at least one much larger development and in the context of Government figure for housing requirements in this area it would seem naïve to expect that the local council will be able to resist such proposals forever.
- Development around services at junctions on the bypass itself at Tot Hill and further north at Chieveley M4 junction have encroached into AONBs and provide worrying precedents for future development in these locations.
- The bypass has enabled edge-of-town development on the old road, most notably Vodafone's HQ. It also appears to have aided further development of industrial and business parks accessed via the old road. These will have generated traffic on the old road, which was not allowed for in the scheme appraisal.
- The Advisory Committee on the Landscape Assessment of Trunk Roads strongly objected to the bypass, but nevertheless the road went ahead.

- A recent landscape assessment of the bypass concluded that the severance of landscape and visual continuity in the Kennet Valley were as expected – i.e. as severe as officially predicted. The impact on the AONB to the north of Newbury was assessed as worse than expected, with potential for further damage as a result of future development around the Chieveley M4 intersection. Mitigation measures to reduce some of the adverse impacts on landscape have, however, been fairly successful.
- The bypass itself is unlit, in accordance with the Landscape Advisory Committee’s advice that the countryside hereabouts was very sensitive to light pollution. However, the lighting at roundabouts, services and associated high bridges over the bypass have created sources of light pollution.
- The official assessment of noise impacts of the road gave very little weight to its impact across a broad zone of countryside, an impact worse than forecast because of much higher than predicted traffic levels and the very high growth in HGV traffic on the bypass.

## **Annex 4: The M65 Blackburn Southern Bypass**

### **Project background**

At the end of the nineteenth century Blackburn could lay claim to being the weaving capital of the world, after explosive industrial growth from rural beginnings. [130] Today, like other settlements in the Calder Valley, Blackburn is struggling to revive its fortunes after a long period of decline in its traditional manufacturing industries. European structural funding and single regeneration budget subsidies are on offer to tempt new industry to the area and have been used to build infrastructure, including roads. [131]

Blackburn, together with the neighbouring settlement of Darwen, has a population of 137,000, [132] which has remained relatively stable since 1991. [133] Car ownership is comparatively low, at 0.9 cars per household, with a relatively high proportion of households without a car. [134] There is a string of settlements along the Calder Valley to the east of Blackburn, of which Burnley, with a population of 90,000 [135] is the largest. Less than 10 miles to the west of Blackburn is Preston, with a population of 130,000. [136]

In landscape terms, Blackburn lies on the westernmost edge of the Pennines, where Millstone Grit and Coal Measures give rise to prominent hills with moorland on the tops. There is a change in both geology and landscape just a few kilometres to the west of Blackburn where the countryside becomes more gently rolling with more fields and hedges.

The general setting of the M65 in broad terms varies from rural to semi-urban. From the western end, south of Bamber Bridge to the M61 at Junction 2 it is semi-urban. Continuing east from Junction 1 to Junction 4 it is rural. From Junction 4 to Junction 6 it runs round the south of Blackburn, largely through what was originally Green Belt, so here it is semi-urban with mainly open countryside to the south east and Blackburn plus its industrial development to the north west. Proceeding eastwards, Junction 6 to Junction 8 is semi-rural; from Junction 8 to the end at Junction 13 it is rural to the north of the motorway and with a series of towns to the south east and a semi-urban stretch near Burnley around Junction 10.

This case study concentrates on the Blackburn Southern Bypass section of the M65, from Junction 1A to Junction 6, which was opened in December 1997. [137] This section filled a 21 km gap in the M65 from east of Blackburn at Whitebirk to Bamber Bridge south of Preston, where it connected with the M6 and M61.

