To: The Right Honourable Ernest Marples, MP, Minister of Transport

The impending motor age

6. In Britain, the Motor Age is still at a comparatively early stage. We are approaching the crucial point when the ownership of private motor vehicles, instead of being the privilege of a minority, becomes the expectation of the majority. At present, there are in Great Britain about 16.4 million families and 6.6 million cars excluding buses and lorries) and 1.8 million motor cycles.

7. There is no doubt that the desire to own a car is both widespread and intense. … By the year 2010—that is, about fifty years from now—it is expected that the total number of cars will be over four times what it was in 1962, … Not only is there a flood of cars coming, but the greater part of the increase will be in the years immediately ahead.

9. … Before very long, a majority of the electors in the country will be car-owners. … Governments of the future will be increasingly preoccupied with the wishes of car-owners.

12. … The total of commercial vehicles has risen by 53% in the last 10 years, …

16. … In 1962 no less than 6,709 people, 761 of them children, lost their lives in road accidents. …

Suggested remedies

18. … If one asks how American cities have at least kept pace with the growth of motor traffic, the major answer is by the construction of new roads, bridges, underpasses and the like on a truly gigantic scale. … If this solution has worked in America, would it not work here?

Expanded public transport

25. Another possible line of attack on congestion, to which the Americans themselves are now increasingly turning back, is the development of public transport. …

26. … The commuter cannot be forced back on to public transport—not, that is to say, in a car-owning democracy. It has to be recognised that, once a man has a car, which he may have acquired for reasons quite unconnected with his work, he may find it very attractive to use for the daily journey to work. He can go from door to door, or at least from his own door to very near his place of work. He is not dependent on time-tables. He can listen to the radio, or talk to a companion—or escape a bore.

Deliberate limitation

29. … In Soviet Russia this is achieved by what appears to be a deliberate restriction on the number of motor cars available for sale to the general public. We hope we may assume that this is excluded for Britain. …

31. … It is a difficult and dangerous thing, in a democracy, to try to prevent a substantial part of the population from doing things that they do not regard as wrong …

Reshaping the city

35. … If we are to have any chance of living at peace with the motor car, we shall need a different sort of city.

40. … Though the impelling force behind it would be the pressing need to reorganise our cities for the coming volume of motor traffic, it should be possible in many cases to draw an extra dividend in the replacement of slums or unworthy housing. Indeed, it is possible that a vigorous programme of modernising our cities, conceived as a whole and carried on in the public eye, would touch a chord of pride in the British people and help to give them that economic and spiritual lift of which they stand in need.

Ways and means

45. … Unless there is a policy on a national basis dealing with the location of industry and population, from which would flow policies in respect of roads, ports, air facilities, etc. ...

46. … on the whole the 'spheres of traffic influence' of the big cities and conurbations are clearly ascertainable. …

54. … If the rising numbers of motor vehicles are going to necessitate huge expenditures, they are also going to generate huge revenues. Except for the smoking of tobacco or the drinking of alcohol, there is no way of laying out the citizen's money that has proved easier to tax than the owning and using of motor vehicles. … The money to be spent should, ideally, all be spent in the immediate future and, once spent, will in great part not need to be repeated for a long time. But the new revenues will go on indefinitely.

55. … We are nourishing at immense cost a monster of great potential destructiveness. And yet we love him dearly. Regarded in its collective aspect as 'the traffic problem' the motor car is clearly a menace which can spoil our civilisation. But translated into terms of the particular vehicle that stands in our garage (or more often nowadays, is parked outside our door, or someone else's door), we regard it as one of our most treasured possessions or dearest ambitions, an immense convenience, an expander of the dimensions of life, an instrument of emancipation, a symbol of the modern age. To refuse to accept the challenge it presents would be an act of defeatism.

Report of the Working Group

Introduction

… It arises directly out of man's own ingenuity and growing affluence—his invention of a go-anywhere self-powered machine for transport and personal locomotion, and his growing ability and inclination to invest in it. It is an extraordinary problem because nothing less is involved than a threat to the whole familiar physical form of towns.

