HIGHWAYS ACT 1980

The M11 Motorway (Junction 5, Loughton, Essex, North Facing Slip Roads) Side Roads Order 199 .

and

The M11 Motorway (Junction 5, Loughton, Essex, North Facing Slip Roads) Scheme 199 .

Inspector: Brian M Evans, Solicitor

Date of Inquiry: 17 May 1994

File No: 505565/19/M11/05

List of Abbreviations

AADT	Annual Average Daily Traffic flow
CLSAC	Chigwell Local Safety Advisory Committee
COBA	Cost-benefit Analysis
dB(A)	decibel
DMRB	Design Manual of Roads and Bridges
Doc(s)	Document(s)
DTp	Department of Transport
EC	European Community
EFDC	Epping Forest District Council
ES	Environmental Statement
ft	foot/feet
HA	Highways Agency
ha	hectares
HETA	Highways Economic and Traffic Appraisal
HGV	Heavy Goods Vehicle
ins	inches
km	kilometres
LATS	London Area Transport Survey
LNR	Local Nature Reserve
m	metres
MAFF	Ministry of Agriculture, Food and Fisheries
MCC	Manual Classified Count(s)
mins	minutes
mph / kph	miles per hour / kilometres per hour
NPV	Net Present Value
NRA	National Rivers Authority
NRTF	National Road Traffic Forecasts
para	paragraph
ppb	parts per billion
PPG	Planning Policy Guidance
ppm	parts per million
PVB	Present Value of Benefits
PVC	Present Value of Costs
REED	Road Engineering and Environmental Division
RSI	Road Side Interview(s)
SCA	Supplementary Credit Approval
SINC	Site of Important Nature Conservation
SSSI	Site of special Scientific Interest
TSG	Transport Supplementary Grant
TTP	Transport Policies and Programme
US	United States
vkd	Vehicle kilometres per day
vpd	Vehicles per day
vph	Vehicles per hour
WHO	World Health Organisation

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To the Right Honourable Dr Brian Mawhinney, MP
Secretary of State for Transport,

The Right Honourable John Gummer, MP
Secretary of State for the Environment

20 September, 1994

Sirs

1. PREAMBLE

1.1. I have the honour to report that on Tuesday, 17 May 1994 I held concurrent local public enquiries at the Forte Post House, Epping Essex on your behalf on the nomination of the Lord Chancellor to hear objections and representations regarding proposals by the Secretary of State for Transport to make the following Order and Scheme under Sections 12, 18 and 125 of the Highways Act 1980 and Sections 16, 17 and 19 of the Highways Act 1980 in respect of the M11 Motorway (Junction 5, Loughton, Essex, North-Facing Sliproads) Sideroads Order 199 and the M11 Motorway (Junction 5, Loughton, Essex, North-Facing Sliproads) Scheme 199.

1.2. The purpose of the Order and the Scheme is to provide an exit from the M11 Motorway at Junction 5 for traffic northwards out of London. The Scheme would include the construction of two new roundabouts on the A1168 Chigwell Lane; one would be provided to replace the existing traffic signals at the junction of Chigwell Lane with Oakwood Hill and Langston Road. This roundabout would also provide access to the new northbound on sliproad to the M11. The second roundabout would be further south-east on Chigwell Lane and would replace the existing priority junction with the London bound sliproad and would connect the new southbound off sliproad to Chigwell Lane. The existing southbound on sliproad would be partially re-aligned to connect to the new roundabout.

1.3. The Draft Orders, if made, would enable the Secretary of State for Transport to carry out the construction of the two new sliproads, a bridge to carry the southbound off sliproad over the River Roding, the two new roundabouts and associated works. Two objections were withdrawn. Eleven objectors and eight supporters attended or were represented at the Inquiry.

1.4. At the opening of the Inquiry there were 55 objections outstanding and 25 representations in support of the Order and Scheme. The objectors included Essex County Council, Epping Forest District Council (EFDC), the London Borough of Redbridge and English Nature. One objector (Friends of the Earth) withdrew. Eight supporters and 11 objectors appeared or were represented at the Inquiry.

1.5. The Highways Agency confirmed that all statutory formalities had been complied with. No points were raised in connection with formalities.

1.6. The Inquiry closed on 3 June 1994. The number of hearing days was 12.

1.7. Accompanied site inspections were carried out on 5 and 6 July 1994.

1.8. This Report contains a brief description of the site of the proposal, the subject of the Order and its surroundings, the gist of the cases presented and my findings of fact and conclusions and my recommendations. Legal submissions were made in respect of the effect of Section 4 of the Highways Act 1980. These are referred to at paragraphs 4.28 and 4.29

1.9. Lists of appearances, documents and plans are attached.

2. SITE DESCRIPTION

2.1. The Order and Scheme relate to Junction 5 of the M11 Motorway at Loughton at its intersection with the A1168 Chigwell Lane. The existing layout consists of two sliproads located to the south-east and west of Chigwell Lane which links the north and southbound carriageways of the M11 directly with Chigwell Lane. These sliproads only allow for movements from the M11 northbound and on to the M11 southbound.

2.2. The A1168 Chigwell Lane is a local Highway Authority road which connects with the A113 Chigwell High Road and serves as a principal link between the villages of Chigwell and Loughton. The route forms part of the principal road network of the county of Essex.

2.3. The A113/A1168 route is primarily a single carriageway except in the vicinity of the M11 motorway where it is up-graded to dual section. This dual section is approximately 0.75 Km long, is lit and has two gaps in the central reservation at the M11 sliproad junction.

2.4. There is a traffic signal controlled junction some 300 m to the north of the northbound off sliproad which regulates traffic movements using Chigwell Lane, Oakwood Hill and Langston Road. In the immediate vicinity of the junction, land uses include a sports club and playing field on the north-west of the motorway. There are several mature oak trees in the vicinity of the junction. There is a golf course on the east side of the motorway. The remaining part of the surrounding area is either farmland or public open space. The River Roding runs roughly parallel with the motorway on its north-west side until it reaches the site area when it continues under a bridge under the motorway and runs through the adjoining golf course.

2.5. The next junction on the M11 to the north is Junction 6 (intersection with the M25 motorway) and to the south, the next exit is on to the A406 (North Circular Road). There are no residential properties in the immediate vicinity except numbers 50/52 Chigwell Lane which are on the edge of the playing field to the north-west of the junction. These are two semi-detached residential properties 250 m north of the sliproad. To the north of the junction on the north-west side of the motorway lies an industrial area. The various features mentioned can be identified on the plan attached to the order.

2.6. There is an area of land classified as a SINC (Site of Importance for Nature Conservation) located adjacent to the southbound on slip and the newly formed golf course. This area is know as Lady Patience Meadow.

2.7. Langston Road junction is located off the A1168, approximately 300 m north from the northbound off slip and this road serves as the main distributor road for the Debden industrial estate. Industrial premises are sited approximately 100 - 200 metres from the M11 boundary.

2.8. There is a lorry park between the M11 and Langston Road on the south-east corner of the Langston Road/Chigwell Lane junction.

3. THE CASES

3.1 The Case for the Order-Making Authority

The material points were:

3.1.1.1 .Introduction: The M11 motorway between Chigwell and Stump Cross was originally proposed as a Scheme in 1966. Modifications were made to the proposals by extending the route as far as Redbridge and including Junction 5. The purpose of providing this junction was to afford relief to the routes running parallel to the M11. At that time the provision of south-facing sliproads only was appropriate. Reconsideration of the layout of the junction came as a result of representations made at the M16 (now M25) Public Inquiry in 1974/1975. This was considered an attractive alternative to the provision of a junction at Bell Common (near the M25/M11 interchange).

3.1.1.2. In 1985 Essex County Council conducted a feasibility study to assess the merit of additional sliproads. The findings of the Council concluded that there was a sufficient demand for north facing sliproads to be provided. As a result of the recommendation the DTp included the Scheme in the 1987 White Paper "Policy for Roads in England - 1987".

3.1.1.3. As a result of a public consultation exercise carried out by the DTp in 1991 it was found that the majority of the responses were in favour of the Scheme. A preferred route announcement was made in February 1993.

3.1.1.4. The Draft Order was published in July 1993 and a public representation of the proposals was held at Epping Forest College in July 1993.

3.1.1.5. No compulsory purchase powers are included in the Order and it is intended that compulsory purchase orders would be produced but the timing involved is dependent on the procedures regarding the purchase of green belt land. The Department has published a Notice which declares an intent to acquire land designated green belt.

3.1.1.6. The construction of the proposed Scheme would conform to government policies set out in White Papers (D19A, D20 and D35).

3.1.1.7. The Scheme would meet the objectives contained in these documents by:

(a) The provision of an all-movement junction which would encourage long distance traffic to use the more direct motorway route, thereby reducing delays on the local road network.

(b) There would be reductions in traffic throughout Epping and some roads in Loughton (partially offset by increases on roads in Chigwell) and an overall improvement to the local environment.

(c) There would be a resultant overall reduction in accidents on local roads.

3.1.1.8. The proposed sliproads would be to the east of Chigwell Lane and would connect into the northbound and southbound carriageways of the M11.

3.1.1.9. The present Langston Road/Oakwood Hill/Chigwell Lane would be altered from a traffic signal controlled lay-out to a five arm roundabout. This would accommodate the side roads, Langston Road and Oakwood Hill and would also act as the commencement of the northbound on sliproad which would run from the roundabout, curving in a generally north-easterly direction for 530 m to merge with the northbound carriageway of the M11. Initially it would be in the small cutting as it passes through the existing lorry park, but this would change to an embankment up to 5 m high to run parallel to the motorway.

3.1.1.10. The A1168 would continue to follow its present route southwards under the motorway but the introduction of the second roundabout 50 m south of the existing A1168 junction with the southbound on sliproad would necessitate a slight re-alignment to Chigwell Lane.

3.1.1.11. The second sliproad would diverge from the M11 southbound carriageway at a point approximately 445 m north-east of the centre line of the M11/River Roding bridge. It would be on an embankment at an initial height of 6 m descending in a south-westerly direction, crossing the River Roding to connect with the new roundabout at Chigwell Lane, a distance of approximately 760 m. The existing southbound on sliproad would be re-aligned also to connect into this roundabout.

3.1.1.12. A 3.5 m wide access track, 20 m long, would be provided for the use of the National Rivers Authority to gain access to the River Roding. The existing accesses to numbers 50 and 52 Chigwell Lane and Debden Sports Club would be affected by the construction of the northern most roundabout. A new means of access would be provided from Oakwood Hill to serve all 3 properties but this has been subsequently modified after consultation with the owners of these 3 properties to allow access from Chigwell Lane at the position indicated on plan D1/3. Similarly 4 field accesses would be permanently closed at the southern roundabout. Provision has been made for a new means of access to serve the field west of the junction (see plan D1/3). An access to the GEC Sensor Ltd site would also be permanently closed.