## Map showing the M65 and other local trunk roads and motorways



Source: Highways Agency

Further up the Calder Valley the M65 already existed, having opened between 1981 and 1988 in sections. Rather unusually, the Burnley-Colne section had been built as a local authority motorway by Lancashire County Council. The pressure for an ‘express’ route up the Calder Valley dates back to a Lancashire County Council plan of 1949. [138] In 1968 and 1969 reports to the Minister of Housing and Local Government and Minister of Transport called for a fast road from the M6 to ensure the economic prosperity of the Calder Valley. [139] Ambitions for a faster (second) link over the Pennines also date back a long way, Blackburn Trades Council mounting a campaign in 1967 that persuaded the local council to push for a new coast-to-coast trunk route. [140] The Inspector’s 1990 Report of the public inquiry referred to Lancashire County Council proposals to bypass Colne and Foulridge with the aim to achieve a quicker link to Skipton. It also noted DoT plans to trunk the A56 from Colne to Broughton near Skipton, although adding that the Department had no plans to extend the M65 as a motorway eastwards beyond Colne. [141] Recent discussion of extension over the Pennines has been in the context of the Northern Way programme launched by John Prescott to consider ways to foster economic growth in northern England. [142]

Most of the M65 is two lanes, with three lane sections at the western end between the M6 and M61 junctions and on the eastern section from Junction 6 to Junction 9 between Blackburn and Burnley. However, the Blackburn Southern Bypass section was built with ‘*over-wide structures to allow for possible future widening*’. [143]

Construction of the M65 generated environmental opposition in 1994 and 1995, including direct action centred on two locations: Cuerden Valley Park at the western end, which was severed by the road, and Stanworth Valley woodlands near Feniscowles west of Blackburn. Stanworth Valley became a focus of media attention after activists

constructed a ‘village in the sky’ comprising some 40 tree houses connected by 4 km of aerial cable walkways, leading to a protracted eviction process. [144]

### **Justification for the scheme**

The Inspector recorded Government reports as far back as the 1960s that concluded that *‘unless a fast direct route was provided, the future growth and prosperity of the Calder Valley would suffer’*. [145] Although the Inspector did not mention it, these early reports predicted such suffering on the basis of anticipated *‘competition with the Central Lancashire New Town’*, a proposed agglomeration of Preston, Chorley and Leyland which has not come into existence. [146] The case for the DoT (as recorded by the Inspector) was that *‘the existing M65 ... had brought substantial benefits to the Calder Valley towns but the full potential of the road could not be realised until the final link to Preston and the M6 was completed’*. [147] A DoT consultation pamphlet additionally noted that *‘the Blackburn-Preston section of the M65 will also considerably enhance the opportunities for developing several major industrial sites now available on the southern periphery of Blackburn and in Darwen’*. [148] In his conclusions the Inspector noted that *‘much of the development achieved recently has been in the expectation of the Blackburn Southern Bypass being built as planned’*. [149]

A second justification was that *‘the new road will also remove much of the through traffic from the existing route around the north of Blackburn, which will then allow it to function more effectively as a distributor for local traffic. The existing road network in the South Blackburn area and between Blackburn and the Preston-Chorley area will also be relieved’*. [150]

The Inspector recorded specifically that *‘traffic flow on the existing trunk road would be reduced by 30-50% while a reduction of more than 60% could be expected on the A675 through Hoghton and High Walton, and a similar reduction on the B5256 through Brindle. The roads in Blackburn now used as a ‘southern ring road’ would see a reduction of at least a third including a high proportion of HGVs. All communities bordering these roads would gain substantial environmental benefit’*. [151]

The Inspector recorded a third justification that it would reduce accidents.

### **Traffic**

#### **M65 traffic flows**

	<b>Department of Transport forecast for 2010 AADT</b>	<b>Actual traffic in 2004 AADT</b>
<b>M65</b>	41,000 – 51,000	52,452

All figures are AADT, two-way Average Annual Daily Traffic. Forecast is from Inspector’s Report of public inquiry 1990. The relevant prediction is 41,000 because it uses the low growth *National Road Traffic Forecast* of 1989, which most closely tallies with the subsequent actual national traffic growth.

