



What Went Wrong?

British Highway Development before Motorways



Royal Automobile Club Foundation

**Motoring towards 2050 – Roads and Reality
Background Paper No.1**

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In December 2007 the RAC Foundation published its report on 'Roads and Reality' along with a supporting Technical Report. As part of this research a series of background papers were produced and these are to be published during the course of 2008. This is the first in the series.

The Royal Automobile Club Foundation for Motoring Limited is a charity established to promote the environment, economic, mobility and safety issues relating to the use of motor vehicles.

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Introduction

This paper looks at how British main roads were planned, managed and administered prior to the Motorway era. It starts with the pre-Roman trackways and outlines the road building activities of the Roman occupiers. It then shows how the Roman legacy was slowly destroyed through neglect and, with the onset of the Industrial Revolution, the consequent need to provide a new system of longer distance routes through the Turnpike system. With the collapse of the Turnpikes Trusts following the building of canals and, more importantly the railways, local government was charged with looking after roads in their areas. The weaknesses of this system, exposed particularly by the introduction of mechanically propelled road vehicles and the growth of longer distance travel, led to the formation of the Road Board and the creation of a 'Road Fund' supported by taxes on motor vehicles. Although this was associated with the reconstruction of carriageways, with sealed all weather pavements, it did little to improve the standard and pattern of the national road network.

Following the first world war the Ministry of Transport was established and took over from the Road Board in funding local authority road projects and extended the central role of traffic and road vehicle regulation. Some major road projects were constructed, often as a means of relieving unemployment, but a coherent national network and improvement programmes did not result. In 1936 Parliament established a trunk road network and the Ministry of Transport became responsible for its upkeep and improvement. A national roads programme was started in the late 1930s but was halted at the outbreak of the second world war. Following the war a plan was drawn up for an improved and enlarged trunk road network with a core Motorway system, however postwar priorities were such that little progress was made until the mid 1950s by which time popular motoring was underway. This was the situation at the opening of the country's first Motorway at the end of 1958.

Before the Turnpikes

It seems the first roads in Britain were the trackways (sometimes referred to as Ley Lines) which existed before the Roman invasion. These were routes, probably for trade and ceremonial purposes, which usually followed relatively straight routes between 'sighting points' such as hills, mounds cutting, stone markers and woods. These were of rudimentary construction and quite narrow, except where marshy conditions caused them to spread, reflecting the type of traffic they carried – animals and people on foot with a little wheeled traffic that travelled only slowly.

As every schoolchild knows, the first programme of planned roads in Britain was carried out by the Romans following their invasion in 43AD. Some of these followed the Ley Lines and replaced the trackways of the Ancient Britons.

Roman roads were constructed from stones, tiles and flint with a crude cement and aggregate binding. Typically they had kerbs and drains to prevent the edges breaking up and, although they provided a surface for all weathers and were capable of carrying slow moving wheeled traffic, although most traffic was on foot or pack animals. Traffic weights remained light as wheeled vehicles were hauled by dray animals wearing yokes. The halter, which allowed greater speed and traction, was not invented until much later.

The main Roman road network (shown in figure 1) was about three thousand kilometres in length and typically road formations were about seven metres wide, allowing two-way traffic to operate without undue difficulty. There were many other lesser roads and the minor road network is estimated to have been between 13,000 kilometres (kms) and 16,000 kms in length. This was largely completed by 180 AD but was maintained until the end of the occupation in 410 AD. These roads were used for trade, troop and supply and administrative purposes as well as accommodating the needs of the communities, which they passed through and connected. However, the mobility of the ordinary citizen was very limited during this period as the time and effort involved in anything other than local journeys was considerable. For most people, life was largely contained within local communities and commerce, family relationships and friends were usually to be found within a few miles of home.

Figure 1: Main Roman Roads in Britain

Source: Wikipedia



When the Romans left in the early years of the 5th century the road system started to fall into disrepair. The military and administrative activities for which it had been essential infrastructure ceased, and inland trade diminished.

There appears to have been no effective management of the main road system after the Romans left, although, prior to the reign of Edward I, individual householders were supposed to repair the street next to their property. Towards the end of the 13th century town councils started to take over highway responsibilities but the standards of construction and repair were generally poor with new material often simply dumped on top of old.

Because of the limited mobility of the majority of Britons during the Middle Ages most road traffic was local and little attention was paid to long distance routes between towns. Such long distance traffic as there mainly comprised agricultural trade, some other commerce and pilgrims. Moreover the roads carried light slow moving traffic and so were narrow and often poorly aligned. The medieval system of statute labour, on which upkeep of public roads relied, resulted in miserable road conditions. Most roads had become dirt tracks - which made anything other than local travel a prolonged and arduous venture.

There were a few attempts during this period to build roads which were durable and convenient to pass over with the occasional re-emergence of stone paving of some streets of London in the early 15th century and the use of flagstones in the early 17th. The first attempt to create a system of statutory responsibility for the upkeep of roads was introduced by the Highways Act of 1555, which gave these responsibilities to parishes using a system of statute labour. This meant that each man who kept a team of horses had to contribute up to six days work from that team each year for the use of the parish surveyor to maintain the roads in the parish; landowners had a similar obligation.

In 1654 parishes were empowered to levy a rate for road maintenance to supplement the statute labour provisions. Despite this, road standards and conditions were variable and usually poor and there was no coherent network of main roads, as the parish efforts were geared to addressing local problems. In particular poor rural parishes were not in a position to maintain the roads that carried longer distance traffic between towns and cities. This system of statute labour was finally abandoned in 1835 when the upkeep of roads by parishes was achieved solely through a local rate.

The Development of the Turnpikes

Whilst the first stage coaches appeared during the 16th century it was not until the 18th century that they became commonplace and, although there had been turnpikes since the middle of the seventeenth century, and indeed there had been toll roads as far back as 1346 (e.g. Grays Inn Lane in London), their development blossomed during this period.