3.1.1.13. Existing footways would be maintained with new crossing points to safely negotiate junctions.

3.1.1.14. It is estimated that construction works would require approximately 128,000 m^3 of imported fill material and disposal of some 26,000 m^3 of unsuitable excavated material.

3.1.1.15. The construction of the northbound on slip would allow improvements to be made by creating new mounding and indigenous plants. Additional planting would be carried out in the area bounded by Chigwell Lane, M11 northbound and the new northbound on slip. The southbound off sliproad would be more visible to views from Abridge Road than the

northbound on slip. Existing planting to the southbound motorway embankments would be lost in the short term but extensive tree and shrub planting would be provided to mitigate this. The opportunity would be taken to supplement existing landscaping in the loop of the southbound on slip road. For details of the Landscaping Scheme, see document D1/A17.

3.1.1.16. *Sliproads Design Standards.* The northbound on sliproad would consist of the single running lane of 3.7 m with a nearside hard shoulder width of 3.3 m (total 7.0 m). The southbound slip road would consist of 2 running lanes of 3.0 m width each with a 1.0 m wide hard strip on the nearside (total width 7.0 m). These standards accord with the dimensions set out in the Departmental Design Standards TD 22/92 (Doc.D13A).

3.1.1.17. The A1168 Chigwell Lane is currently a dual two lane carriageway, 7.3 m wide, and the intention would be to retain this standard. The only modification would involve the points at which the road forms junctions with the two new sliproads. These would interact with the local road network by means of the 2 roundabout junctions. It would consist of a two lane circulating carriageway width of generally 10 m and a central island diameter of 65 m.

3.1.1.18. The northern most roundabout junction would accommodate the intersection of Oakwood Hill, Langston Road, Chigwell Lane and the northbound on slip. It would replace the current traffic signal layout. The circulating width would be generally 10 m and the central island would be oval shaped with a width variation of 87 m at its narrowest point up to 100 m at its widest point. This junction accords with the standards set out in Departmental Standard TD16/93 (D13C).

3.1.1.19. *Bridges.* A new bridge would be built to carry the new southbound sliproad over the River Roding. It would be a single span of 17.1 m between abutments with a clearance of 4.7 m over the main river channel. The one meter high parapet would extend 3 m beyond each end of the structure at road level. The design of the bridge is in accordance with Departmental Standard (BD2/89 (D13d).

3.1.1.20. *Lighting.* Lighting would consist of 12 m high columns spaced at 20 m intervals along Chigwell Lane and extending 100 m along the two new sliproads. Lanterns would be 250 watt high pressure sodium type housed in a full cut off lantern to direct light downwards minimising visual intrusion.

3.1.1.21. *Drainage.* Carriageway runoff would be collected and discharged into the River Roding and oil and petrol interceptors would be installed to prevent polluted discharge into the river. This has been agreed by the NRA.

3.1.1.22. *Safety.* Safety fencing and boundary fencing would be provided. A road safety audit has been carried out in accordance with Department design documents HA42/90 (Doc.D13g), HD19/90 (Doc.D13f).

3.1.1.23. *Costs and Economics.* The total cost of the Scheme (works and land) is £6.6 million at the November 1992 price level. The Department has carried out an economic assessment of the Scheme. The assessment has two main purposes; to establish the economic viability of the Scheme itself and its relationship in economic terms to other

Schemes in the National Roads Programme and to compare the relative merits of variations or alternatives to the Department's Scheme.

3.1.1.24. The method of assessment is the Department's COBA 9 computer programme which weighs the costs of a Scheme against its benefits by evaluating the Scheme in terms of savings to the travelling public in time, operating and accident costs over a 30 year period. These savings are then compared with the capital costs and maintenance of the Scheme.

3.1.1.25. Costs and benefits occur at different times, hence different values are placed on these depending on when the costs or benefits occur. It is necessary for these to be brought to a common base year of their respective values. This base year is known as "present value year" and is taken at 1988 for COBA 9 purposes.

3.1.1.26. The costs and benefits expressed at 1988 prices are discounted at a rate of 8% per annum to that year from the year in which they would occur to give their "Present Value". By adding all the Present Value of Costs (PVC) and affording it a negative status, and comparing this to the Present Value of Benefits (PVB), taken as a positive, the Department can assess the Net Present Value (NPV) of the Scheme. A positive NPV indicates that the Scheme would recoup the capital investment together with an additional economic return and is therefore economically justified.

3.1.1.27. The COBA assessment is carried out for both high growth and low growth traffic predictions.

3.1.1.28. The results of the COBA assessment for the Scheme will be described later in this report (Para 3.1.2.42). The overall results show a sound economic case for the Scheme.

3.1.1.29. *Environmental Impact.* The impact of the proposal is set out in the Environmental Statement (ES) (Doc.D5). The environmental assessment of road schemes has become a more intrinsic element of any road Scheme. The Department has issued guidelines in Volumes 10 and 11 of the Design Manual for Roads and Bridges (DMBR) (Docs. D41 and D42). Environmental issues are also addressed in the following statutory and non-statutory documents:

(i) EC Directive 85/337 (Doc.D42A)

(ii) Section 105A of the Highways Act 1980 (Doc.D21)

(iii) The Highways (Assessment of Environmental Effects) Regulations !988 (S.I. 1241) (Doc.D22)

(iv) Departmental Standard HD18/88 (Doc.D13d)

(v) Standard Advisory Committee on Trunk Road Assessment Report (SACTRA)

3.1.1.30. All of these documents have been considered and due account given to them in the assessment of the Scheme. Further consideration to environmental matters will be given later in this report.

3.1.1.31. There would be no community severance as a result of the Scheme.

3.1.1.32. Approximately 0. 3 ha of Grade 4 agricultural land would be lost.

3.1.1.33. There would be no direct effect on any listed buildings or ancient monuments.

3.1.1.34. The Scheme does not provide any special facilities for pedestrians and cyclists as surveys do not indicate a significant number of such user groups in the area. Facilities would be provided across the roads in the vicinity of the Scheme consistent with Departmental Advice Note TA52/87 (Doc.D13h).

3.1.1.35. Appropriate measures would be included within contract documents to minimise the impact of disruption to numbers 50 and 52 Chigwell Lane during construction.

3.1.2 Traffic and Economic Issues

3.1.2.1. *Existing Conditions.* The area immediately to the north-east of London is dissected by a number of major transport corridors including the M11 and M25 motorways and the A10 and A12 trunk roads radiating from London in northerly and north-easterly directions approximately 5 miles from Junction 5. Local direct access to this strategic highway network for northbound trips is limited. The M11 Junction 6 only allows traffic to transfer between the 2 motorways.

3.1.2.2. The local highway network is heavily congested and passes through residential recreational and commercial areas. For example traffic accessing M25 Junction 26 has to pass through Epping Forest; that accessing M11 junction 7 passes through both the forest and town centre of Epping.

3.1.2.3. A series of traffic surveys were carried out during 1989. Six sites were identified at which road side interviews (RSI) and manual classified counts (MCC) surveys were conducted in April 1989. When traffic conditions ruled out the use of direct interviews, postal questionnaires were distributed. 45,000 movements were observed entering the area of survey during a typical 16 hour weekday. To supplement the data from the interview sites, data from 40 automatic counting sites was obtained. An additional observation of turning movements was undertaken. These sites are shown at Figure 4, document D/1A. From these surveys an overall picture of traffic flow was provided and these are shown at Figure 5, document D/1A. Over a 12 hour day in 1989 the M11 north of Junction 5 carried a flow of 48,000 vehicles (two-way). The existing south facing sliproads at Junction 5 carried 7,400 vehicles (in both directions) and also over a 12 hour day giving a flow of some 55,500 vehicles per day (vpd) (12 hours) on M11 south of Junction 5. Junction 5 is therefore used by some 13% of traffic on the M11 to the south of the junction.

3.1.2.4. Chigwell Lane carried 16,700 vehicles (two-way) over a 12 hour day of which 27% was to/from the M11. To the south-east of Junction 5 between this junction and A113, the 1989 12 hour flow was 15,000 vehicles with 19% to/from the M11.

3.1.2.5. A series of timed runs was undertaken in 1989 to establish traffic speed on main routes used by through traffic in the area. The survey established that during the morning peak period average speeds were below 35 mph on around 35% of the network. On 12%, speeds were 20 mph or below. A number of lorry controls have been introduced in the area as shown on Figure 7 (Doc.D1/A)

3.1.2.6. Further traffic surveys were undertaken in Autumn 1993. These counts are shown on Figure of Doc.8 D1/A. Applying growth factors for NRTF for Essex County Council and making comparisons of morning peak hour and off-peak hour flows at 12 locations, the differences resulting were considered to be within an acceptable range and the forecasting based on the 1989 flows remained valid.

3.1.2.7. Further journey time surveys were undertaken during November 1993. Travel times from this survey were 13% higher in the morning peak and 6 % higher in the off-peak.

3.1.2.8. Following the introduction of lorry weight and width restrictions on roads in the area further surveys on heavy goods vehicles were carried out. The percentages of heavy goods vehicles in the traffic flow were observed to be 5%, 8% and 3% in morning peak, off-peak and evening peak hours respectively.

3.1.2.9. Matched HGV movements were observed. 38% of the matched movements are associated with the motorway. 50% of the movements are associated with Langston Road or Oakwood Hill. 11% of the matched movement was between Langston Road, Oakwood Hill and the A121. A proportion of these are potentially transferable to the motorway via a north facing sliproad. 42% of the matched trips were considered to represent trips travelling through the area.

3.1.2.10. *Accidents.* Data on personal injury accidents over the 3 year period ending June 1993 was provided by the County Council within the area and on the 24 routes indicated by Figure 10 D/1A. The highest number of accidents occurred on 3 routes; Loughton High Road (1), Oakwood Hill (2) and Epping High Street (18). These account for 33% of the accidents per year. They are all on main traffic routes. The higher accident rates occur on Trap's Hill, Border's Lane (4), Oakwood Hill (2) and Roding (3), all local routes within the Loughton area. Since the period for which accident data was available the whole of Oakwood Hill has been the subject of a traffic calming scheme.

3.1.2.11. Surveys were taken of pedestrian and cycle use. Very low numbers of pedestrians were recorded at Oakwood Hill/Chigwell Lane junction. The highest number of pedestrians was recorded crossing High Road Loughton. Generally the pedestrian facilities on the High Road are formal crossing (zebra or pelican). Higher levels were also observed on Chigwell Lane between the railway line and the library where all the crossings are pelican. Few pedestrians were recorded crossing Oakwood Hill.

3.1.2.12. T*raffic Forecasting.* A computer traffic model was constructed to investigate the effect of the Scheme. the model provides a representation of the highway network near Junction 5 and a coarser network of roads extending to the edges of the area.