### *Traffic forecasts*

DoT predictions for 1995 and 2010 were recorded at the inquiry by the Inspector:

- *'if the published scheme were built by 1995 it would be used by between 32,500 and 35,500 AADT'*
- *'by 2010 these figures would have increased to 41,000 – 51,000 AADT';*
- *'The most congested section of the existing trunk road would lose 15,700 AADT in 1995'*
- These predictions were based on the National Road Traffic Forecasts 1989. [152]

Challenged at inquiry by objectors on the likelihood of unanticipated traffic growth such as that which had been seen on the M25, the DoT responded that *'the M25 was a special case and the M65 extension was expected to generate only an insignificant volume of extra traffic'*. [153] In his conclusions the Inspector supported the Department's contention that traffic generation would not be significant but added a caveat that: *'the traffic generation effect of motorways has, it seems to me, been an issue since the M25 was opened and the Department's argument that the M25 is a special case is not particularly convincing'*. [154]

The Inspector's summary of the case for the DoT recorded that *'the maximum design year flow predicted for the scheme was 51,000 vehicles/day'*, and that *'it was not expected that the road would need to be widened during its design life'*. [155]

### *Actual traffic levels on the M65*

Highways Agency TRADS2 database statistics for 2004, the latest full year available, show traffic levels on the M65 south of Blackburn had reached 52,452 AADT on the busiest section between junctions 4 and 5. [156] The section between junctions 2 and 3 was nearly as busy with 51,962 AADT.

The predicted maximum design year flow on the M65 has been exceeded six years ahead of the design year 2010.

Peak flow congestion is now a problem at some junctions, particularly Junction 6 where there is a queue of vehicles in the inside lane waiting to exit during morning rush hour. [157]

The traffic problems on the section between Junction 5 and Junction 6 are of particular concern because of strategic plans for further development in the vicinity of Junction 6. *Blackburn with Darwen Draft Local Transport Plan* identifies: *'widening of the M65 motorway to enable development of the Strategic Regional Site at Whitebirk'* as a key priority. [158] It notes that *'based on existing flows, M65 junctions 5-6 would reach capacity by 2012 regardless of any further development activity on the corridor. The Highways Agency is therefore limiting trip generation to 400 extra vehicles [per day] between junctions 5-6. This would seriously undermine the potential to develop the site'*. [159]

The Highways Agency opposed a recent planning application for expansion at Whitebirk but it is anticipated that this will be resolved by introduction of traffic lights on the feeder roads and associated junctions to Junction 6. [160] However, this will not create sufficient capacity to accommodate the Council's ambitions for major expansion of industrial and business development in this zone, as expressed in the following statement: *'The Strategic Regional Site at Whitebirk is identified within the draft RES [Regional Economic Strategy] and is a key priority for the council and partners. Its future development (and that of the wider Strategic Employment Zone covering Greenbank and Furthergate), the generation of investment and creation of higher wage jobs accessible to local people is dependent upon continued investment to improve transport connectivity, notably widening of the M65 motorway and development of the railway station at Greenbank'*. [161] The Council's proposed LTP Investment Programme for 2006-2011 identifies 'M65 widening junctions 5-6' as one of its three major schemes at a cost of £10-20m [162]

#### *Resulting traffic on other roads*

The original A677 Preston-Blackburn trunk road was monitored before the construction of the motorway and for one year afterwards, but the TRADS2 database indicates that the monitoring sites on this road have been inactive since then. The available data shows that between 1997 and 1998 (M65 opened mid-December 1997) traffic on the road fell from 29,917 to 16,995 AADT, a 43% drop. This is in the middle of the percentage range of predicted cuts recorded in the Inspector's Report.

The TRADS2 database does not offer data for the other (generally non-trunk) roads which the M65 was predicted to relieve, so it has not been possible to make numerical comparisons against predicted cuts elsewhere.