The growth of Stage Coach travel was fuelled by the need to move people and mail with the growing pace of the industrial revolution and the expansion of trade and trading links. During the early stage of the industrial revolution, canals and rivers were the main means of carriage of heavy goods; as the combination of dray vehicles and poor roads prevented carriage by road of all but light traffic.

By 1830 the 1,100 million Turnpike trusts, created by Acts of Parliament, provided about 32,000 kms of road for which users (not always willingly) paid a toll. They were used by hauliers of goods, passenger coaches and postal services. The turnpikes allowed the time taken for a journey between London and Edinburgh to be reduced from twelve days to four between 1750 and 1800. These improved travel speeds were principally the result of the application of the new road construction methods devised by McAdam and Telford, involving different forms of broken stone pavements. It was at the beginning of the Victorian era that the first mechanically propelled road vehicles (steam powered coaches) appeared, but did not survive as a means of road transport. The superior ride and lower rolling resistance offered by iron rails compared with poorly surfaced roads meant that the era of the motor vehicle had to wait for better roads, more powerful engines and more accommodating tyres, wheels and suspension which were to be invented towards the end of the nineteenth century.

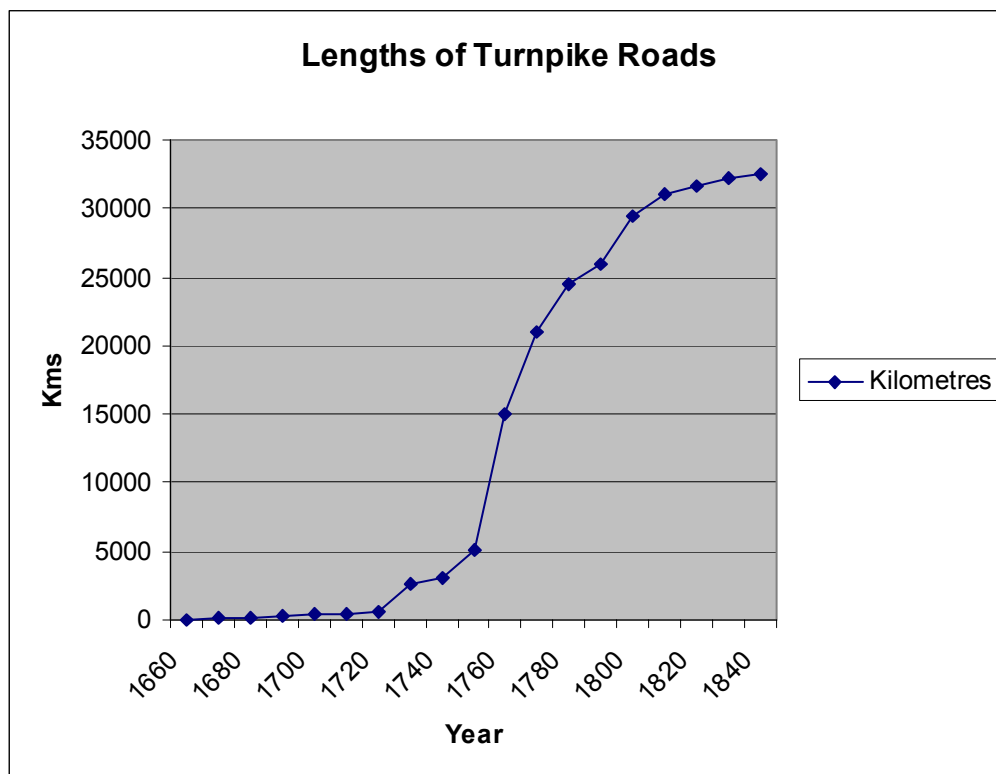


Figure 2: The Development of the British Turnpike Network 1650 – 1850

Source: <http://people.hofstra.edu/geotrans/eng/ch1en/conc1en/ukturnpike.html>

At the height of the Turnpike era in the 1860s there were about 200,000kms of roads of which almost 33,000 were turnpikes when Britain had a population of 22 million. On a population basis this amounted to 1,480kms/million population which compares with 860kms/million population¹ of the current primary road network.

The advent of canals in the 18th century allowed for much easier carriage of goods; and the development of railways in the nineteenth allowed for swift movement of both freight *and* passengers. Between them these two developments, notably the railways, resulted in reductions of revenues of the turnpike trusts, which in turn led to the cessation of new trust formations and the winding up of established trusts. At their peak in 1835 there were 3,300 stage coaches in use. The first effects of the reductions in revenues were curtailment of investment in the turnpikes and then the gradual neglect of maintenance: consequently many roads were progressively 'disturnpiked' and returned to the local parish for their care. Whilst turnpikes fell under the jurisdiction of the Home Office up until 1872, its role was essentially passive with no attempt to use the system to develop a national highway network. This situation remained unchanged with their later transfer to the Local Government Board.

The coming of the railways damaged the national road network by more than diminishing the toll revenues on which the turnpike trusts depended. They caused the creation of many level crossings and bridges that would not be adequate for the onset of mechanised road traffic that was to follow. This compounded the existing problems of poor road bridges that the construction of canals had created. So, as the nineteenth century entered its last quarter, the era of the turnpikes drew to a close.

Paradoxically as the turnpike era started its decline parliament began to take an interest in the regulation of road traffic with the introduction of restrictions on the size, weight, and speed of road vehicles in 1861. Four years later the 'Red Flag' Act was passed which reduced the speed limit from 5mph in towns to 2mph and from 10mph in the country to 4mph.