3.1.2.13. The area was sub-divided into a number of zones (Figure 13 D1/A) following the system of zoning used by Essex County Council in their 1985 study.

3.1.2.14. Trip matrices for the base year (1989) model were developed for the morning peak hour and a typical off peak hour. Not all movements are observed so the resulting matrix of movements is therefore a partial matrix model. This form of model does not fully reproduce all traffic movements in the area but is designed to identify the trips of the

potential users of north facing slips at Junction 5. The model output is then adjusted to illustrate the total traffic movement for COBA 9 purposes.

3.1.2.15. *Traffic Growth.* To assess the effects of the Scheme it is necessary to take into account the effects of growth in traffic level. The DTp has developed a set of National Road Traffic Forecasts (NRTF) for the assessment of trunk road schemes.. These forecasts reflect likely growth in the national economy and the relative ability of people to purchase and run motor vehicles and of the commercial needs for distribution. Alternative 'high' and 'low' growth forecasts are produced to provide a range within which the future situation is likely to fall.

3.1.2.16. The provision of the new sliproads provides the ability for existing movements to join the motorway system sooner or leave it later in relation to the overall journey being undertaken. The provision of the sliproads is expected to cause a redistribution of traffic within the surrounding area and not to generate new movements. The comparison between the Do Nothing and the Do Something flows indicates the scale of the redistribution for any link road. It has been possible to factor up the flow changes to produce representative flow changes for a typical week day. The model was validated in 1992 traffic flow level and further revalidated to 1993 levels based on additional surveys carried out.

3.1.2.17. The original opening date has been rescheduled to 1997. Forecast factors to that date are based on the Essex subset of NRTF for both low and high growth from 1993, the latest revalidation year. Figure 14 Revision A in document D1/2 illustrates the expected daily changes in flow for the opening years.

3.1.2.18. Trips from Harlow and Bishops Stortford areas accessing the M11 at Junctions 7 and 8 would contribute over one third of the a.m. peak traffic movements on the southbound off slip. Such movements currently substantially use the B1393/A21 passing through Epping and Epping Forest. One third of all destinations of movements on the southbound off slip in the a.m. peak area are to local areas in Loughton, Buckhurst Hill, Langston Road and Chigwell. The presence of the northbound on slip demonstrates the importance of the sliproad to locally originating movements with over 50% of origins in the a.m. peak from these local areas with one third of all destinations in the Harlow and Bishops Stortford areas.

3.1.2.19. A large proportion of all movements would use the B1393/A121 or Piercing Hill in the absence of the north facing slips. These roads would receive relief of between 3,500 and 4,000 vpd (1997) and 1,600 vpd (1997) respectively. The benefits in Epping High Road would be a relief of over 5,000 vpd (1997) through the business and shopping centre of Epping which is a conservation area.

3.1.2.20. Over 20% of the southbound off slip traffic in the a.m. peak area would be to areas from Barkingside to Ilford and Woodford to Wanstead.

3.1.2.21. Other areas which could be affected by traffic flows on the new sliproads are Barking and Romford with trips which would form approximately 5% of the sliproad trips. These movements would use the alternative routes to the south or south-east from the M11 Junction 5, adding to movements to roads such as A113, A123 and A1112.

3.1.2.22. The routing of movements along the A12 and A406 Barking relief road are dependent on journey times and costs, as options exist whereby this traffic could join or leave the motorway at Redbridge or via the A406 extension in the west or the A12/M25 in the east. Management measures and/or changes in travel time on the A113, A123 and A112 could therefore modify the traffic movements obtained in this study.

3.1.2.23. Following representations by EFDC, it has been brought to the Department's attention that the facility to access the M11 to travel to and from the north at Junction 5 could transfer traffic that currently uses the M25 to circulate around north-east London. The expectation is that some of the traffic which joins the M25 at Junction 28 , that being the interchange between the M25 and the A12, may well divert via non-motorway and trunk roads to join the M11 at Junction 5 and to proceed either on the M11 (Junction 6) or on to the M25 (Junction 27).

3.1.2.24. In order to make an assessment of such traffic, use has been made of the 1991 traffic survey undertaken for London Area Transport Surveys (LATS). Journey information including origin and destination has been extracted from the computer records of these surveys for M25, Junction 28 (M25/A12) north bound on slip.

3.1.2.25. In order to consider the scale of transfer it has been necessary to assess the appropriate route for movements in the Do Nothing and the Do Something situation. Using the journey times and the journey distances, the least cost route to the intersection of the M11/M25 has been determined for both 'Do Nothing' and 'Do Something' Schemes. In the 'Do Nothing' situation it has been found that the 'watershed' for these movements was on the A12 Eastern Avenue between the A1112, Whalebone Lane and the A125 (North Street Romford). In the 'Do Something' situation, the 'watershed' moved to the east into the area between the A125 on the North Street end, and Gallows Corner (A12/A127 intersection). There would therefore appear to be an area of East London, including in particular Romford, from which drivers currently travel to the M11/M25 interchange via the A12 and the M25 and may in the future travel to the same motorway interchange but via the M11 Junction 5 north facing sliproad. For the purposes of the model all those movements, that have been observed at Junction 28 of the M25 in the 'Do Nothing' situation, have been transferred to the A1112 and via Pudding Lane or Gravel Lane to Chigwell Lane and the north facing sliproads at Junction 5 in the 'Do Something' case. The total extent of this transfer is estimated to be some 2,871 two-way movements in a 12 hour day in 1991. These movements are fully additional to those that have previously been considered. It is not considered the full effect of transfer would occur. The quality of road to which the traffic is transferred, is substantially inferior to the facility offered by the A12 trunk road which provides a continuous dual carriageway on a good alignment. The extent of the impact of the possible transfer also depends on improvement to roads and junctions, calming and management schemes which would all impact in different ways on the driver.

3.1.2.26. Gravel lane has a weight restriction of 7.5 tonnes whilst Pudding Lane and Vicarage Lane have width restrictions of 7ft 6 ins.

3.1.2.27. An area of concern is Pudding Lane. This is the shortest time and distance and hence best cost, route and diverts from A1112. This road is low quality in terms of width and alignment resulting in poor forward visibility. It is probable that a significant proportion of drivers who chose to divert from the trunk and motorway route would stay on the

A1112 via Gravel Lane. The Highway Authority could consider measures to further encourage use of the principal roads which form part of the Authority's Principal County Distribution network of roads in the county road hierarchy.

3.1.2.28. The destination of the transferred movements has been examined to determine those trips which travel to the Harlow and Bishop's Stortford areas. Of the 1,435 movements in a 12 hour period, only 7.5% are to the Harlow area and 5.5% to the wider area of and around Bishop's Stortford. Thus within the 12 hour one-way movement some 13% of the transferred movements would appear to be to the areas of Harlow and Bishops Stortford. The result of considering the modelled information and the M25 transfer movements over the 12 hour day (including factoring the transferred movements back to 1989 equivalent flows) is that 30% of the total 12 hour flow is to or from the Bishops Stortford areas.

3.1.2.29. The transferred movements from M25 can be assumed to have a minimal number of local origins or destinations in the Loughton, Chigwell and Buckhurst Hill areas. Having allowed for the addition of the transferring traffic from M25 the revised figures indicate that there is still one third of all movements on sliproads which either start or finish in these local areas.

3.1.2.30. The transfer of movements from the M25 to the A1112 and M11 varies the traffic levels on the motorway and the non-motorway networks. In 1997 this would reduce by 6% the traffic on the non-motorway network averaging over 5,000 vehicle Km per hour taken from local roads.

3.1.2.31. *Road Safety Implications.* The assessment of accidents for the routes likely to be effected by the sliproad shows a net decrease of 12 accidents each year or around 4%. However the transfer of additional movements into the roads system around Junction 5 would reduce the accident saving on local roads. Taking into account the additional traffic on A1112 through to Junction 5 a net saving of 4 accidents each year in the area is estimated. The removal of trips from the A12 and the M25 would reduce the accidents on those roads, although to a lesser degree.

3.1.2.32. Accidents on the M25 and A12 have been briefly assessed assuming the COBA default rates apply. This results in a saving of 8 accidents year. The analysis suggests that overall the M25 transfer would not materially change the overall road safety benefit achieved by the published Scheme.

3.1.2.33. *The Scheme.* It is standard practice to provide a layout with sufficient capacity to cater for predicted traffic flows both at the year of opening and for a "design" period beyond that date, usually 15 years. Junction 5 provides an interchange with the county roads network which already exhibits congestion. It is therefore unlikely that the local road network surrounding Junction 5 would accommodate high growth in line with NRTF predictions for any significant period. It was considered appropriate that the Scheme should cater for anticipated traffic levels at the year of opening, together with a reasonable amount of forward capacity, balancing between the capacity of the local road network and the need to ensure that traffic does not queue back from the junction on to the main carriageway of the M11.

3.1.2.34. The capacities of the proposed roundabouts have been assessed using the Department's Capacity Assessment Programme ARCADY. It has been assessed that the published Scheme would have sufficient capacity to cater for forecast turning flows up to the year 2004, assuming that growth is in line with the "high" estimate for Essex.

3.1.2.35. Alternatively a "low" growth factor would extend the life of the published Scheme to the year 2010. Observed growth in peak period traffic levels between 1989 and 1993 has been below low. The carriageway width of the sliproads is governed by forecast peak hour flows in the design year. The southbound off slip is most heavily trafficked in the morning peak period, while the northbound is most heavily trafficked in the evening peak hour. The high growth forecast in 2012 for the northbound on slip is 1,444 vph and for the southbound off slip 1,353 vph.

3.1.2.36. Table 3/1 of DT/22/92 indicates that a cross section comprising two 3.0 m lanes with a 1.0 m hard strip should be provided for a diverging motorway sliproad with a forecast flow between 900 vph and 2,700 vph. This table also indicates that a merging motorway slip carrying between 1,350 vph and 3,600 vph in its design year should have a 7.3 m wide carriageway with 2 running lanes and a 3.3 m hard shoulder. This cross section is appropriate for the most heavily trafficked sliproads on the national network. As traffic using the northbound on slip is constrained by the capacity of the proposed roundabouts it is concluded that flows significantly exceeding 1,350 vph are unlikely to arise on the slip road and that the 7.3 m plus 3.3 m carriageway would be an unwarranted over-provision. A single 3.7 m traffic lane with a 3.3 m wide hard shoulder would be appropriate. The single lane sliproad, as shown in the table, would be appropriate for merging flows of 900 - 1,350 vph.