… Where, in this small island, within the next 45 years, are we going to find accommodation for a further 20 million people, or even more? Where are they going to work, and what work will they be doing? Where will they find their recreation, and what kinds will they want? Where will they find their recreation, and what kinds will they want? Where and how are they all going to move about? How are we going to build all the necessary accommodation—the equivalent of a new Bristol every year for forty-five years—when we already carry the burden of a vast legacy of obsolete development from the industrial revolution?

Changes in social habits also appeared to have a bearing on our subject—the development of new shopping customs, of shorter hours of work, and of *new means of static communication.*

Chapter 1: The working context

1. … People are not even consistent from hour to hour—it is notorious that a person at one moment, when driving, can be intolerant of pedestrians, but a few minutes later, as a pedestrian himself, can fulminate against motorists. ...

The growth of motor traffic

5. … One result of demobilisation was the dispersal of large numbers of men with first-hand experience of the management and maintenance of motor transport fleets. ...

7. … The early, clumsy, road steam-vehicles were easily kept at bay when they tried to challenge the supremacy of the railways, but not so the motor vehicle. Gradually it has forced the railways into a defensive position and now it has emerged as the dominantly senior partner in the country's transportation system. ...

8. … The total employment in road transport amounts to approximately 10% of the country's total labour force. Consider also the fact that the manufacture of vehicles for export has become a main prop of the nation's economy, and it will be appreciated that as a nation we are inextricably committed to the motor vehicle.

Employed in road transport: 2,305,000 Employed in railway operation: 449,000.

Nature of present difficulties

10. … Whether there can be dispersal throughout the countryside of week-end visitors in their millions in motor cars without ruining the countryside in the process, is another question, but it is one which lies outside the scope of this study. …

Frustration in the use of vehicles

11. … The freedom with which, only a few years ago, one could stop outside a shop and go in for some simple purchase, is now a thing of the past. …

Accidents

16. … in 1934 (the peak year for accidents before the War) there were 238,946 casualties with only 2,405,392 vehicles in use, whereas in 1960 the corresponding figure was 347,551 casualties with some 9,383,140 vehicles.

Deterioration of environment

22. … we have all grown up with the motor vehicle, and it has grown up with us, so we tend to take it and its less desirable effects very much for granted.

23. *Safety. …* Even ten years ago there were residential streets where few people owned cars, and where the only traffic was the occasional coal lorry or furniture van …

29. *Fumes and smell.* … Fumes are emitted mainly from engine exhausts, but also from ventilation holes in carburettors and tanks, and from 'breathers' in crankcases.

30. … it is a characteristic of most modern forms of transport that the passengers are largely unaware of the noise their conveyance is making, even though the din to outsiders may be unbearable.

31. … In California, for example, it is already compulsory, in all new petrol-engine vehicles, for crankcase fumes to be fed back into the cylinders for combustion …

32. *Other environmental difficulties.* … There are the visual consequences of this intrusion of motor vehicles, the crowding out of every available square yard of space with vehicles, either moving or stationary, so that buildings seem to rise from a plinth of cars; the destruction of architectural and historical scenes; the intrusion into parks and squares; the garaging, servicing, and maintenance of cars in residential streets …

How serious are these effects?

33. … when it comes to the visual intrusion of the motor vehicle is there any evidence that this worries more than a very few people? … Is it realistic in these circumstances to be concerned about visual intrusion at all?

35. … There is nothing it can be held, in the experience of the United States, to suggest that frank acceptance of the visual impact of the motor vehicle is leading to the emergence of any new kind of brilliant, lively urban townscape. On the contrary it is producing unrelieved ugliness on a great scale.

The future of the motor vehicle

37. The motor vehicle of course cannot simply be 'disinvented'. Events have passed far beyond the point at which it would have been possible to revert to railways, though doubtless some loads could even now be transferred with advantage from road to rail. The fact is that a vast amount of development has been disposed around the country—including great suburban estates round the cities—based on the motor vehicle as the form of transport, and life in these areas could not continue to thrive except with a substitute offering the same range of services as the motor.

Individual air travel

38. The possibility most usually canvassed is that within a measurable time some kind of individual jet-propulsion unit will be developed ...