Local Government Responsibility for Main Roads

In the 1870s and 1880s some attempts were made to improve the administration of roads with the rating responsibility switched from parishes to districts in 1878. Central government aid for highway maintenance was provided, but this achieved little. Consequently by the 1880s, after fifty or so years of neglect, the condition of the national road system had deteriorated to the point where Parliament recognised that it had to take steps to provide some sort of remedy by passing the 1888 Local Government Act which transferred the responsibility for main roads to the newly created County Councils.

¹ 50.3k kms with a population of 58.5m.

During this time mechanically powered locomotives started to reappear on Britain's roads with the invention of the internal combustion engine, although it was not until 1896 that motor cars were legally recognised as such - and the speed at which they could travel was increased from 4 mph, imposed in 1865 to 12 mph. Despite County Councils becoming responsible for main roads in their area, their duties were often delegated to Districts and little was done to improve the main road network, again the Local Government Board playing a passive role at best.

During this time the growth in the numbers of motor vehicles prompted Parliament, after much debate, to pass the 1903 Motor Car Act which required road vehicles to be registered and licensed – with number plates showing their registration numbers. This also introduced a national speed limit of 20 mph with local limits imposed by county councils as necessary. Taxes on motor vehicles were introduced in the 1909 budget and comprised a petrol tax of 3d per gallon plus an annual vehicle tax of between £2 2s and £42 depending on vehicle type and horsepower.

The Road Board

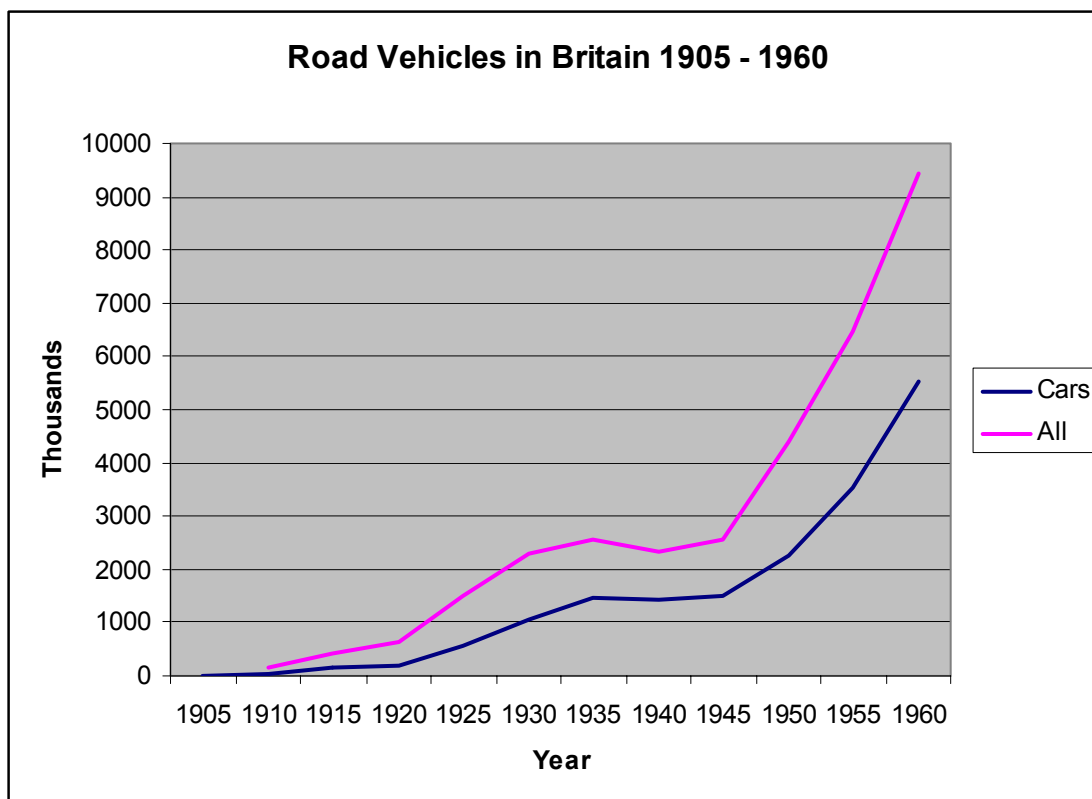


Figure 3: The Growth of Road Vehicles in Britain, 1905 to 1960

Source Plowden W (1971) Appendix B.

It was not until 1910, by which time there were over 140,000 motor vehicles on Britain's roads, that central government took a direct interest in the main road system. It was at this time that the Road Board was formed and motoring tax was earmarked to pay for the maintenance and improvement of the nation's roads. The Road Board operated between 1910 and 1919 but did not achieve the improvement to the national road system, except in one respect, that its supporters had hoped. The Road Board disbursed its funds mainly for the reconstruction and improvement of road surfaces with small amounts on minor alignment improvements and even less on new roads². It also worked on the basis of a satisfactory carriageway width outside towns of 18 feet, and had to obtain Treasury approval for all its expenditure programmes: the Treasury being firmly opposed to hypothecation then - as it has remained most of the time since.

The Board had powers to acquire land on either side of highways to allow for widening, which it used very sparingly. It also adopted mean standards for curvatures and sight lines and consequently, whilst the fabric of the pavements of main roads was improved, during its life little was done to improve widths or alignments. There were a few stretches of road that the Road Board did fund including part of the Great West Road and new road along the old Fosse way between Leicester and Newark and a Croydon Bypass; but these were the exception rather than the rule.

The main achievement during the Road Board's life was the reconstruction and sealing of many roads with a variety of tar and bituminous surfacings. Prior to 1907 all main roads were either cobbled, wood block paved or metalled with water-bound graded stone (macadam). When relatively fast motor vehicles traversed the latter in dry weather a major dust nuisance resulted. This bothered both motorists and local residents. The poor condition of road 'crusts' was also of concern to the growing number of cyclists. Trials of oil binding had not proved satisfactory and in 1907 the first trials of tar sealing were carried out. From these trials, road construction steadily developed to the present practice of roads having a cambered or canted formation topped by a carpet of bituminous or tarred macadam, asphalt or, more recently, concrete. The other significant achievement of the Road Board was the conduct of military road works for the Army Council during the first world war.