3.1.2.37. Allowing for the full transfer of movements from the A12/M25 the amended design flows in 2012 for the sliproads are 1,706 per hour on the northbound on slip (high growth) and 1,476 vehicles (low growth). On the southbound off slip the flows per hour are 1,615 vehicles (high growth) and 1,397 vehicles (low growth). These flows, applying to the southbound off slip, are well within the design standards of DT22/92. With regard to the northbound on slip the flow, in low growth, would be marginally above the design standard and in high growth noticeably above that standard in the design year. It is the Department's view that the potential for the high growth forecast occurring is very limited giving the constraints applying to the network of roads that would feed the traffic to the on slip.

3.1.2.38. In respect of the off slip there is no limitation on the motorway which would constrain traffic arriving at the off slip. It is therefore appropriate that the design can accommodate design flows and offer substantial capacity on approach to the roundabout which would form the exit junction facility. If full A12/M25 transfer were to take place some queuing would be reached after 2007 in the p.m. peak in low growth or after 2002 in the p.m. peak in high growth. However, the off slip has queuing capacity with over 700 m of two-lane carriageway from the commencement of the nose. This is sufficient for 200-300 vehicles to queue clear of the motorway if necessary. Should the transfer occur and improvements elsewhere on the county network were to be used by transferring traffic then the Department would consider limited modifications to the roundabout to improve its overall capacity.

3.1.2.39. *Economic Assessment.* An assessment of the economic benefits has been undertaken by the Department using the DTp's standard cost benefit analysis programme - COBA. The last stage of the COBA assessments was undertaken in 1993. The Scheme was then programmed to be opened in 1997 and this represents the Scheme opening year for the purposes of the assessment. Traffic growth within the COBA programme was cut off in the year 2004 and 2010 in respect of high growth and low growth respectively.

3.1.2.40. The use of cut off for growth is based on peak period traffic flows which approach gives a conservative estimate of the user benefits in the COBA assessment as traffic growth and resulting benefits would continue to grow during the off peak periods after the respective cut off year.

3.1.2.41. The impact of the M25 transfer traffic gave rise to the need to reconsider the economic assessment. The increase in traffic on the slip roads, if a full transfer was to occur, would be in the order of 30%.

3.1.2.42 The following table provides details of the COBA results for both cut offs:

	Low Growth	High Growth
PVB (£m)	+ 20.059	+ 30.077
PVC (£m)	- 3.279	- 3.721
NPV (£m)	+ 16.338	+ 26.356

3.1.2.43 The range of tests indicate that economically the Scheme is well justified in terms of saved travel time and reduced accident costs.

3.1.3. Environmental and Conservation Considerations

3.1.3.1. *Noise Effects.* Those resulting from the proposed junction modification have been assessed using the principles recommended in the DTp's DMRB Vol 11 (Doc.D 42).

3.1.3.2. The study area included an area within 300 m of the new and altered sections of the junction and those links in the road network that would experience a change of 25% or more in the total traffic flow due solely to the provision of the new sliproads.

3.1.3.3. Noise levels in the vicinity of the junction are influenced by fast moving traffic on the embanked M11. Except for the immediate vicinity of the new sliproads this would continue to be the case. Epping Forest Golf Club course is also exposed to noise of traffic on the M11 and A1168. The proposed southbound off slip would increase levels by approximately 2 dB(A) at one or two holes. One hole would experience a noise reduction of about 1 dB(A) due to the embanked sliproads screening the main M11 carriageway.

3.1.3.4. The new roundabout on Chigwell Lane would increase noise levels at the side and rear of 50 and 52 Chigwell Lane by between 1 and 2 dB(A).

3.1.3.5. Ten links in the wider road network were identified as having noise level changes of at least 1 dB(A) as a direct result of the Scheme. Within these links.455 properties had noise level changes of between -1 and -2 dB(A) and 125 properties had an increase of

between +1 and +3 dB(A). Three properties in Pudding Lane suffered an increase of +3 dB(A)and 5 suffered an increase of +2 dB(A). The remainder has an increase of +1 dB(A). These figures take into account the M25 transferred traffic.

3.1.3.6. Reductions in noise levels would be experienced at the following links:

Epping High Road
Epping Road
Piercing Hill
A121 Goldings Hill.

3.1.3.7. The following links would suffer an increase:

Pudding Lane (+3B(A))
A113 Chigwell High Road (Vicarage Lane to Chigwell Rise) (+1dB(A))
A1168 Chigwell Lane (+2 dB(A))
A113 Abridge Road (+1 dB(A))
A1112 Chigwell Row (+1 dB(A))

3.1.3.8. Although design year noise levels would be 3dB(A) higher than at present, 2 dB(A) of the increase would be due to natural traffic growth irrespective of whether or not the new sliproads are provided.

3.1.3.9. With regard to the suggestion that noise assessment should relate to a traffic change of 25% in accordance with Volume 11 of DMRB (rather than a noise change of 1 dB(A)), the Agency consider that the DMRB is not a prescriptive document but is one which offers guidance to design agents in preparing Schemes for the Department. At Para 1.3 of Volume 11 Section 1 Part 1, it states "in some cases it may be necessary to consider environmental effects not described in detail to vary methods to suit the particular requirements of a Scheme".

3.1.3.10. *Planning Policies.* There is a large number of local policies in the Essex Structure Plan dealing with topics such as transport, agricultural land issues and nature conservation. There is wide ranging advice from central government through PPGs. On balance, the improvement to the environment of those roads which would experience reductions in traffic and the impetus to economic growth which the Scheme would provide, outweigh by a significant degree the increased disturbance elsewhere and reflects an overall conformity to national, county and local planning policy.

3.1.3.11. *Archaeology and Cultural Heritage.* No known archaeological sites nor listed buildings would be directly effected by the construction of the sliproads.

3.1.3.12. *Land Use and Land Take.* Apart from the land uses in the immediate vicinity of Junction 5 as previously described, there exist areas of marsh, poor unimproved grassland, scrub, secondary woodland and agricultural land (Figure 16 on Document D1/A). Permanent land take for the Scheme would include a small segment of the Roding Valley Meadows Local Nature Reserve, an area of marsh known as Lady Patience Meadow and less than one hectare of agricultural land, the majority of which is Grade IV (MAFF Agricultural Land Classification). The remaining areas to be lost comprise semi-improved grassland.

3.1.3.13. *Pedestrian Severance.* Guidelines for new severance contained in DMRB do not apply to roads with an Annual Average Daily Traffic flow (AADT) of less than 8,000 vehicles. According to traffic forecasts no roads with more than a AADT of 8,000 would experience a traffic flow change of more than 30% as a result of the proposals, consequently any changes to pedestrian severance must be considered as slight.

3.1.3.14. *Water Quality, Drainage and Pollution Control.* The River Roding is the principal water course in the study area. The NRA has classified the river as Class 1A Good Quality. The river supports a varied and relatively pollution intolerant macro invertebrate community. From this data there is no evidence of pollution to the Roding from the vicinity of the junction. The design on the new highway drainage system incorporates 3 new highway outfalls each via a bypass oil and petrol interceptor. Each facility would provide a minimum effective storage of 20 cubic metres in agreement with the NRA current design guidelines.

3.1.3.15. *Landscape and Visual Intrusion.* The likely impact of the Scheme proposals on landscape quality is assessed in the ES and is summarised as follows:

(i) The Roding Valley between Loughton and Chigwell is dominated by the M11 on an embankment approximately 9 m high. The area is characterised by a sharp differentiation between the built up area to the north of the M11 and the more rural landscape to the south of the motorway. To the north lie the industrial estates of Langston Road and Oakwood Hill, the Central Line Underground line and the town of Loughton. To the south of the junction the landscape is attractive and rural with little commercial and residential development.

(ii) In the immediate vicinity of the motorway to the south-east of the junction the agricultural field pattern has been disrupted to accommodate a new golf course. Many of the original hedgerows have been removed leaving a few individual mature trees. The original M11 planting has integrated well and is beginning to screen views of the road from the surrounding areas. To the north of the junction the visual impact created by the motorway is restricted by the industrial estates on the edge of Loughton, but the visual intrusion created by the Oakwood Hill (Chigwell Lane) junction is high for several offices and 50/52 Chigwell Lane. South and east the visual intrusion would only effect the relatively few residential properties along Abridge Road and the sports facility of the golf club.

(iii) The influence of the proposed northbound on slip would be limited to a narrow strip of land between the motorway and the Langston Road Industrial Estate. The existing unsightly lorry park is only partially screened by earth mounding. The construction of the sliproad would allow improvements to be made to the appearance of the area by new mounding and plants. The new southbound off slip would be more visible than the northbound on slip. The impact would result from the loss of planting on the existing embankments and the new embankment required to merge the slip road with the elevated motorway. It would not however be seen against the skyline but against the existing embankment of the M11 and the industrial buildings beyond. The visual impact would therefore not be significant.

(iv) The aims of the landscape proposals (Figure 17, Document D1/A) are to ameliorate the impact of the Scheme on the surrounding countryside and local

properties, to integrate them with the existing landscape and to provide drivers with an attractive a view as possible from the road.

(v) North of the motorway the embankment slopes of the new northbound on slip would be planted with a dense native plant mix reflecting the species composition of the area. This treatment would extend to the area enclosed by the sliproad, Chigwell Lane and the river and tie in with existing vegetation on the banks of the Roding. This planting would replace the existing motorway planting which would be lost and would also screen the use of the motorway from the adjacent industrial estate. A similar approach would be adopted for the new southbound off slip. The visual impact of the Scheme would be slight in the opening year and thereafter produce increasing visual benefits.

3.1.3.16. *Nature Conservation.* Two designated areas are affected, the Roding Valley Meadows Local Nature Reserve (LNR) and Lady Patience Meadow (seen at Figure 16 Doc.D/1A). The LNR is designated under Section 21 of the National Parks Act and Country Side Act 1949. The Meadow was identified as a SINC, an Essex County Council designation, in the Public Consultation Draft of the Local Plan published by EFDC in August 1993.

3.1.3.17. *Roding Valley Meadows LNR.* This consists of flower rich unimproved hay meadows, wet and dry, bounded by fixed hedgerows with a small amount of scrub, secondary woodland and tree plantation. The objective of a LNR should be the care and enhancement of the natural features on which the special interest of the site depends.

3.1.3.18. The Scheme encroaches on the formal boundaries of the LNR but the area affected is small and is located furthest from the centre of the LNR and from the SSSI area, the hay meadows, either side of the river. The LNR covers an area of approximately 50 ha. The area to be lost is approximately 0.5% of the area.