Advantages of a ground-based individual machine

42. Our conclusion, therefore, is that the future of the motor vehicle, or some equivalent machine, is assured. … This represents the basic standpoint of our study. We accept the motor vehicle as a potentially highly beneficial invention. It is implicit in this that we reject, as an initial standpoint, a currently held view that the traffic problem in towns would take on an altogether different complexion—that it might indeed almost disappear—if motorists were obliged to pay the full economic costs of running their vehicles, including the rental of road space.

The future growth of traffic

Increase in traffic

50. … a comparison can be made between the present number of licensed drivers (in 1962, 12.9 million …) and the *potential* number in the year 2010. … based on a population of 74 millions … the total number of vehicles would be 47.5 millions. This probably represents the extreme limit of possibility. … comparison with American figures shows that if the present ratio of 410 vehicles per 1000 persons which obtains in the United States, were to be applied to a population of 74 millions in this country the number of vehicles would be about 30 millions.

The increase of private mobility

53. A possibility which has to be borne in mind is that outright ownership of a motor car will soon cease to be a 'status symbol' … whether or not a motor car is a status symbol, there is no doubt that to many people it is a fascinating possession, and to have one at one's immediate beck and call is an asset of the first order.

The form of urban areas

Influence of the motor vehicle towards dispersal

55. … The manner in which the buildings and streets are put together is basically unsuitable for motor traffic. This soon became apparent after the invention of the motor vehicle because it soon exerted a strong influence towards changing the form of towns by encouraging the outward spread and sprawl of development.

56. … Shops, it is said, give better service in suburban areas than in crowded city centres. Theatres, restaurants, museums, clubs, zoos and the other things we have previously thought fit to concentrate in centres, could just as well be scattered about, provided they were intelligently sited in relation to a main highway network … What does a 30 mile drive to a theatre signify if it can be comfortably made in 30 minutes?

Dangers of sprawl and the virtues of compactness

61. … Dispersal, in fact, can all too easily become synonymous with 'sprawl', and if there are not already sufficiently bitter lessons to be learned about sprawl in this country, one only has to turn to the United States to see what happens when the motor vehicle is given free license to lead development where it will.

What sort of towns?

64. … All the indications are that given its head the motor vehicle would wreck our towns within a decade. … It is an indication of the influence of the motor vehicle that it makes us take stock of these things, even to the extent of asking what sort of lives we want to lead.

Chapter II: The theoretical basis

68. … We concluded, since it is obviously the desire of society to use the motor vehicle to the full, that the only practical basis for a study of the present kind was to accept this desire as a starting point and then to explore and demonstrate its consequences. This does not mean that the desire is necessarily capable of fulfilment, nor does it rule out the possibility that society, when it learns the full nature of the consequences, may wish to withdraw or amend its desire. Indeed it can be said in advance that the measures required to deal with the full potential amounts of motor traffic in big cities are so formidable that society will have to ask itself seriously how far it is prepared to go with the motor vehicle.

The nature of urban traffic

The problem of through traffic

77. … the position is now arising in which literally thousands of small towns, villages and hamlets are presenting a case for the removal of through traffic on the grounds of the nuisance and danger which it causes within the settlement. By-passes in these cases would give much-needed relief, though not necessarily permanent relief in view of the way in which local traffic is itself likely to increase in the future. …

Journey to Work

85. … This dispersal has brought about better living conditions for millions of people, but the benefits are now tending to be offset by the increasingly difficult travelling conditions which the dispersal has brought about.

86. … This is causing the now familiar 'downward spiral' whereby public transport loses custom, cuts its services to make up the loss, and then, partly as a consequence of its cuts, tends to lose still more custom.

Road versus rail for town traffic

89. At this point reference may be made to a notion that seems to lurk in the back of many people's minds, namely that most of these problems of motor traffic in towns are unnecessary and could be disposed of by getting much of the traffic back to the railways. … The motor vehicle is a remarkable invention, so desirable that it has wound itself inextricably into a large part of our affairs. There cannot be any going back on it.

The essence of the problem

Environment

94. … The penetration of motor vehicles throughout urban areas is bringing its own peculiar penalties of accidents, anxiety, intimidation by large or fast vehicles that are out of scale with the surroundings, noise, fumes, vibration, dirt and visual intrusion on a vast scale.