The Ministry of Transport before Trunk Roads

In 1919 the Ministry of Transport was established, with its Roads Advisory Council, and took over the responsibilities of the Road Board. Under the stewardship of the Ministry of Transport a system of grants was introduced for local authorities to spend on the upkeep and development of their roads.

² Of the £23½m collected from motorists only £14½m was spent on roads of which 83% was on road surfacing (Rees Jeffreys 1949, pages 60 & 61).

The Ministry of Transport changed the road taxation system and also;

- Introduced a national system of road signage
- Carried out the first national road traffic census in 1922
- Introduced the highway code and compulsory third party insurance
- Set up a research laboratory to investigate matters of road construction, design and safety
- Introduced guidance and standards for a range of highway design and management topics (including street lighting, traffic signals and road safety)
- Developed a national system of speed limits
- Introduced the system of Traffic Commissioners
- Introduced compulsory driving tests in 1935
- Developed a main roads improvement programme - and saw the demise of the hypothecated road fund.

The first major change in motor taxation during this period was in the 1921 budget which saw a substantial increase in annual fees. However, following a fall in petrol prices in the late 1920s, petrol tax was increased and has grown fitfully since (see figure 4). In the 1920s taxes averaged about 24% of fuel prices this rose to 42% in the 1930s, fell back to 25% in the forties (with most traffic during the war restricted to 'essential' movements) and increased again in the 1950s to 54%. When the Ministry took over the functions of the Road Board motor taxation revenues were still earmarked for spending on roads however the Road Fund was accumulating a surplus and, given the strong growth in the motor vehicle parc, was seen as buoyant. Tax revenues had grown from £10.8m in 1922 to £17.5m in 1926 and in 1927 the Road Fund was required to make a 'loan' to the Exchequer to help deal with a financial crisis.

A system of grants to local highway authorities was introduced by the Roads and Finance Acts in 1920. This provided grants of 50% towards the cost of improving Class I roads of which there were just about 36,000 kms 25% towards the cost of improving Class II roads of which there were just about 23,000 kms and discretionary grants to other roads of which there were almost 224,000kms.

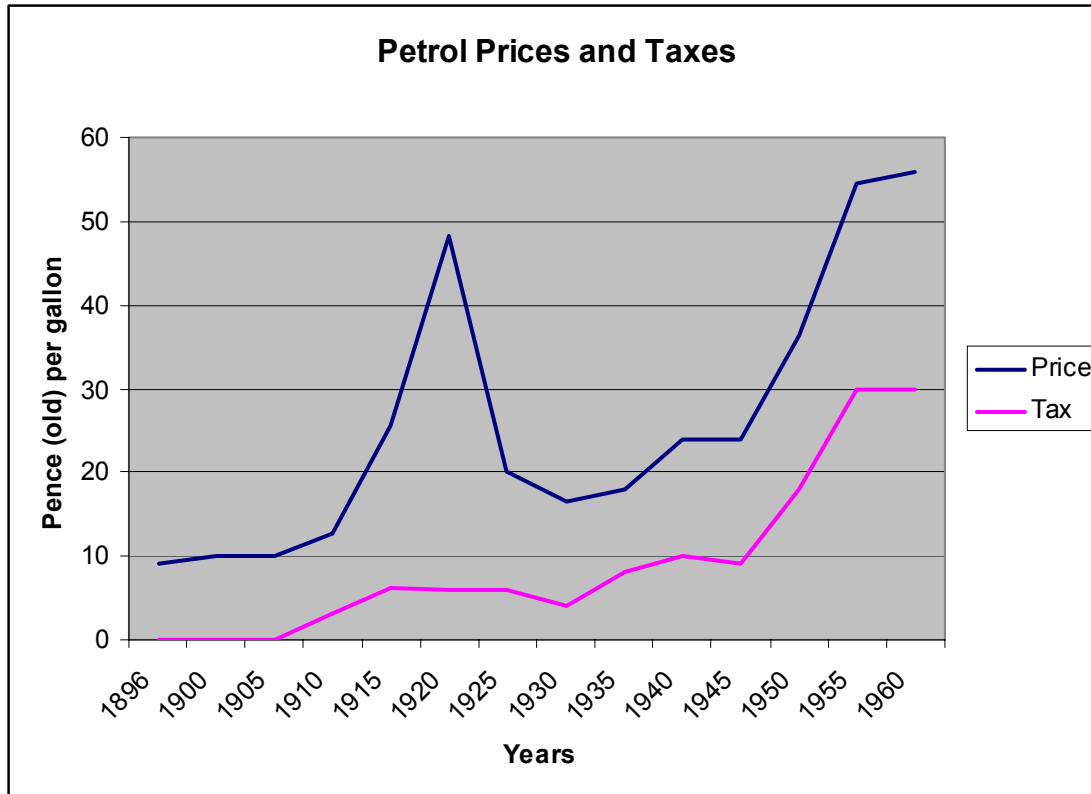


Figure 4: Petrol Prices and Taxes 1896 to 1960

Source: AA Motoring Trust 2006.

The Ministry of Transport also recognised the need for, and started to implement, a national main roads programme. However this did not amount to a coherent and continuous programme. Early in the 1920s a number of road construction schemes were carried out mainly to help relieve unemployment and/or repair war damage. These suffered from not being part of a general and properly thought through plan and usually had little or simple land acquisition needs, because of the delay that this process would bring. They tended to be located in or close to areas of high unemployment and typically relied on much unskilled labour and limited use of machinery. Nevertheless between 1920/21 and 1924/25 a £35m road improvement programme was implemented which included over 270 kms of new and 77 kms of improved roads in the London area and a substantial number of new and improved roads in the rest of the country including a new road between Edinburgh and Glasgow. The use of labour intensive construction methods meant that road building technology in Britain did not make the advances seen in the US and some continental countries where mechanised road construction techniques were being developed.