3.1.3.19. The loss from the area includes a 40 year old grey willow, a few immature oaks less than 10 years old, shrubs and brambles. This section of the reserve is of a relatively low ecological value in comparison to the other areas of the flood plain. The loss would not result in an overall deterioration of the LNR's ecological state. A hedge could be planted as a means of safeguarding the remaining secondary woodland buffer zone. It is recognised that the LNR is an important educational resource and contains defined nature trails, a section of which traverses the area affected by the Scheme. The length of the nature trail is 2.95 Km and the length effected by the Scheme is approximately 50m at one end of the trail through an area of immature secondary woodland. Without significant loss to the educational or the amenity value of the reserve, the start of the nature trail could be re-sited

3.1.3.20. *Epping Forest.* The impact of the proposal needs to be reviewed in a wider geographical context. At present the roads radiating from the Wake Arms roundabout through Epping Forest (A121, B1393, B172, A121 and A104) maintain 12 hour traffic flows of between 14,300 and 16,500 vehicles (1992).

3.1.3.21. The Forest is nationally important and an SSSI. English Nature describes it as "one of only a few remaining large scale examples of ancient wood pasture in lowland Britain .... The semi natural woodland is particularly extensive forming one of the largest coherent blocks in the country. It also supports a nationally outstanding assemblage of

invertebrates, a major amphibian interest and an exceptional breeding bird community. It is a significant regional amenity, and a recreational and educational resource". According to the traffic model predictions, vehicle flows through Epping Forest would reduce by between 4.6% and 26.6% as a direct consequence of the Scheme. The results of this relief would be of immediate benefit to occupiers and users of the Forest. In the longer term, it would reduce the need for road improvements, including widening through the Forest which would involve loss of a section of the Forest closest to the road.

3.1.3.22. *Lady Patience Meadow.* Lady Patience Meadow is owned by the Epping Forest Golf Club and is a small area of wet and dry grassland approximately 2.1 ha located to the south of the southbound on slip between the sliproad and the golf course. The area of wet grassland or marsh occupies only a fraction of this and was probably a remnant of a much larger area lost at the time of the original M11 construction. Approximately 1.3 ha of the Meadow would be lost to the Scheme. The ES (Document D5) acknowledges the ecological importance of the site : "this relatively rare community including the regionally rare slender tufted sedge (Carex acuta) has developed on account of the southern loop sliproad impeding drainage from the area. It is of high ecological value and its loss would be a significant adverse impact of the Scheme". However prior to the construction of the golf course the meadow was grazed with cattle and horses a practice essential for maintaining the diversity of the flora and the success of the Carex. During the last two years, since the commencement of the golf course development no grazing has taken place with a consequent decrease in diversity. However due to the ecological importance of this area, consideration would be given to translocating some threatened stands of Carex acuta and other grasses to an appropriate adjacent area within the DTp's ownership.

3.1.3.23. A design brief has now been prepared (Document P/HA/3/B). In addition to the species previously mentioned, the site also supports Carex nigra which is considered by Essex Wildlife Trust to be rare in Essex. It is difficult to assess the likelihood of success of translocation. While data for other translocation operations is available, these cases should not be quoted in support. Even if the habitat to be translocated is the same as that reported on, it is very unlikely that all other factors (for example the weather at the time of translocation) would be identical. The success of past translocations maybe partly due to luck and has been mixed and even in those cases deemed to have been successful there has been evidence of habitat change following translocation.

3.1.3.24. Reasons have been looked at for the failure of past translocations and have been used to draw up the proposals for the translocation of Lady Patience Meadow.

3.1.3.25. Pre-translocation surveys would be necessary. In respect of the donor site, donor studies would be carried out including mapping of micro topography of the Meadow by surveying levels to 5cm levels, monthly monitoring of the water level, analysis of the physico-chemical variables of the ground, analysis of the drainage pattern, production of the vegetation map, analysis of each soil horizon, and historical studies. These studies would produce information needed to characterise the existing site and therefore the ecological requirements of the receptor site.

3.1.3.26. *Selection of the Receptor Site.* Following the construction of the new interchange, islands of land adjacent to the river would remain in between the sliproads and the M11.

These areas are currently unmanaged and relatively dry grass land at a height of about 1.5-2 m above the river level. Both sites are close to the donor site and are adjacent to the river. Both sites are limited in extent and apart from the river do not connect with other habitats to make a larger and more viable ecological unit. Also once the off slip is built access would only be possible via the NRA track. Both sites would require to be reduced in ground level to meet the level of the water table and could potentially be effected by a run off pollution. They are unlikely to receive appropriate long term management.

3.1.3.27. Great Hamon Mead on the western side of the M11, is a relatively extensive plot of land owned by the DTp, lying between the north side off slip and the Roding Valley Meadows LNR. The site at present has a number of wet grass areas with sedges but for the most part comprises a small herb community of great willow herb, hemlock and nettles. As a potential receptor site it has the advantage of being part of a larger ecological unit. It is also adjacent to the river and supports communities consistent with the largely unmodified flood plain. In addition it could easily be incorporated into the overall management plan for the LNR and thus the long term survival of the site is likely to be assured. It is however a greater distance from the site than the previous two locations and there are difficulties in access which are not insurmountable. The existing areas of sedges on the receptor site would not be disturbed.

3.1.3.28. *Translocation Methodology.* The receptor site would be surveyed and the distribution of plant communities recorded. Bore holes should be used to locate the level of the local water table, it should be monitored monthly. Ground water would be analysed. These studies would assist in identifying the most suitable location for environmental engineering works to receive the translocated habitat. Modifications may include the lowering of the ground level.

3.1.3.29. Specialist contractors would be used. They would have the machinery and skilled staff necessary. Lady Patience Meadow would be grazed or cut at a suitable time prior to translocating. Turfs would be labelled before they are moved to ensure they are placed in a suitable location and would be moved in autumn or winter. Turfs would be cut 600 mm^2 and 450 mm deep to ensure root systems are not damaged.

3.1.3.30. The whole translocation operation should be supervised by the ecologist or another person with detailed knowledge of the project. A suitable post translocation management scheme should be established.

3.1.3.31. *Listed buildings.* Five Grade II* buildings would suffer an increase in traffic as a result of the proposals and 2 would benefit by a decrease in traffic.

3.1.3.32. With regard to Grade II listed buildings, 39 would suffer as the result of an increase in traffic and 68 would benefit by a decrease in traffic. This includes all listed buildings such as gates, railings, telephone kiosks not just residential properties and includes all listed buildings within 150 m of any road for which traffic flow predictions have been made. On this calculation there is a net overall benefit to listed buildings but it is agreed that these calculations are maybe too coarse and consequently EFDC may be forwarding a more detailed survey direct to the Secretary of State for consideration after the close of the Inquiry.

3.1.3.33. *Air Quality.* The slip roads would result in changes in peak hour vehicle flow rates on the local road network which may effect air quality at nearby properties. A comparison has been made to assess air quality with and without the sliproads being built both in the opening year and the design year 15 years later.

3.1.3.34. The European Community (EC) has set limit and guide values, and member states are obliged to ensure that the limit values are not exceeded. The World Health Organisation (WHO) has also guideline values for certain pollutants.

3.1.3.35. Nitrogen Dioxide. The EC has set limit and guide values for nitrogen dioxide. The limit and the guide values are equivalent to 105 ppb (parts per billion) and 71 ppb respectively.

3.1.3.36. The WHO has also set guidelines - 213 ppb for maximum hourly concentrations and 80 ppb for maximum 24 hour average concentrations.

3.1.3.37. Carbon Monoxide. There are no EC directive limit or guide values but WHO give the following guidelines - 10 ppm (parts per million) for a maximum 8 hour average concentration, 25 ppm for a maximum hourly average concentration and 50 ppm for a maximum 30 minute average concentration.

3.1.3.38. The 8 hours guideline is the most stringent as it is more readily breached near roads which are heavily used throughout much of the day. The guideline is similar to the US national ambient air quality standard of 9 ppm of carbon monoxide over 8 hours. This figure is incorporated in the assessment methodology recommended by the DTp.

3.1.3.39. Total Hydrocarbons. There are no EC directive or WHO guidelines relating to total hydrocarbons. The Department of the Environment's expert panel on air quality standards takes a view that there is a concentration where the risks are exceedingly small and unlikely to be detectable by any practical method. The panel recommend an air quality of 5 ppb as a running annual average for Benzene with a future target of 1 ppb. The improvement in air quality is expected to be achieved over 6 years by the recent legislation requiring the introduction of catalytic converters on new cars and the hydrocarbon emission test which now forms part of the M.O.T.

3.1.3.40. Existing Air Quality. Warren Spring Laboratory carried out a nation-wide diffusion tube survey of nitrogen dioxide including locations at Ilford, Leighton, Dartford and Barking. All of these sites are likely to be below the EC directive limit value.

3.1.3.41. At the request of EFDC the Agency agreed to carry out a local diffusion tube survey to establish average nitrogen dioxide levels. Tubes were deployed at 18 locations within approximately 3 km of Junction 5. Initial results from the survey show that the average concentrations in February and March were in the range of 24 - 33 ppb. If this range of results was for long term averages, empirical studies suggest that air quality would be in the range of 58 - 79 ppb.

3.1.3.42. The local survey found that the nitrogen dioxide levels were highest at street lamp columns near EFDC offices and Home Farm roundabout. If the average nitrogen dioxide levels measured during February and March are similar to the long term mean, the EC

directive limit value would not be exceeded at any of the sites, and the guide value would not be exceeded at any location other than some of the kerbside sites.

3.1.3.43. Method of Assessment and Predicted Air Quality. The method used for assessing air quality is given in the DMRB. It estimates carbon monoxide, total hydrocarbon and nitrogen dioxide concentration.

3.1.3.44. The method is based on peak hour vehicle flows and speed, the distance between the property and nearby roads and also takes account of future changes in exhaust emissions due to legislation. The method requires air quality assessments to be made for the existing situation (1993), the opening year of the Scheme (1997) and the Scheme design year (2012). The do-minimum case for both opening and design years is also addressed.

3.1.3.45. The DMRB method initially calculates annual average pollutant concentrations during the peak hour. The average values are then used to give estimates of the maximum 8 hour average carbon monoxide concentration that would occur during the year and nitrogen dioxide concentrations for urban and non-urban locations. It is intended that the results are compared with US standards for carbon monoxide and the EC standards for nitrogen dioxide. If the method predicts carbon monoxide levels to equal the threshold, the 8 hour guideline is likely to be exceeded during one day of the year. Higher predictions indicate that poor air quality may occur on several days during the year. Hydrocarbons are also estimated using the DMRB method. It is likely that the predicted levels of hydrocarbons would not give rise to concern if carbon monoxide concentrations are below the recommended level.

3.1.3.46. Receptor properties were chosen along the routes likely to have the largest changes in peak hour traffic as a result of the Scheme. The receptors are located as indicated in Figure 9 (D/1A). Traffic flows were provided from predictions using the COBA model.