A working theory

Characteristics of environmental areas

119. … the central area of a town might be redeveloped with traffic at ground level underneath a 'building deck'. This deck would, in effect, comprise a new ground level, and upon it the buildings would rise in a pattern related to but not dictated by the traffic below. On the deck it would be possible to re-create, in an even better form, the things that have delighted man for generations in town—the snug, close, varied atmosphere, the narrow alleys, the contrasting open squares, the effects of light and shade, and the fountains and the sculpture.

120. *The need for comprehensive redevelopment. …* unless the public accepts that there has to be comprehensive redevelopment over large areas, then the opportunities for dealing imaginatively with traffic will all be lost, and in the end this will severely restrict the use that can be made of motor vehicles in built-up areas. Even as this Report is being written the opportunities are slipping past, for in many places the old obsolete street patterns are being 'frozen' by piecemeal rebuildings, and will remain frozen for another half century, or longer.

125. … Probably the reason why they [the principles of the Radburn system] have had comparatively little influence in the U.S.A. is that so much of the development is so low in density that there is not a great deal of walking around in any case, and what there is seems to be safeguarded by the comparatively mature and considerate behaviour of car drivers.

127. … the several ways in which motor vehicles menace environment are through danger and intimidation, noise, fumes, vibration, severance, and visual intrusion.

Chapter III: Practical studies

Part One: A small town

The primary network

Cyclists

156. We also considered the question of cyclists. Although in the 'mode of travel' diagram for the year 2010 … there is an allocation of movements to pedal cycles, it must be admitted that it is a moot point how many cyclists there will be in 2010. In the United States the bicycle seems to play only a minor role, but we are inclined to think that it may well be retained in the more closely-developed conditions in this country, though probably in diminished numbers. The point does not greatly affect the amount of vehicular traffic for which the new network has to be designed, but it does affect the kind of roads to be provided. On this point we have no doubt at all that cyclists should not be admitted to primary networks, for obvious reasons of safety and the free flow of vehicular traffic. It would make the design of these roads far too complicated to build 'cycle tracks' into them, nor would this be likely to provide routes convenient for cyclists in any case. It would be very expensive, and probably impracticable, to build a completely separate system of tracks for cyclists.

157. In the conditions that are likely to arise in the future, as vehicular traffic grows, we are inclined to think that it will become necessary to divert cycle traffic increasingly to the less busy roads. In many instances it may even be desirable to allow cyclists and pedestrians to use the same route, suitably sub-divided, especially at critical points where cycle and pedestrian routes cross over or under main distributors. After all, as far as vulnerability to motor traffic is concerned, pedal cyclists and pedestrians have a great deal in common.

Chapter IV: Some lessons from current practice

Britain

The New Towns

373. Two obvious developments for us to examine were the New Towns and the reconstruction of the bombed cities, these being the two great urban enterprises in Britain since the war. We found the New Towns not unimpressive in their arrangements for dealing with traffic, though it was quite obvious that in most cases there have been a serious under-estimate of the rate of growth of car ownership. Most of the towns seemed to start off with a garage ratio of about one to every four dwellings, a figure which is now being generally altered to one to one. We think it is correct to say that in none of the first batch of new towns commenced after the war did the designers consciously say to themselves 'Nearly all the people living here are going to demand motor cars in the foreseeable future, and the right to use them, so what sort of a town ought we to design to enable them to do so?

Hook [a proposed new town]

381. … The road plan was calculated on the basis of 1.5 *cars per family*, which is considerably higher than the figure used at Cumbernauld, and somewhat higher than the figure at present obtaining in California. …

382. It should be noted, to avoid misunderstanding, that even in the case of Hook, in conditions of full car ownership and usage, it was considered that a bus service would still be required. This was for the benefit of the not inconsiderable proportion of families who would not have cars, and for young, old and disabled persons, and for the convenience of other members of one-car families when one member has the car. The Report on Hook did not make it clear whether a bus service in these conditions would be economic. We doubt whether it could be so, and it is possible that some other kind of transport service, such as the cheap taxis that operate in parts of the United States, would be a more attractive proposition.