In the mid 1920s a step forward was taken in establishing a programme for improving a range of major arteries – not as part of a formal plan but rather upgrading the existing main road network as it stood, although some new network elements were also included.

The programme was boosted in 1929 again in order to create employment and resulted in a substantial number of important schemes being constructed – mainly by passes (e.g. the Derby Ring Road and the Oxford Northern Bypass) and new bridges – which totalled 812 kms in length by the time the programme ran out. The main new inter-urban road built during this period was the East Lancs Road between 1929 and 1934.

These programmes of roads improvements were severely curtailed with the financial crisis of 1931, by which time the number of motor vehicles on Britain's roads had climbed to 2¼ million. By the mid 1930s the financial crisis was over and a new five year programme (1935 -1940) was drawn up by the Ministry of Transport and schemes costing £73m in total were accepted in principle with grants to local highway authorities of between 33% and 85% depending in the type of road involved.

The Designation of a Trunk Road Network

The Ministry of Transport however still did not have responsibility for a national road network, so any major road improvements were dependent on County Council initiatives. This changed in 1937 with the designation of a 7,175 kilometre trunk road network. Whilst some of the schemes proposed in the 1935 – 1940 programme were built, the onset of the second world war curtailed it well before it could be completed. Between 1931 and 1938, 450 kms of important new roads were built - whilst the number of motor vehicles had grown by over 70%.

Whilst little effort was made between the two world wars to establish a good quality national highway system in Britain much was being done in the United States, Italy and Germany. The first European Motorway was constructed in northern Italy (Milan to Varese) in 1924 and by the outbreak of the second world war the Germans had constructed over 3,300 kms of autobahnen – not much less than the Motorways we currently have in Britain almost seventy years later. The civil engineering capability this programme required must have been to Germany's advantage in the early years of the war. In the United States the first Parkways were introduced in 1926 and several major routes had been built by the end of the 1930s.

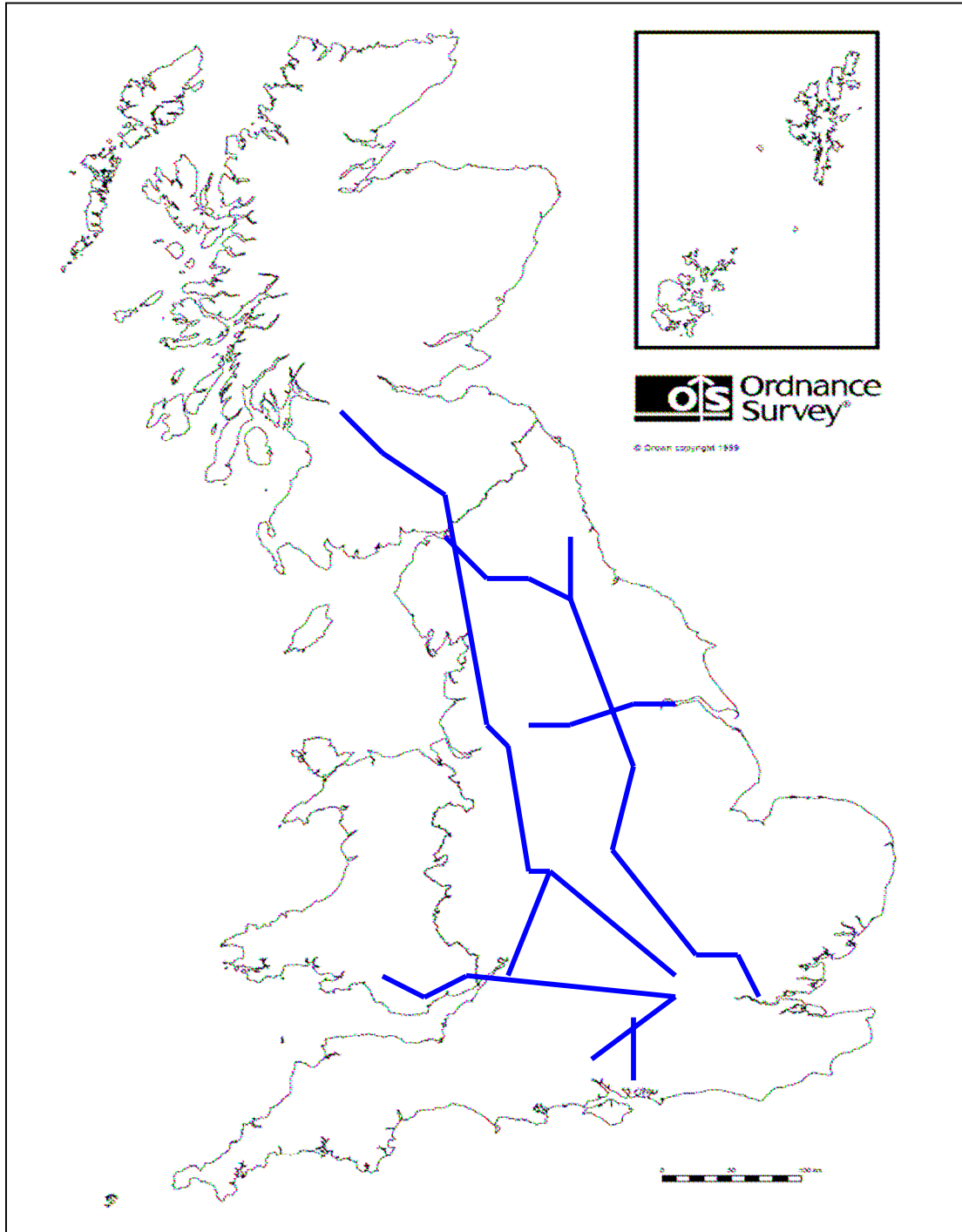


Figure 5: Schematic of the County Surveyors Society Motorway Proposals 1938: Proposed New Motor Roads

This inspired the County Surveyors Society to put forward its scheme for a national Motorway network (see figure 5).