However, it is notable that, of the five '*congestion hotspots within the Borough*' identified in the Draft LTP 2005; three are on main roads leading from Blackburn to junctions 3, 4, and 5 with the M65. These are listed as Blackburn West Corridor (A674), Blackburn Town Centre to Darwen Town Centre Corridor (A666), and Blackburn to Guide (A6177). [163] Maps and appendices accompanying the 1989 Environmental Statement [164] showed that these roads were in general predicted to be relieved by the motorway to the extent of 2,000-5,000 vpd with the exceptions of anticipated flow increases of 1,200 for a short section of the A674 north of Junction 3 and an anticipated flow increase of 3,900 for a short section of the A666 immediately south of Junction 4.

Blackburn to Whitebirk and Knuzden Corridor (A679) is additionally listed as a fourth congestion hotspot. This road can be used from the southern side of the town as a route to the major zone of industrial development west of Junction 6 on the M65, but the A677 running parallel round the northern side of the town centre is a more direct connection to Junction 6 and to these industrial areas. The Environmental Statement showed neither an anticipated relief nor increase of traffic on the A679, presumably because the through traffic was predominantly on the more direct A677. According to the Draft LTP, '*the congestion hotspots within the borough are associated with corridors into the two Town*

*Centres and into major employment sites*'. Blackburn has earmarked all of these corridors for significant expenditure in its proposed LTP Investment Programme. [165]

## **Development**

The Environmental Statement [166] of 1989 noted that *'from the M61 to the east of Tockholes is designated Special Landscape Value. This includes an area of green belt in the vicinity of Brindle ... from east of Tockholes to the existing M65 the route passes through green belt with the exception of the urban area at Earcroft*'.

The issue of erosion of Green Belt and areas of Special Landscape Value by development attracted to the motorway was raised by objectors at the inquiry. DoT responded that *'it was the responsibility of local authorities to control development in accordance with the structure plans and there was no reason to expect significant development along the axis of the motorway*'. [167]

The line of the M65 south east of Blackburn has already caused some modification to the boundary to Green Belt and further changes are in the pipeline. Blackburn's Core Strategy Document states that *'the urban areas of Blackburn will be expected to grow to the north east, particularly through the development of land for employment uses. This will entail a review of green belt in this area*'. [168] Conversation with the planning department indicates that the zone in question is a substantial area north of Junction 6 between the existing Whitebirk industrial estate on the edge of Blackburn and the settlement of Rishton. [169] Rishton is presently separated from Blackburn by about 2 km of Green Belt and although no figures are available, it would appear likely that the area of land in prospect could amount to several square kilometres or more.

As noted earlier, this extension of the Whitebirk site is central to Blackburn's economic regeneration ambitions. Although it features in Blackburn's plans, this area is actually within Hyndburn Borough Council and has been developed in discussion with them. Hyndburn planning department confirmed that if development were to take place at the larger end of the possible scale then the *'functional gap*' presently formed by Green Belt between Rishton and Blackburn would be filled. [170] To the south, on the other side of Junction 6, Hyndburn's own Local Plan maps have already designated 35 hectares of previously Green Belt land as an industrial site. [171] Application for development on this site raised Highways Agency objections because of capacity limits on the M65 and at Junction 6, and is one of the drivers of the ongoing debate about widening to three lanes. [172] Even without further built development or re-designation of land, it must be said that around Junction 6 the extensive web of slip roads, plus roundabouts and the M65 itself have already eroded and fragmented this piece of Green Belt countryside.

Erosion of Green Belt by development on a smaller scale has already occurred at Guide. Inspection of the maps accompanying the Environmental Statement, which were based on the then current Local Plans and Lancashire County Council Structure Plan, shows that Green Belt designation extended to about 100 m from the B6231/B6232 junction in Guide. The present Local Plan [173] shows that Green Belt designation has been cut

back to the line of the M65 and the section to the north west (i.e. between the road and Blackburn) has been re-designated as *'business and industrial development area'*, thereby extending the Roman Road industrial estate directly to the west. The plan shows that four large buildings have already been constructed, occupying about half of the 120,000 sq metres (approx) area that has been released for development. Some 20 houses have also been constructed in this zone of previous Green Belt between Guide and the motorway.