The bombed cities

389. … the two main mistakes seem to have been the advocacy of the double-carriageway street as the standard form for main shopping areas, and the reliance on the principle of the 'relief road'. The first has produced the worst of both worlds, neither safety nor comfort for pedestrians, nor convenience for traffic. Environmental sights should have been set much higher. It is, for example, interesting now to visit Exeter, where a comparison can be made of the new pedestrian shopping street (Princesshay) aligned on the Cathedral, and the widened High Street with the old mixture of pedestrians and traffic. In the former, something of permanent value has been created, foolproof against the worst that traffic can do, but the latter is a 'standard street' with neither real comfort nor convenience. ...

Coventry

395. We have asked ourselves two main questions about Coventry: how far does this central reconstruction enable the motor vehicle to be exploited? And is it a prototype for the 'motorized city'? … it is unlikely that more than about 30% of the personal journeys made to the central area for all purposes can be envisaged as being made by individual private car. … in Coventry, in spite of a massive and virtually complete reconstruction of the central area, certainly to a more advanced form than in any other city in Britain, the result is still very far from being 'fully motorized' in the sense of the freedom to use private cars.

The Development Plans

399. … There has been virtually no consideration of the problems of transport as a whole—railways, for example, have been consistently regarded as undertakings quite removed from the sphere of statutory town planning.

400. … Society, it would seem, will need to realise that it cannot go on investing *ad libitum* in motor vehicles without concurrently investing equivalent sums in the physical accommodation for the vehicles.

Europe

West Germany

402. The war-damage in many German cities was far greater in scale than in this country, so it is interesting to see what use has been made of the comparatively greater opportunities.

404. At Cologne, the main shopping street (*Hohestrasse*), wholly demolished during the war, has been rebuilt on its old line as a narrow crooked street with a strong mediaeval character. … It would be wrong to say that the street is a fake, it is based on one kind of shopping street that many people are known to like—a narrow, intimate, snug, varied, bustling street—but without the conflict of vehicles and pedestrians. …

405. In much of the reconstruction in Germany, even though there had been almost complete obliteration of the buildings, there has been a marked sensitivity shown for the mediaeval street pattern … it imparts a character to the redevelopment which is missing from much of our own stereotyped redevelopment …

407. … the inquiring visitor finds everywhere the same consistent policy that since there cannot be any question of accepting the full potential flood of centre-bound car commuters, the maintenance of mass transport is absolutely vital. An interesting consequence of this viewpoint is that most cities have not merely retained their tramway systems, but propose to elaborate them. In some cases new tracks are being laid down in the central reservations of new major roads; and in many towns there are plans for putting the tramways underground in central areas. This policy seems to have been most carefully thought out in the years after the war. It was adopted and pursued in the face of the knowledge that most other countries were planning to do away with trams.

408. … In the urban work it is the attention to detail that is so impressive; there is nothing skimped or sloppy or unfinished; it is all done with a zest and a desire for perfection, and one feels that not only have the designers wanted it this way but they have known that the public will appreciate it too, and will be resentful if they do not get it.

Stockholm

409. … the most significant point is that in this city, with a metropolitan population of one million, the post-war expansion has been based primarily on a new underground railway system, even though the country has the highest car ownership ratio in Europe. It seems to have been clearly understood, as early as 1941, that the bulk of the passenger traffic between home and work would have to be carried by public transport if wholesale and impossibly costly reconstruction of the city centre was to be avoided. …

Venice

412. It may appear to be taking liberties with the title of this chapter to include Venice as an example of current practice. But it is a working city and one of the very few in the world which, on the face of it, manages without the motor vehicle. So we decided to examine it to see what lessons could be learned.

414. Venice proves in fact to be an extraordinarily interesting example of a network and environmental area system, rendered crystal clear because the distributory network consists of canals instead of roads. The primary distributor is the Grand Canal—a major highway, two miles long and varying in width from 120 to 230 feet. … The Grand Canal gives access to a further 28 miles of waterways which can be described as *district distributors* (usable by water buses) dividing the city into some 14 areas, and a more tortuous network of narrow *local distributors.*

415. Thus there is a clear system and hierarchy of distributors for vehicular traffic. In addition there is an entirely separate and extremely complex, continuously linked, system of pedestrian ways and alleys with a total length of about 90 miles. …

417. The important lesson of Venice is not that a large city can manage without wheeled motor vehicles … but that an interdependent system of vehicular and pedestrian ways can be contrived with *complete* physical separation between the two—so complete that they do not even seem to belong to the same order—and that it works. It is interesting that it was basically a Venetian arrangement which emerged in our comprehensive redevelopment study of the Tottenham Court Road area.