This comprised about 3,000 kms of Motorways running between London and Glasgow; London and Newcastle; London and Swansea; London and Southampton/Portsmouth; Manchester and Hull; Penrith and Scotch Corner and Sheffield and Bristol. Needless to say, with the advent of war, nothing was done about these proposals.

These were not the first proposals for Motor Roads. Lord Montague of Beaulieu had proposed a motor road between London and Brighton in 1906 and shortly after WWI a motor road between London, Birmingham Manchester and Liverpool. This was costed at £15m and was designed with a 50 foot wide carriageway, maximum gradient of 1:40 and minimum curvature of a quarter of a mile radius. It was to be funded out of tolls of ½d/ton mile.

During the War consideration was given to what should be done to improve the national road system in its aftermath. Sir Frederick Cook put forward proposals to the War Cabinet for improvements and the Institution of Civil Engineers put forward a Motorway scheme that was almost identical to that of the County Surveyors Society except it included an orbital road around the edge of London, which stretched from what is now the M1 clockwise to the M3. Sir Charles Bressey's Plan for the London area in 1937 had proposed an almost complete orbital, on an alignment similar to that of the M25, built as a parkway with restricted access and flyovers at all major crossings.

The Post War Period

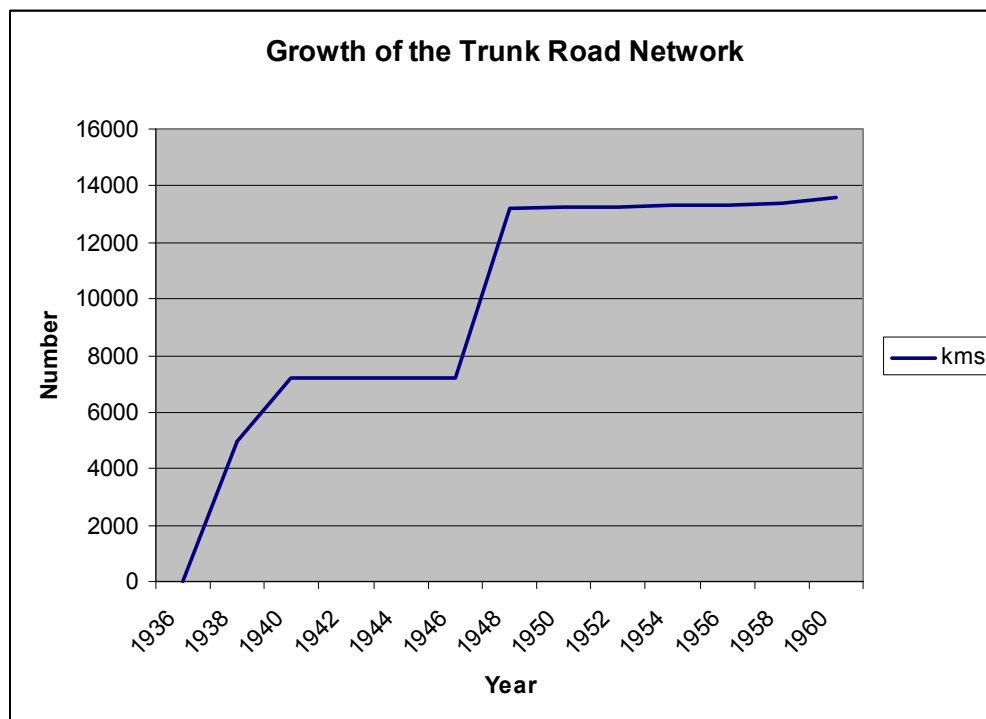


Figure 6: Growth of the Trunk Road Network 1936 – 1960.

Source: TSGB 1995, table 9.12

Following the end of the second world war, the Ministry of Transport set about planning to improve the national road network. In 1946 a three-stage road programme to improve road safety, help industrial and urban development, reduce congestion and increase agricultural efficiency was announced. The postwar economic difficulties meant that this came to little and expenditure on major improvements and new roads fell to about a fifth of the prewar level with maintenance expenditure at two thirds.

The government increased the length of the trunk road system to 13,245 kms and created legislation allowing the construction of Motorways. In 1948 the Ministry of Transport published a plan for the principal national routes (shown in figure 7) which included a London orbital road; 1,200 kms of new motor roads and 2,500 kms of existing roads to be improved and, including bypasses, totaling about 3,900 kms. At this time car ownership at two million was much the same as at the outbreak of war, but increasing prosperity and the end of petrol rationing were set to lead to a more than doubling in the 1950s and doubling again in the 1960s.

As part of the new governance arrangements following the war the British Transport Commission (BTC) was set up. This became responsible for the newly nationalised railways, London Transport, the long distance road haulage industry, road passenger transport, docks, inland waterways and transport hotels. Whilst this body had responsibility for much surface transport infrastructure it had no jurisdiction over main roads.

In the ten years following the second world war roads do not appear to have much of a priority. There is little in the technical literature and national legislation that indicates much activity in development of highways planning or management. It was not until the mid 1950s, ten years after the end of the war, that the first Motorway project was initiated – the M6 Preston Bypass - by which time car ownership has risen to 6½ million and traffic levels were taking off.

Whilst action on the ground indicated that roads had only a limited priority, during the century between the mid-1800s and mid-1950s there had been many inquiries, commissions, 'one off' and standing conferences, ad hoc boards and advisory committees which had made countless recommendations for the improvement on all aspects of roads and traffic. Some of these had borne fruit and resulted in useful improvements but most had been ignored or discounted by those with direct responsibility for the nation's roads.