It was quite clear from the outset that the M65 was intended to generate development, particularly business sites, so it is no surprise that such development is happening. It is surprising that the generation of traffic by such development was not factored into the traffic predictions for the motorway itself nor the existing road network.

As previously mentioned, Blackburn Council has recognised that the congestion hotspots on the local road network are associated with major employment sites. Because these are out-of-town sites they have encouraged car-based commuting: *'Much of the recently established employment in the Borough has located near to the M65 junctions in the south and east of Blackburn. Public transport serving these areas is fragmented and a closer examination is required to see how access can be improved'*. [174] Blackburn's head of Forward Planning and Transport fears that there is potential for a rapid change to higher car ownership and use as a result of Blackburn's youthful demography. [175] According to the Draft LTP, Blackburn area has *'the third highest percentage of children under 16 years of age in the whole of England (25.2%)'* and there is *'the potential for a serious increase in car use'*. [176] Blackburn have belatedly recognised that it is important to deflect potential car users onto good public transport and are now looking to spend some £20 million on public transport measures such as *'quality bus corridors'*. [177]

## **Landscape impacts**

### *Visual intrusion*

The Appraisal Framework Table noted that *'approximately 8 kms of route passes through area designated Special Landscape Value'*. [178] But the Inspector's conclusions discounted this because *'in my opinion ... much of the area is a good deal affected by the sight and sound of traffic on these [existing] roads'*. [179]

*'This was one of the most comprehensive landscape schemes made in the north west region for a new motorway'* according to the DoT. [180] At 4% of total project cost, expenditure on landscaping was *'double that which normally goes into motorway projects'* according to a special report by the local paper in 1990, which also quoted Department officials as saying that *'considerable effort has been made to blend the road into the surroundings by the use of landscaped mounding and extensive planting along the route'*. [181]

In Cuerden Valley Park, which was recognised in the Environmental Statement as one of the sensitive locations along the route, the Highways Agency paid for the Cuerden Valley Park Trust to plant 30,000 trees and to move bluebells, with some follow-up monies for care and maintenance to get the plants established. The ranger today, whose service there dates back to the time of the road construction, feels that the measures were comparatively successful and that the impact of the road has not been *'as bad as I feared'*. [182]

### **Stanworth Valley viaduct – seen from valley floor**



Transport for Quality of Life

In contrast, the Stanworth Valley, which became a cause célèbre, gets no mention at all in the Appraisal Framework Table. The main texts of the Environmental Statement do recognise it as *'ecologically interesting woodland'* and say that *'the valley will be crossed on a viaduct which will minimise the impact on the ecology. Planting along the side slopes of the route will eventually help to ameliorate the loss of habitat in this area'*. [183] A visit to this location found no evidence of planting on the side-slopes and very little re-growth near and under the viaduct. [184]

By far the most striking impact is the visual impact of the viaduct, which stands on monolithic concrete pillars and completely dominates this small valley (see photo above).

It is extremely visually intrusive and it seems inappropriate that such a heavy and imposing design was chosen for such a sensitive location.

An unexpected further impact on the Stanworth Valley is fly tipping from the viaduct. Some polythene rubbish has been blown up into trees forming streamers. The overall effect is that the bit of countryside near the viaduct takes on the feeling of a piece of urban waste ground. Not surprisingly, the potential for the road to generate rubbish was not part of the Environmental Statement.