The United States

418. The absorbing interest of the United States is that it has gone more than twice as far with the motor vehicle as we have in this country. The ratio of vehicles per 1,000 persons is 410 compared with our own figure of 193. The total number of vehicles in 75 millions. … Surprising though it may seem, 26% of the families are still without vehicles, and there are others who would like to have two, three or even four cars. Already in California joking references are sometimes made to the 'under-privileged two-car family'.

Los Angeles

422. Initially sprawl starts as a groping for more space for living and for movement and with the belief that, with cars, distance does not really matter—but in the end it produces ever-worsening problems of transportation. …

424. Los Angeles prides itself upon being the most motor-minded city on earth. Should it be regarded therefore as a prototype? This is a difficult question to answer. There are places in the Californian sprawl where the workers in the splendid new factories of the 'second industrial revolution' (as the electronic age has been called) live within easy reach of the sea, in houses built to standards far beyond anything we can yet aspire to. There are air-conditioned shopping centres accessible by car, schools, colleges and universities, and a wide range of recreations. If these conditions could be offered to people living in the hard-pressed circumstances of many of our industrial cities, it is difficult to believe they would not grasp them as little short of Utopia. Yet a big doubt remains, for it is impossible to look at Los Angeles as a whole without concluding that had it been the product of deliberate planning, with full powers of land use control, it would have developed quite differently. Almost certainly it would have been made more compact; and one main reason for this, very pertinent to the problem under discussion, is that dispersal taken beyond a certain point complicates the transport situation by positively generating the need for vehicular movement. …

The freeways

425. … People declaim against the great destruction of property which the freeways have involved, but this seems to be the price that has to be paid for lack of planning in the first instance. Other people say that freeways 'never solve the problem' because they become congested as fast as they are built. This, however, does not always seem to be the fault of the freeways; it is often the fault of continuing sprawl (admittedly often sparked off by the construction of the freeway) which brings new loads of traffic, particularly of persons travelling to work by car. This, it would seem, must be the basic explanation of the situation on the Long Island Expressway, recently described as 'the longest parking lot in the world' …

Consideration of Urban form

429. … As mentioned in the introduction to this Report, we shall have to find accommodation for more than 20 million extra people soon after the end of the century. If only one-third of these people attach themselves to London, or even settle in the south-east of England, as they may well seek to do, the planning problems will be formidable indeed.

The transportation studies

431. … In the United States freedom in the use of land is jealously guarded, but, if the transportation studies are anything to judge my, there is a growing realisation that the close and planned co-ordination of various means of transport is essential to urban survival. Part of the explanation of this latter attitude is doubtless the much higher car ownership and the problems of sprawl, which have produced a crisis-point that we have not yet reached.

The lesser impact of traffic

437. Other factors are the almost complete absence of motor cycles, and the very small proportion of sports cars, with all the noise they produce; the silence of the big powerful cars which most Americans favour; and the maturity of the standard of driving. This last, perhaps significantly, is most noticeable in Los Angeles. The drivers do not seem to be in a desperate hurry, they seem content to glide along in their big cars in an orderly way, and their regard for pedestrians is generally exemplary. This discipline must be partly the result of a longer tradition of driving than most countries possess, but it may also stem from the rigid speed limits in all roads, including the most modern freeways. It is significant that the country which has gone furthest with the motor car, and furthest with the construction of special roads to accommodate it, should have found it necessary to restrict speed to half the speed the motor car can now easily be made to sustain. The highest limit in California, is 65 m.p.h. At a stroke, one of the attractions of the motor car (one of the main selling points in other countries) has been removed.

Conclusions

440. … There is no brilliant new physical environment for living with the motor vehicle apparent as yet, indeed one cannot but stand aghast at the great extent of the ugly and often sordid surroundings associated directly or indirectly with the motor vehicle …

Chapter V: General conclusions

A beneficial invention

441. We conclude that the motor vehicle (or some equivalent machine) is a beneficial invention with an assured future, largely on account of the great advantages it offers for door-to-door travel and transport. ...