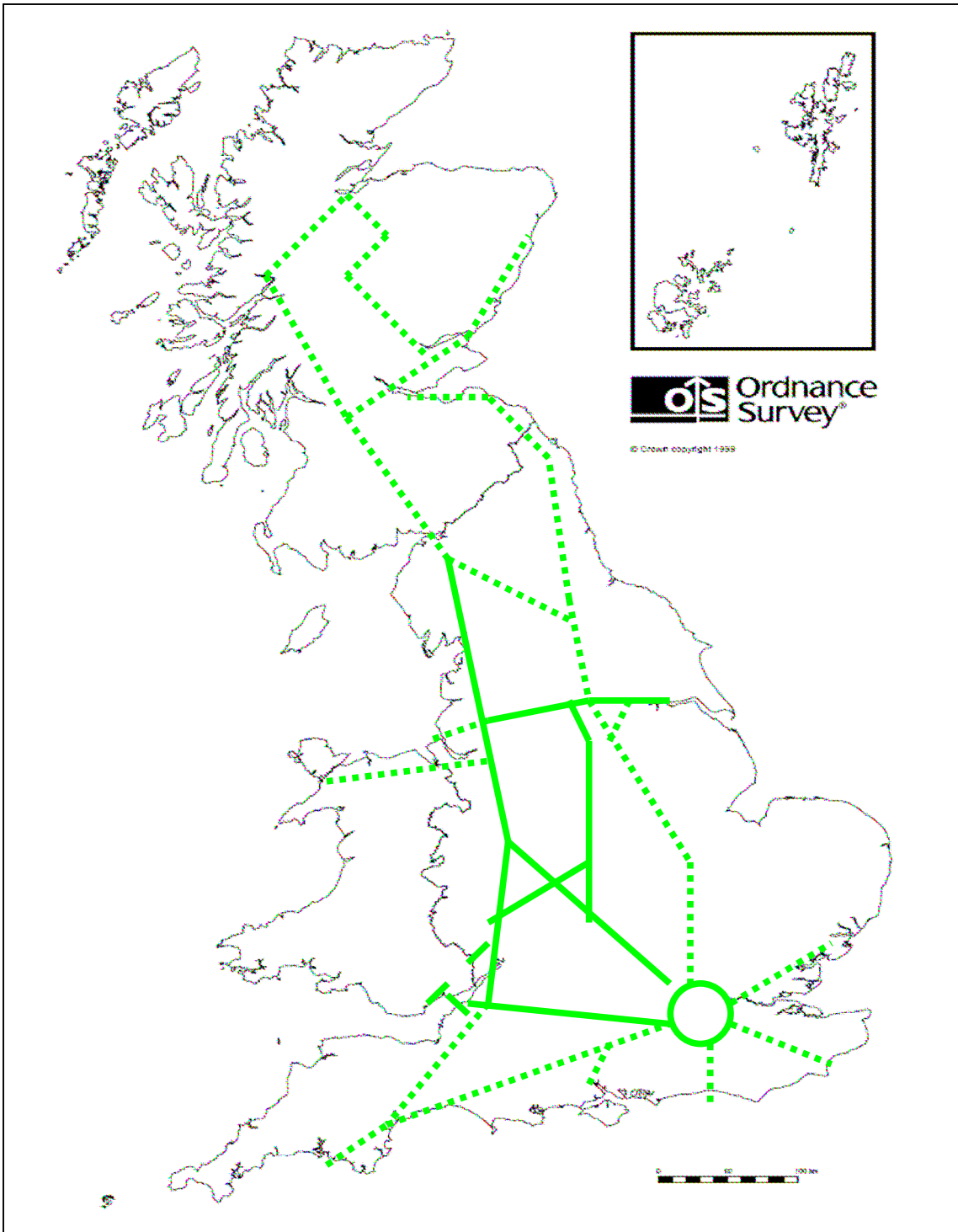


Figure 7: The 1948 Ministry of Transport Proposed National Motor Roads Proposals

Solid lines – Motorways; Broken lines – Improvements to Existing Routes

Summary & Conclusions

The Romans first built a national road network, in the 1st and 2nd century AD, for military, trade and administrative purposes. This was comprehensive, durable and engineered to be adequate for the traffic that used it. During their occupation of (much of) Britain the main road system was well maintained but started to fall into disrepair once they left. During the Middle Ages this valuable asset all but disappeared. So by the start of the industrial revolution Britain was without anything resembling a half decent road system.

This deficiency was tackled by turnpike trusts which constructed a substantial network of 'pay as you go' roads across the country but these were generally inefficient operations and the turnpikes were suited to only foot and horse drawn traffic – without weatherproof surfaces and often poorly aligned. Other roads were parish responsibilities and usually maintained to serve local needs at best.

The canals and, more importantly the railways, brought the end to the turnpike system and created new obstacles on the road network. By this time the condition of turnpikes was worsening and their upkeep left to local parishes. The advent of mechanised road transport towards the end of the nineteenth century exposed the parlous state of the country's roads and eventually the introduction of road vehicle taxes dedicated to funding road improvements and a Road Board to make grants to local authorities provided a mechanism for remedying this situation. The Road Board enabled the reconstruction of many existing roads but it did little to improve the network as such. Both alignments and widths of these reconstructed roads were insufficient to satisfactorily accommodate the needs of the heavier, more numerous and faster vehicles that would come to rely on them. Moreover few new routes were built.