3.1.3.47. DMBR method was applied to the chosen receptors for the current road system using 1993 traffic data.

3.1.3.48. Along Epping High Road, Epping Road, Piercing Hill and Goldings Hill building facades are typically 20 m or 30 m from the centre of the road and air quality is expected to be good for properties near those roads. As predicted carbon monoxide levels are about half of the guide value or lower. Nitrogen dioxide is expected to meet the EC limit and guide value. Roding House (in Oakwood Hill) and 50 Chigwell Lane were selected as being close to Chigwell Lane and Oakwood Hill. Roding House is currently an unoccupied new office block. Carbon monoxide concentrations are expected to be below the WHO guideline and approach the US standard assuming an average peak hour speed of 20 km/hr. Should average speeds fall much below that carbon monoxide levels would increase and exceed the guideline. Nitrogen dioxide levels are expected to be low.

3.1.3.49. Four properties facing Chigwell High Road were selected within 5 m of the road. Air quality is predicted to be good at these locations although the carbon monoxide level may approach the standard at the junction of Chigwell High Road and the A123. Here nitrogen dioxide was predicted to just exceed the EC limit value if the urban conversion factor is used. The non-urban factor is thought to be more appropriate and this gives the result below the guide value.

3.1.3.50. If the t9raffic on the A123 approaching Chigwell High Road were to average 10 km/hr the nitrogen dioxide level would be unchanged, but the carbon monoxide guideline would be exceeded. With regard to the predicted concentrations in 1997 for the do-minimum case there is a reduction in both carbon monoxide and nitrogen dioxide levels at all receptors compared to 1993 due to the effect of an increased proportion of vehicles being equipped with catalytic converters. For the do-minimum Epping and Loughton are predicted to have good air quality in 1997 with carbon monoxide levels below half the threshold. A further small benefit would result from the Scheme due to lower traffic flows in these areas. The proposed roundabout would be close to Roding House and 50 Chigwell Lane. The small predicted increase in carbon monoxide levels would result in the threshold being exceeded. At 50 Chigwell Lane, the predicted decrease from current levels for the do-minimum case would be reversed by the Scheme and carbon monoxide threshold would be exceeded. Nitrogen dioxide levels would also increase as a result of the Scheme. Although the method predicts an excessive nitrogen dioxide limit value for the urban case, the non-urban result is thought to be more appropriate. It is possible that the guide value may be approached or exceeded at this property

3.1.3.51. All receptors are predicted to have good air quality in the design year 2012. The changes in air quality due to the Scheme tend to give lower results in Epping and Loughton and somewhat higher results in Chigwell. Given that the absolute levels predicted in 2012 are so far below the threshold values and that the changes are generally so small, it can be concluded that the Scheme is of no more than marginal effect.

3.1.3.52. Carbon monoxide concentrations were estimated to be below the WHO guideline in the do-minimum case at all receptors. The Scheme concentrations were estimated to just exceed the WHO guideline at one property near the roundabout if speeds were 10 km/hr. Much of the predicted improvement would occur well before the design year. The DMRB estimates that relative emission rate of carbon monoxide from light duty vehicles in the year 2012 would be one third of that in 1997. The benefits of emission control technology would outweigh increases in traffic flow in the years following the Scheme opening. Within a few years of the Scheme opening air quality is likely to be more similar to that predicted for the design year than for the opening year.

3.1.3.53. A supplementary DMRB assessment for Chigwell Row was made following the suggested reassignment of M25 traffic. The reassigned flow of traffic would only slightly increase carbon monoxide and nitrogen dioxide levels at the junction of Chigwell High Road and Abridge Road by less than 10%.

3.1.3.54. The non-urban nitrogen dioxide concentration is well below the limit value at the new roundabout and Rolls Park Corner.

3.1.3.55. Carbon monoxide and nitrogen dioxide levels are expected to be lower along Gravel Lane, Pudding Lane and Chigwell Row. Compared to the do-minimum case there is little change resulting from the Scheme or the reassigned traffic. Near the junction of Gravel Lane and Lambourne Road, carbon monoxide concentrations may just exceed the DMRB threshold.

3.1.3.56. The reassigned flow on the Romford Road would cause a small increase in carbon monoxide level at properties closest to the road but it would remain at well below the threshold level. The non-urban results indicate that nitrogen dioxide levels are expected to remain below the guide level whether or not the Scheme proceeds but may possibly approach or exceed the guide value in practice. The limit value would not be exceeded whether or not the Scheme proceeds even with the reassigned traffic.

3.1.3.57. The 1997 air quality at most properties in Chigwell Row would be unaffected by the Scheme and the reassigned M25 traffic. Those properties closest to the road would experience a small change in carbon monoxide levels and nitrogen dioxide concentrations would be relatively low compared with the threshold level. The only property in the Chigwell Row area likely to be subject to carbon monoxide levels above the 8 hour guideline during one day during the year is the public house at the junction of Gravel Lane and Lambourne Road.

3.1.3.58. The DMRB screening method identified 2 junctions where air quality criteria may be exceeded at building facades. The DMRB method advises that a more detailed assessment is carried out. Two areas were identified for further study namely the area surrounding the proposed roundabout to the north of the M11 and the corner of the Chigwell High Road and Hainault Road (A123). The detailed study used a model which can predict maximum 8 hour carbon monoxide concentration and nitrogen dioxide concentration.

3.1.3.59. Vehicle emissions rapidly mix with ambient air and are dispersed as they are carried further from their source so that pollutant concentrations decrease with increasing distance from the road.

3.1.3.60. With regard to Chigwell Lane/Oakwood Hill the 1993 case survey says that no part of Roding House or 52 Chigwell Lane is subject to a carbon monoxide level of 9 ppm or above.

3.1.3.61. 50 Chigwell Lane is nearer to the road and the WHO guideline is predicted to be exceeded for one or two days during the year.

3.1.3.62. The results show that in terms of carbon monoxide levels there is little to differentiate the current situation from that obtaining in 1997 whether or not the Scheme is built.

3.1.3.63. Nitrogen dioxide concentrations were predicted to be below both the EC limit and guide values at all properties in 1993. This would also be the case in 1997 whether or not the Scheme proceeds. With regard to Chigwell High Road/Hainault Road in 1993 the area in which 9 ppm carbon monoxide would be exceeded for one day each year almost reaches the facades of two properties. All properties were predicted to have carbon monoxide levels below the guidelines.

3.1.3.64. In 1997 if the Scheme proceeds, the carbon monoxide levels would be the same as 1993 in this area. If the Scheme is not built the carbon monoxide levels will be slightly lower. The assessments are made on an average speed of 10 kph throughout the day on Hainault Road, if they are higher, the carbon monoxide levels would be lower. With regard to Gravel Lane, Lambourne Road it is likely that the carbon monoxide levels threshold would be exceeded in the opening year.

3.1.3.65. A further nitrogen dioxide survey was carried out at the request of EFDC. Monthly mean measurements were made at 16 locations which could experience changes in air quality as a result of the Scheme.

3.1.3.66. Based on a 3 months of measurement period, nitrogen dioxide concentrations are likely to have been well below the EC limit value at all of the monitoring sites. Six of the 16 sites have concentrations slightly above the guide values. These site are in Epping High Street and along the A1168 in Loughton.

3.1.3.67. Nitrogen dioxide levels are likely to be well below the EC directive limit on the basis of the results from the 3 month survey at all the sites along the main routes in Epping, Loughton, Debden and Chigwell. This is the case even at the kerbside where nitrogen dioxide levels are higher than at nearby building facades.

3.2. The Cases of the Supporters

The material points made were

By those appearing:

3.2.1. *Mr. Westrop* is a Loughton resident and a motorist travelling northbound at least twice a week using parts of the M11 for his journey. The present facilities for joining the M11 northbound are extremely inconvenient. There are 3 alternative routes for motorists joining the M11 to proceed northwards. They can join the M11 at Junction 5 and proceed south in the opposite direction as far as Redbridge roundabout to change direction northbound. This is not practical because of the increased mileage and may be the only alternative under serious snow conditions or for poor navigators but would cause increased traffic at the Redbridge roundabout.

3.2.2. The second alternative leaves Loughton via Goldings Hill through the Forest to join Junction 26 of the M25 and partly involves reverse direction travelling; sharp bends and steep gradients are sometimes involved. Joining Junction 26 is not an easy manoeuvre via a slow lorry crawler lane converging into the third lane at Bell Common tunnel.

3.2.3. The third alternative, favoured by the supporter favoured, was via B1393 Epping Road through traffic lights by the Forte Hotel where queues are most formidable. This means that Epping badly needs a by-pass and shows how little the present M11 solves Epping travel. The motorist then has to negotiate 3 light-controlled pedestrian crossings and 2 uncontrolled pedestrian crossings, a double mini roundabout and a further set of traffic lights. Along Epping High Street there are other problems causing delays including a car park for a substantial length of the High Street where cars sometimes have to reverse to exit the park. On Mondays there is a market day and the whole of the roadside parking is occupied by the market. The small village of Thornwood has then to be passed with a 40 mph restriction until eventually reaching the roundabout controlling access to junction 7 of the M11 close to Harlow. Extensive queues build up at this roundabout.

3.2.4. Epping Hospital Casualty Department has been closed and local people now have to proceed to the hospital in the centre of Harlow which takes some 25 minutes of driving time under normal driving conditions.

3.2.5. The proposed slip road would also remove some of the pressure from a busy part of the M25 between Junctions 26 and 27 which cannot be eased by the construction of an additional lane bearing in mind the constraints of the Bell Common tunnel. Similarly relief might be experienced between Junction 27 and 28 of the M25 as a result of the transferred traffic. This would increase the use of an under utilised section of the M11 between Junctions 5 and 6.

3.2.6. If the proposed new slip road enables 15,000 vehicles a day to achieve a shorter and quicker journey then there must be a benefit from a decreased exposure to such vehicles. A too parochial view of such benefits should not be taken. There are bound to be winners and losers but many are over stating their case. It would seem that EFDC would withdraw their objection if they were paid for road improvements.

3.2.7. The proposals are benign, they do not waste good arable land and do not involve the destruction of dwellings. There are no fears concerning atmospheric pollution. With regard to the loss of the lorry park there are alternatives a short distance away from the present site in the Langston Road industrial area and compensation would be paid.

3.2.8. Many conservation issues are grossly overstated in an effort to place their importance on a par with other issues. One look at the proposed site of the junction surroundings is sufficient to establish that this is a dreary location commanding no special attention. The supporter had expected some rare species of beetle, reptile or butterfly as a reason for disputing the sliproads. It is ironic that the sedge is alleged to have arisen because of the interaction of the motorway with the local environment. English Nature should be asked if in all seriousness they dispute the present proposal to preserve a sedge which in their view is rare in the region. It is not known what scope to apply to the term 'region'. It must follow that road accidents will decrease as result of diverting several thousand cars daily from local roads on to the motorway. If one life is saved it cannot be said that the preservation of an allegedly rare sedge is more important. It is necessary to view such low grade conservation issues with a sense of proportion.