A question of investment

444. … The choice is society's. But it will not be sensible, nor indeed for long be possible, for society to go on investing apparently unlimited sums in the purchase and running of motor vehicles without investing equivalent sums in the proper accommodation of the traffic that results. …

Planned co-ordination of transport

448. If, as we have concluded, it is impossible, except in the smaller towns, to provide for all movements to be made in individual motor vehicles, then obviously some degree of reliance upon mass transport is unavoidable. If movements have to be contrived by more than one means of transport, then clearly some planned co-ordination between transport systems is necessary.

Transportation plans

450. The phrase 'in the future' … should be taken to cover the period up to the end of the century or a little beyond, this being the period in which the great bulk of the development of motor traffic is likely to take place. … Major road works are so costly, and so difficult to alter once they have been executed, that is seems essential to try to visualise the long term requirements.

451. We think it will be necessary for transportation plans to be based on a conscious decision regarding the extent to which the demand for the optional use of cars can be met. The plans should contain measures to influence the demand so that it matches the provision that can be made. … in principle there appear to be four possibilities:

(i) A system of permits or licences could be used to control the entry of vehicles to certain defined zones. …

(ii) A system of pricing the use of road space. …

(iii) Parking policy.

(iv) Subsidising public transport so that it offers considerable financial advantages over the use of cars.

Public transport and private cars

457. In the long run the most potent factor in maintaining a 'ceiling' on private car traffic in busy areas is likely to be the provision of good, cheap public transport, coupled with the public's understanding of the position. … given a different financial policy, travel by public transport could be made *relatively cheap*, and this may prove to be the key to the problem in the long term.

The scale of the primary roads

463. … Even so it has to be admitted that the scale is somewhat frightening, and it may be thought that what we have illustrated is about as much as British cities could possibly stand in the way of being dissected by major roads.

Historic towns

466. … There is a great deal at stake: it is not a question of retaining a few old buildings, but of conserving, in the face of the onslaught of motor traffic, a major part of the heritage of the English-speaking world, of which this country is the guardian.

Environmental management

468. … many traffic flows are being steadily augmented by the use of cars for optional journeys to work and to shopping. … It seems to us a questionable ordering of social priorities that one group of people should find their established amenities ruined in order (in effect) to enable another group of people to use their cars for optional purposes.

Comprehensive redevelopment

472. … Comprehensive development makes it possible, in particular, to apply the techniques of multi-level design, which not only yield much-needed extra space, but open the door to the creation of new environments of the most interesting and stimulating kind.

A sixth sense required

481. We have concluded that the motor vehicle, or something like it, is here to stay; that numbers may increase three or four times by the end of the century; and that half the total increase is likely to come within ten years. … If ever there was a need for a sixth sense, this appears to be the best example—a sense of 'motorised responsibility' appropriate to a society which is in the process of acquiring mobility on a scale unknown to previous generations.

The creative opportunity

482. Our studies indicate that the main creative opportunities for dealing with motor traffic will come in conjunction with the enormous task of urban reconstruction and expansion which faces this country. The pressures that are now developing—the increase of the population, the reaction against overcrowding and obsolescence, the increase of motor vehicles, the demands for industrial productivity, the continued drift of population and employment to the south, the rapidly increasing demands for holiday facilities—these are such that, unless the greatest care is exercised, it will be easily within our ability to ruin this island by the end of the century. The greater part of it could easily degenerate into a wilderness of sprawled-out, uncoordinated development. … Recreating the urban environment in a vigorous and lively way could do more than anything to make it the most exciting country in the world, with incalculable results for our welfare and prosperity.

Appendix 2: Cost-benefit analysis and accessibility and environment

The benefits

Accessibility

16. Accessibility can be described as the relationship between the capacity of an area to accommodate vehicles and the number of vehicles seeking to enter and stop within it.

17. … accessibility is a *relative* measure: an area laid out in a certain way in 1930 might have had good accessibility when car ownership was low, but as it or vehicle-usage increases, accessibility would fall …

Appendix 3: Glossary of terms used in the report

Full car ownership

The state of affairs in any area when the ratio of *cars* to population ceases to show a material annual increase. For Britain as a whole it appears that this situation (known also as *saturation level*) may be reached in about 2010 when the ratio may stand at about 400 cars per 1,000 population.