Central government did not take a serious interest in providing a fit for purpose main road system until the end of the first world war; a quarter of a century after the last turnpike had ceased to operate, during which time local government had clearly shown itself not to be up to the task of providing a national road system. Even then, and until the mid 1930s, its efforts were limited to providing funds to local authorities. At last, in the mid 1930s there was a real promise of a roads programme to match the prospect of mass popular motoring. Unfortunately the outbreak of the second world war put an end to many civilian programmes, including that for road improvements.

After the war plans were laid for a national roads programme but postwar exigencies again baulked progress and it was not until the mid 1950s that the national Motorway programme got underway.

Britain has seen two major national road programmes: the first by the Romans for military purposes and the second by the Turnpike Trusts for private profit.

Local government failed to provide a national network and central government had to take up the gauntlet. However central government has been frequently distracted by other priorities or attempted to use road construction to serve non-transport ends. The outcome of this is that by the beginning of the Motorway era Britain's main road network fell well short of what was needed to deal with the avalanche of traffic that was going to use it. The advent of the Motorway programme promised a solution to these past mistakes – but was this promise fulfilled?

References

Anderson R.M.C. (1932), *The Roads of England*, Ernest Benn, London.

Baldwin P. & Baldwin R. (2004), *The Motorway Achievement*, Thomas Telford, London.

Bressey C. & Lutyens E. (1938), *Highways Development Survey (Greater London)*, London, HMSO.

Brunner C.T. (1928), *The Problem of Motor Transport: An Economic Analysis*, Ernest Benn, London.

Defoe D. and Richardson R. 1762/1764 (1971), *A Tour Thro' the Whole Island of Great Britain*, Penguin, London.

Department for Transport (2006), *Road Traffic Statistics 2006: Traffic Speeds and Congestion SB (07) 20*, DfT, London, July.

Department of Transport (1995), *Transport Statistics Great Britain 1975*, HMSO, London, September.

Gregory J. W. (1938), *The Story of the Road*, Adam and Charles Beck, London.

Helicon Publishing (2006), *Turnpike Road – History*, <http://www.tiscali.co.uk/reference/encyclopaedia/hutchinson/m0037709.html> [Internet – January 2008].

Legendijk V. and Schipper F. (2005), *European road and electricity networks in the 20th century: Imagination, contestation, realisation*, Technical University of Eindhoven, Eindhoven,

Maybury H. P. (1929), *The Evolution of the Road in Great Britain*, British Quarrying Company Ltd., London.

National Statistics, *Annual Abstract of Statistics 2007 Edition No. 143*, palgrave macmillan, Basingstoke.

Oliver J, (1936), *The Ancient Roads of England*, Cassell, London.

Plowden W (1971), *The Motor Car and Politics 1896 – 1970*, The Bodley Head, London.

Rees Jeffreys W. (1949), *The King's Highway*, The Batchworth Press, London.

Watkins A, *Early British Trackways, Mounds, Moats, Camps and Sites*, Simpkin Marshall Hamilton Kemp and Co., London, 1922.

Appendix: Key Acts of Parliament.

Highways Act 1555 c.8: required parishes to maintain roads in their area, appoint surveyors and introduced the obligation of statute labour.

Ordinance for the better amending and keeping in repair the Common Highways within the Nation 1654: provided parishes with powers to levy rates on landowners in their area for the upkeep of public highways.

Repair of Hertfordshire, Cambridgeshire and Huntingdonshire highway Act 1663 c.14: reputedly the first Turnpike Act.

Highways Act 1835 c.50: placed a duty on parish surveyors to maintain roads in the parish and pay from a rate levied on local landowners. It also introduced rules of conduct, including keeping to left when passing, and fines for breaching these.

Locomotive Act 1861 c.70: first regulated the weights (12 tons maximum) and speeds of mechanised road vehicles. Speeds were limited to 5mph in town and 10 mph in the country.

Locomotives Act 1865 c.83: sometimes know as the 'Red Flag Act' this reduced speed limits to 2 mph in town and 4 mph in the country and mechanised vehicles had to be preceded by a person carrying a red flag.

Highways and Locomotives (Amendment) Act 1878 c.77: this transferred the responsibility for roads maintenance, along with rate levy rights, from parishes to districts.

Highways Rate Assessment and Expenditure Act 1882 c.27: introduced central government grants towards roads expenditure.

Local Government Act 1888 c.41: established county councils and county borough councils in England and Wales and made them responsible for the

repair of county roads and bridges, along with rating powers; and any other roads they deemed to be 'main'.

Locomotives on Highways Act 1896 c.36: introduced classification of mechanical road vehicles defining a class of 'light locomotives' and increased speed limits to 12 mph.

Motor Car Act 1903 c.36: introduced the registration of motor vehicles and licensing of drivers.

The Development and Roads Improvement Funds Act 1909 c.47: introduced a horsepower and a (3d) petrol tax, the net proceeds of which were to be used for roads purposes. It also created the Road Board.

Ministry of Transport Act 1919 c.50: created the Ministry of Transport and abolished to Road Board.

Finance Act 1920 c.18: provided for grants to local authorities for the upkeep and improvement of their roads.

Roads Act 1920 c.72: provided for grants to local authorities for the upkeep and improvement of their roads.

Road Traffic Act 1930 c.43: introduced the 30 mph speed limit, a highway code and compulsory third party motor insurance (along with regulation of bus services).

Finance Act 1936 c.34: abolished the special arrangement for motor taxes which were thenceforth to be paid into the consolidated fund.

Trunk Roads Act 1936 c.5: gave the Ministry of Transport direct responsibility for a network of trunk roads (initially 4,460 miles in length)

Trunk Road Act 1946 c.30: this extended the network of trunk roads to 8,232 miles.

Transport Act 1947 c.49: nationalised the railways, long-distance road haulage and various other types of transport and ancillary activities and created the British Transport Commission to look after these.

Special Roads Act 1949 c.32: allowed the construction of roads restricted to specific types of vehicles and restricted access by the utilities – in practice Motorways.