3.2.9. The Agency has been too conciliatory in its approach. They have offered to translocate the allegedly rare, but not protected, sedge species from Lady Patience Meadow to Great Hamon Mead. English Nature are adopting too narrow a view when supporting their contention as to the rarity of the sedge by the statement that there are only ten sites in the County of Essex, since they are only considering flora distribution within the confines of a County boundary which can be altered by the Boundary Commission. It was noticeable that EFDC's witness (its Planning Officer) stated that he would have been unable to identify the various species of sedge. It is regrettable that English Nature did not give evidence. If ever evidence needed to be tested by cross examination it is that submitted in writing by English Nature.

3.2.10. In their letter of 24 May 1994 English Nature argue for the retention of Lady Patience Meadow and suggest a diversion of the proposed south bound off slip through the golf course itself. It is to be wondered how the owners of the Meadow who are also the owners of the Golf Course would now view the Council's ecological management proposals if they were aware of this suggestion.

3.2.11. The objectors are disregarding the benefits of time and safer motoring and full utilisation of the M11 motorway. These benefits are not quantified and are omitted from the

benefits/disbenefits equation. Listed buildings should not qualify for more traffic consideration than an unlisted building

3.2.12. *Mr A A Archer* made similar points to Mr. Westrop, the suggested transfer traffic from the M25 would not materialise. The route via Barkingside, Hainault and Chigwell is already very congested. The route through the conservation area is already used to gain access to the M11 via the A1168.

3.2.13. From Gallows Corner (the junction of the A12 and A127 and A118), the route to Junction 27 is a double carriageway. The junctions of Gravel Lane with Abridge Road and of the A113 and the A1168 are beyond or very close to calculated capacity. This supporter would select the M25 route from Romford as it is far less stressful as well as being quicker to the junction with the M11. This applies equally to journeys from the south of Romford.

3.2.14. *Océ (UK) Ltd*, with the introduction of northbound sliproads, this company would have direct access to the M11 and M25. The number of its commercial vehicle movements used on local roads would reduce from 44 to 6 per day. Its supplier vehicle movements would reduce from 40 to 8. 55% of staff vehicles would use the new sliproad, mostly in the rush-hour involving 354 movements per day. 75% of visitors cars would use the new sliproad, currently they approach through Loughton and have difficulty in locating the company's premises.

3.2.15. The total reduction in vehicle movements per day through local streets in respect of vehicles associated with this company would amount to 499. Similar figures would apply to other industrial companies in the area.

3.2.16. *Bank of England* printing works employs 900 people on site in Langston Road, they work shift work. From an internal survey, 16% would use the new sliproads which is equivalent to 312 car journeys per day. The Bank has a need for suppliers' lorries which involves heavy goods vehicles travelling through local roads. The layout of the junction is well designed and is better than the current complex traffic signal systems at Langston Road, which is unreliable. The ditch between the motorway and the Bank's premises is not required for security purposes.

By those who made Written Representations:

3.2.17. *The Corporation of London*, as conservators of Epping Forest, stated that traffic is arguably the Forest's number one enemy since nothing else has such a sustained adverse impact. Noise, fumes, visual intrusion and the sheer difficulty of being able to cross roads, whether on foot or horseback combined to undermine the forests natural feel, and spoil visitors' enjoyment and its vegetation.

3.2.18. The new on sliproads would reduce traffic flows on several roads through the forest which are used by motorists going to and from the M11. The predicted reductions on the A121 and A104 would bring welcome relief and benefit the many hundreds of thousands of people who use Epping Forest each year. These views were supported by further written representations from the Epping Society and the Upshire Village Preservation Society.

3.2.19. *The Princess Alexandra Hospital Service* stated that the hospital in patient services unit (which includes the acute in-patients services at St. Margaret's Hospital, Epping).is being centralised at Harlow and it is intended that the remaining acute in-patients services at St. Margaret's Hospital in Epping would be transferred to Harlow in 1995/1996. Accident and emergency services for the area have already been centralised and the accident and emergency department at Epping closed a year ago. This department currently has some 53 attendees per annum and the new accident and emergency department is under construction and would open next year.

3.2.20. The north-facing sliproad would facilitate easier and faster access to the hospital from areas in the southern part of Epping Forest and in particular from Loughton. Emergency ambulances would all benefit from being able to access the M11 northbound at Junction 5. This would help to relieve some of the pressure on the accident and emergency departments at neighbouring hospitals and also facilitate faster journey times for patients and visitors.

3.2.21. Four other local residents attended the Inquiry in support of the proposals and made comments on matters already covered by Mr. Westrop and Mr Archer.

3.2.22. In addition written representations were received from a further 29 supporters, most of whom lived in the Loughton and Epping areas and supported the Scheme on the same grounds as the other supporters. Owners of two industrial premises in the Langston Road Oakwood Hill and Hainault industrial estates supported the Scheme on the grounds that their commercial vehicles would have direct access on to the M11 without passing through local roads.

3.3 The Case for the Objectors

The material points made were

<u>By those appearing:</u>

3.3.1 Epping Forest District Council

3.3.1.1. The Council made a holding objection in September 1993 and at a meeting on 26 April 1994 the Council resolved to maintain the objection and without prejudice to that objection it agreed that discussions should continue with the Agency for the funding of local highway improvements with a view to an agreement being secured under the Highways' Act 1980 for remedial measures on local roads if the Scheme proceeds.

3.3.1.2. The impact of the northern roundabout on 50/52 Chigwell Road has been ignored. These properties would be uninhabitable during construction works. The DTp has demonstrated its intent, but not commitment with regard to these properties. The Council would wish to see these premises purchased by the Department as property blighted by the Scheme and demolished with the occupiers being re-housed.

3.3.1.3. Pedestrian crossing facilities from Oakwood Hill to Langston Road are an essential requirement to the north of the proposed northern roundabout. Adequate guard railing facilities are required.

3.3.1.4. *Ecological impact on the Roding Valley*. The Council fully endorses the practical concerns highlighted by English Nature and Essex Wildlife Trust. These issues are not satisfactorily addressed in the ES. The mitigation measures being proposed by the Department are not based on a proper and detailed scientific study and until satisfactory measures can be agreed any decision on the sliproads should be delayed or abandoned.

3.3.1.5. The draft PPG on nature conservation 1992 states that "our natural wildlife heritage is not confined to the various statutory designated sites" and that "local plans should identify relevant national and local nature conservation interests and ensure that protection and enhancement of these interests is properly co-ordinated in development and land use policies" and "plans may also include policies for areas identified as having local conservation importance". Policies in the draft deposit local plan are relevant to this Scheme because one SINC (Lady Patience Meadow) would be at least seriously affected if not destroyed and part of one local SINC (the LNR) would be destroyed.

3.3.1.6. The DTp should include detailed drawings of the area of working space for the bridge and southbound off slip. The details given for translocation are insufficient to meet the requirements of certain policies contained in the Draft Deposit Local Plan.

3.3.1.7. The Epping Forest Golf and Country Club have been asked whether they would agree to enter into a Scheme of management with EFDC under Section 39 of the Wildlife and Countryside Act 1981 to protect the habitat of Lady Patience Meadow. The Club have replied that they would agree to the proposal on the basis that it would incur no undue on-going costs.

3.3.1.8. The land comprised in the LNR is owned by EFDC and there are no restrictions on use other than open space.

3.3.1.9. The ES should have considered an offer of replacement of the woodland in the north-eastern section of the LNR. The DTp should consider the need on safety grounds for lighting on the sliproads and the motorway although it accepted the Department's view that there would have to be a need to justify measures for lighting the motorway for what is essentially a local improvement to Junction 5. It accepts the Department's proposal that the existing lighting at Junction 5 would be upgraded but the Department should be encouraged to commit itself to improving lighting where necessary.

3.3.1.10. *Conservation Areas.* The detrimental effect of increased traffic and noise in the Chigwell Conservation area, Oakwood Hill, Loughton Way, and Buckhurst Way is unacceptable.. The DTp should be required to ensure that the proposals provide for the installation of noise barriers including planting of trees of a suitable species.

3.3.1.11. Chigwell was designated a Conservation Area in 1969. Its character is that of a 17th and 18th century residential development abutting the highway, the sense of enclosure being reinforced by narrow footways. The built form of the Conservation Area makes it more vulnerable to increases in traffic, it contains 15 individual, 3 pairs and 2 groups of listed buildings. Four of the individual buildings are listed Grade II*. The oldest building is St. Mary's Church with 12th century origins. Harsnetts on the eastern side, and the Grammar School on the west are c.1600 and c. 1620 respectively. The King's Head public house is described at the start of a Dickens novel.

3.3.1.12. The Secretary of State should direct that DTp reconsider their assessment with a view to developing a traffic model which is capable of fairer and more realistic appraisal of the proposed sliproads.

3.3.1.13. By comparison Epping Conservation Area is about 1,000 m long and includes the town centre. Some of its buildings are more dispersed, not abutting or fronting the highway. While reductions in through traffic are welcomed, the built form of the area (including wide footways) and the movement and activity generally associated with the town centre mean that traffic is generally tolerated as a less disruptive element than is the case with Chigwell. There are no Grade II buildings in the Epping conservation area. Policy 90 of the Roding Valley Local Plan should have received consideration in the ES. This states "the District Council will make full use of its statutory powers to ensure that the character of each conservation area is protected and enhanced and would expect other public bodies to have regard to the need to protect this character when considering works within the conservation areas". The character of the Chigwell conservation area would be harmed by a significant increase in traffic. Circular 8/87 states "the plan may also include proposals for reducing traffic congestion in and around a Conservation Area by traffic management Schemes and road improvement. PPG 13 revised (Transport) March 1994 states "measures to enhance the street environment and road safety should be considered for sensitive locations". The Essex Structure Plan Policy T6 states "traffic management measures will be used in appropriate circumstances to improve the environment of conservation areas". The Draft Deposit Local Plan (April 1994) comments that "traffic regulations and traffic calming measures may be particularly appropriate in environmentally sensitive streets such as ..... conservation areas".

3.3.1.14. While recognising that there would be improvements in Epping the Council has consistently expressed concern about the adverse effects of the Scheme on parts of the district. In the 1989 Epping and Ongar Local Plan "the provision of north-facing sliproads at Debden could achieve this [a reduction of traffic through Epping] but the District Council recognises that there could be adverse effects in Loughton and if the need for a full interchange cannot be justified the Council would then consider alternative solutions for Epping". The sliproads could "worsen existing problems on the A1112 (Gravel Lane) and an improvement would be needed for it to cater with the anticipated increase in the volume of traffic using it" and "the District Council would only support the provision of additional sliproads if the benefits are not outweighed by adverse effects elsewhere in the District".