### **Fly tipping into Stanworth Valley**



Transport for Quality of Life

From the moors above Darwen south of the M65 a large part of the visual impact is the extensive developments of large industrial units (see photo below). Mike Counter, Local Footpaths Volunteer Officer for the Ramblers comments that although the road is partially hidden in cuttings there is no way to hide the development. [185]

## Junction 4 on the M65



### Transport for Quality of Life

Chris Hayward, Manager of Forward Planning and Transport with Blackburn Council, remarked that the members of the council were so concerned at the landscape impact of the developments, and in particular the way that they stand out in the landscape due to the very light colours that the big metal buildings are generally painted, that they have commissioned an artist to do a colour study. [186] His personal opinion of the route is that more could have been done to soften the road's impact and that screening and planting past Blackburn is particularly poor. The Environmental Statement fails to make any mention of the visual impact of development, presumably regarding such impacts as outside its terms of reference as laid out in the *Manual of Environmental Appraisal*. This was not an adequate approach in a situation where a prime purpose of the scheme was to allow development of industrial estates on the southern side of Blackburn and where no expertise at all was required to predict that these would become highly visible in the landscape.

### Light pollution

The M65 itself is unlit around Blackburn and through the stretch of countryside to the west, although it is lit at the westernmost end near Bamber Bridge for the section between the M6 and M61 and the associated junctions 1 and 2.

However, the industrial developments alongside the motorway include some bright lighting. Mike Counter has lived in the village of Guide from before the construction of the motorway and before Blackburn's industrial and housing developments spread out to meet the village. The nearest industrial estate is Shadsworth site adjacent to Junction 5 and Mike Counter describes the effect of one of the lights above one of the sites car parks which is left on 24 hours a day, presumably as a security light: *'it is very powerful and points very high, sending light up into the sky, it's ridiculously annoying, I used to be able to stand in the back yard and see the stars, it used to be dark, now the night sky has gone'*. [187]

## Noise

In the northern part of Cuerden Valley Park road noise is continuous, although it is not easy to distinguish what is coming from the M65 and what is from the M6. The warden remarked that 'you get used to it'. For employees this may be true, but it is likely that any potential visitors looking for tranquillity will tend to seek other places.

Mike Counter took a recent walk to the vicinity of the Stanworth Valley and says that his local Ramblers group complained at him '*why didn't you take us in the opposite direction and avoid the noise?*' [188] For walking routes crossing the route of the M65 the noise (and visual) impact is worsened by the numerous diversions that deflect footpaths for ½ km or so directly alongside the motorway, or at an oblique angle close to the motorway in order to lessen the provision of crossing points (a few of many examples are at grid references SD605246, SD654241, SD643243). Various footpaths now come together to share crossing points. According to Mike Counter crossings were provided less frequently on the M65 than on the M6 and environs for walkers. The result is that not only are walkers required to walk further, but a comparatively larger proportion of their walk is rendered unpleasant. So in practice recreational walkers avoid such routes.

The noise of the road is noticeable even on the moors to the south according to Mike Counter. This is far outside the range considered by the Environmental Statement.

### **Progress against the scheme's stated objectives**

- The scheme has successfully facilitated development of business and industrial parks.
- Relief on other roads has been offset by traffic generation due to location of new employment sites at car-dependent locations alongside the motorway.
- Improvements in accident figures have not been analysed for this study (but recent calls for widening to three lanes have pointed at the relatively poor accident record on the M65 [189] ).

### **Status of Post Opening Project Evaluation**

The scheme pre-dates the inception of POPE studies. Neither does there appear to be any PIES.

## Conclusions

- The predicted maximum design year flow on the M65 has been exceeded six years ahead of the design year 2010.
- Peak flow congestion is now a problem at some junctions, particularly Junction 6 where there is a queue of vehicles in the inside lane waiting to exit during morning rush hour.
- Local councils now regard widening of the M65 as essential to further industrial development. Blackburn with Darwen Borough Council call for widening between junctions 5 and 6 in their second Local Transport Plan in order to facilitate the expansion of the Whitebirk site into a strategic regional investment location. This is supported by the North West Development Agency and promoted through the Draft NW Regional Spatial Strategy.
- Traffic reduction on the original trunk road was, at least initially, similar to predictions. However, other roads in and out of the Blackburn area now experience congestion hotspots due to traffic generation by new employment sites at car-dependent locations alongside the motorway. This traffic generation was not taken into account by traffic modelling for the scheme.
- Construction of the motorway itself and associated junctions destroyed Green Belt and areas of Special Landscape Value, as predicted in the Environmental Statement. Subsequent erosion of Green Belt for industrial development has been significant and greater development into the Green Belt is forecast. Such development was omitted from the Environmental Statement.
- Mitigation measures to reduce visual impacts at Cuerden Valley Park have been comparatively successful.
- The viaduct across Stanworth Valley is extremely visually intrusive and the Environmental Statement gave no consideration to the need for a sensitive design at this location. Littering from the viaduct, also unforeseen by the Environmental Statement, visually pollutes the previously clean country woodland.
- Views from the moorland south of Blackburn are strongly affected by the large industrial sheds that have been built on sites adjacent to the motorway. This impact was omitted from the Environmental Statement.
- Cuerden Valley Park, especially at the northern end, experiences a constant background of motorway noise, but this would have been the case to some degree even without the M65 due to the proximity of the M6.
- Although the M65 itself is largely unlit, the industrial developments adjacent to the motorway are a source of light pollution.
- The noise of the road is noticeable even on the moors to the south. This is far outside the range considered by the Environmental Statement.

## **Annex 5: Glossary**

AADT – Average Annual Daily Traffic

AAWT – Average Annual Weekday Traffic

AONB – Area of Outstanding Natural Beauty

AST – Appraisal Summary Table

BCR – Benefit-cost Ratio

COBA – Cost-Benefit Analysis

DEFRA – Department for Environment, Food and Rural Affairs

DfT – Department for Transport

DoT – Department of Transport

DTI – Department of Trade and Industry

EST – Evaluation Summary Table

LTP – Local Transport Plan

MMS – Multi-Modal Study

NATA – New Approach to Appraisal

NPV – Net Present Value

ODPM – Office of the Deputy Prime Minister

OGV – Other Goods Vehicles

PIES – Post Implementation Evaluation Studies

POPE – Post Opening Project Evaluation

POPE-E – Post Opening Project Evaluation – Environment

PR – Preferred Route

PSV – Public Service Vehicle

PVB – Present Value Benefit

PVC – Present Value Cost

SACTRA – Standing Advisory Committee for Trunk Road Assessment

SSSI – Site of Special Scientific Interest

TIS – Traffic Impact Studies

TPI – Targeted Programme of Improvements

vpd – vehicles per day

## End Notes

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 ‘ ... studies carried out by the Highways Agency. They predicted accidents will increase dramatically as vehicle numbers rise, partly because the motorway keeps changing from two to three lanes...Accidents on the newest section happen less often than the national average, but the likelihood of a serious accident is twice the national average.’



Campaign to Protect  
Rural England

**The Countryside Agency's Landscape, Access and Recreation Division** aims to help everyone to respect, protect and enjoy the countryside. Our objectives are to:

- > conserve and protect our natural landscapes and all their characteristics;
- > encourage awareness of, access to and enjoyment of the countryside and green spaces;
- > achieve the sustainable management and use of the countryside.

Our mission is to ensure that an increasingly attractive and sustainable countryside is well understood, highly valued and widely enjoyed. The work of the landscape, access and recreation division of the Countryside Agency is concerned with protecting our landscapes for present and future generations whilst also encouraging respect and enjoyment of our beautiful countryside.

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**The Campaign to Protect Rural England** exists to promote the beauty, tranquillity and diversity of rural England by encouraging the sustainable use of land and other natural resources in town and country. We promote positive solutions for the long-term future of the countryside to ensure change values the natural and built environment. Our Patron is Her Majesty The Queen. Our President is Sir Max Hastings.

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