3.3.1.15. *Traffic Considerations.* The DTp have failed to supply sufficient traffic data on an "all day" and a "p.m. peak" basis to assess the impact on the local road network.

3.3.1.16. DTp have failed to supply an assessment of the additional HGV traffic generated to identify the impact on the local road network and the conservation area. The DTp findings showed that 45% of HGV movements were through journeys with a further 8% making a short stop within the study area. This study led to the conclusion that 30% of HGV movements inbound to the study area could have used the north facing slips rather than the local road network. The Council's comment on this is that the survey only considers off peak total flows and as a consequence does not fully answer the Council's original objection. No meaningful assessment is made of the impact on the local road network and the conservation area of those HGVs approaching from the Romford area.

3.3.1.17. The assumptions made by the DTp in respect of increase and decrease of traffic generation in local highway network being based on 1989 traffic flows are not necessarily an accurate reflection of the likely impact of the Scheme.

3.3.1.18. *Landscaping.* The landscaping of motorways and their integration into the district's landscape are identified as particular problems in the consultation draft and the draft deposit versions for the district wide local plans and this has resulted in the introduction of Policy LL13 into the Draft Deposit Local Plan. The level of detail given in the ES falls short of that normally required for other planning applications and therefore would not satisfy the above policy.

3.3.1.19. A number of attractive mature trees would be lost from Oakwood Hill junction and the areas for landscaping on the surrounding land (north-west between Oakwood Hill and Chigwell Lane) seem cramped.

3.3.1.20. Although adequate space is being made available for replacement and new landscaping in respect of the northbound on slip, the Council requires more details particularly if contamination is found on the lorry park site.

3.3.1.21. The southbound off slip road is within a Special Landscape Area. This information is not included in Figure 5 (planning constraints) of the ES. Within such areas the Structure Plan presumes against development unless its location, siting, design materials and landscaping accord with the character of the area and states "special landscape areas are particularly valuable .... the conservation of these areas is important to the County's national heritage and they should be protected from development which detracts from their character". Figure 13 of the ES does not contain sufficient details.

3.3.1.22. The proposed planting between the roundabout and the River Roding is too thin to have any visual impact or screening effect for many years. It is likely to be several years before motorway planting has any modifying impact on the public perception of the new bridge over the Roding. If any landscaping is on a steep embankment, the planting is not likely to soften views of the road or the passage of traffic for many years.

3.3.1.23. The Council has reached an overall balance of judgement against the Scheme. A great deal more work on a range of issues and the achievement of satisfactory solutions to those issues is required before that balance is altered.

3.3.1.24. *Noise.* Current advice on the subject of environmental noise assessment of road schemes is contained in DMRB, the introduction of which explains that "this advice note provides guidance on the environmental assessment of trunk road schemes including motorways".

3.3.1.25. The guidance contained in DMRB is that "more recent research indicates that people are more sensitive to abrupt changes in traffic noise associated with new road schemes than would be predicted from studies of steady state noise dissatisfaction. In the period following a change in traffic flow, people may find appreciable benefits or disbenefits where noise changes are as small as1 dB(A) - equivalent to a change in traffic flow of 25%. These benefits or disbenefits last for a number of years. This number is not specified in the main text of the DMRB. However background research has indicated that the levels of nuisance differ from steady state levels up to 7 and 9 years after the change in noise exposure.

3.3.1.26. The DMRB contains 2 graphs which allow the estimation of noise impact after the opening of the Scheme and at a point when the noise nuisance has reached a steady state level after 7 - 9 years.

3.3.1.27. Noise impact is displayed in either the "change in percentage of people bothered by traffic noise" or the "overall percentage of people bothered by traffic noise".

3.3.1.28. The traffic flow forecasts by the Agency and EFDC's road engineer show the proposed Scheme would increase flows on certain roads and decrease flows on others. These increases or decreases would result in an increase or decrease in traffic noise. An inspection of the percentage change in traffic flow thus allows the aggregate noise impact and the specific impact along any particular road to be made.

3.3.1.29. Although it is correct to set out the impact in 2012 when the maximum flow would be expected the ES should also contain an assessment of the immediate impact as recommended in DMRB.

3.3.1.30. Traffic flow data produced by the DTp is restricted to morning peak levels. The Council's consultants have undertaken their own assessment of noise impact using the Council's highway consultants' predicted 12 hour flows based on 1997 level which enables the effect to be assessed immediately after the proposed opening of the Scheme.

3.3.1.31. These traffic flow predictions indicate there would be significant (above 25%) changes in traffic flows on several of the roads on the surrounding network. In Pudding Lane there would be an increase of 103%/100% in sound level of 3.1/3.0 dB(A). This would lead to an increase in the percentage of people bothered by noise of a 30.6%/30.3%.

3.3.1.32. In Chigwell Lane (A1168) an increase of 44% in traffic flow would result in an increase in noise levels of 1.6 dB(A). The increase in the percentage of people bothered is 24.6%.

3.3.1.33. A113 Chigwell High Road an increase of 26%/27% in traffic flow would result in an increase in sound level of 1 dB(A) which would lead to an increase in the percentage of people bothered by noise of 21%.

3.3.1.34. The proposed junction would result in an appreciable disbenefit to a reasonable number of people. This disbenefit is not balanced by positive environmental benefits i.e. no links show a reduction in flow of 25% or greater (except Piercing Hill). This disbenefit would last for up to 7 - 9 years, after which the degree of nuisance would reduce to steady state level.

3.3.1.35. The DMRB suggests that the degree of nuisance in year 15 is determinable but this requires data on absolute noise levels as well as the increases in the noise levels. This information is not contained in the ES and so the assessment cannot be undertaken.

3.3.1.36. 50 and 52 Chigwell Lane are likely to be subjected to increases in noise levels in excess of 1 dB(A). These properties are not mentioned in the ES.

3.3.1.37. The Council's noise consultant has looked at 25% increases of traffic and then evaluates what those increases would entail and the resultant noise nuisance. This is substantiated by DMBR, Chapter 4 - Para 4.1, Chapter 8 - Paras 8.4 (i) (v) and 8.9. No reference is made to + or - 1 dB(A). If a + or - 1 dB(A) calculation were used this would bias the assessment and artificially benefit the Scheme. If 1 dB(A) is used as a criteria this is equivalent to an increase of 25% and a decrease in traffic flow of 20%. Generally the DTp's approach does not conform to the government guideline which states that one should err on the side of caution. Traffic predictions may not always be correct.

3.3.1.38. *Vibration.* Road traffic is unlikely to damage buildings but older buildings are more susceptible to vibration. The ES prepared by the Agency only provides traffic information for the morning peak hour in 1989. No evening peak assessment has been undertaken which is an unsatisfactory feature of the traffic appraisal.

3.3.1.39. *Traffic Model* The traffic model developed by the DTp's consultants to assess the proposals assumes a "partial matrix" approach, i.e. only those trips which they consider would be likely to use the sliproad were assessed. The model does not therefore fully reflect all traffic movement in the model area. This approach is inappropriate as a final basis for assessing the traffic and environmental effects of the sliproad proposal. A technique that takes account of capacity restraint on the road network should have been adopted and non-observed trip movements within the area should have been included in the study matrices and had this been done it would have been possible to adopt the more appropriate forecasting procedure whereby the matrices are factored to represent the future year and then assigned to the future year do-nothing and do-something network. It is surprising that such a simplistic modelling approach has proved acceptable to HETA It now appears that HETA approval has been delegated to the Eastern Regional Office.

3.3.1.40. It is considered that additional traffic that presently gains access to the strategic road network beyond the district would be attracted into the district. Trip information from a road interview site on the northbound sliproad from the A12 to the M25 at Junction 28 of the M25 and Brentwood was collected as part of the 1991 London Area Transport Survey (LATS). This information was analysed.

3.3.1.41. The likely watershed fell on the A12 for trips from the Romford area between continued use of the A12 eastbound, then M25 north-west bound to Junction 27 and a new, and shorter, route via the A1112 Whalebone Lane/Romford Road through Chigwell Row then via either Gravel Lane of Pudding Lane to gain access to the A113 then A1168 Chigwell Lane and on to the M11 north facing slips. The watershed area falls approximately in the Rise Park area north of Romford. The main access to the A12 from south of Romford would be via the A125 (North Street). As a result of the assessment of the likely transfer of traffic a total of 3,374 trips that were not previously assessed are likely to divert to the new route.

3.3.1.42. Consequently the DTp have significantly underestimated the use of the sliproads and the impact they would have on the local road network in their assessment. Rather than a net reduction of 500 vehicles over 12 hours in 1997, it is concluded that flow levels through Chigwell Row would increase by between 3,300 and 3,400 dependent upon low or high growth. Flow levels would also increase significantly on Pudding Lane, Gravel Lane, the A113 and the A1168 south of the M11. The additional traffic as a result of the Scheme would be double that predicted by DTp.

3.3.1.43. The level of increase would place an even greater burden on the Rolls Park corner mini roundabout junction (A113/A1168) which already experiences delays during peak hours. An additional load would also be placed on the A1112. These junctions analysed on present day traffic levels apart from A113/Pudding Lane show a flow near or exceeding capacity.

3.3.1.44. The DTp's consultants selective traffic count and journey times surveys in 1993 revealed that in the 4 year period from 1989 to 1993 travel times on the sections surveyed increased by 14% in the morning peak and 6% in the off peak.

3.3.1.45. The construction of the Hackney M11 link road is likely to compound the problem and no due consideration has been given to this. It is programmed to open in approximately 1997 and would provide a high standard route from the M11 to south of the river. No highway improvements are planned at Redbridge roundabout which is seen as a major constraint on the existing highway network and a throttle for traffic wishing to gain access on to the new route. The traffic model showed that demand to use the A12 once the link road is built far exceeded link capacity, such that congestion already on the A12 would worsen.

3.3.1.46. Trips not bound for the link road, e.g. those wishing to gain access to the M11 northbound along the A12 in a westbound direction would not tolerate the congestion with the provision of the north facing sliproads and would look for alternative less congested routes via Barkingside, Hainault and Chigwell to gain access at Junction 5.

3.3.1.47. Gravel Lane has a weight restriction of 7.5 tonnes whilst Pudding Lane and Vicarage Lane has a width restriction of 7 ft 6 ins. The only alternatives are therefore the A113 through the centre of Chigwell or from the A1112 at Chigwell Row via the B173 Lambourne Road and then via Chigwell Lane to gain access to the A113.

3.3.1.48. Additional traffic could be attracted into the area to utilise the parking provision at Loughton Station for onward commuter journeys. Some commuters from the Harlow, Sawbridgeworth and Bishops Stortford areas (around 400 trips per day) who presently use Epping Station could divert to either Loughton or Debden.

3.3.1.49. *Mitigating Measures.* If the Secretary of State is minded to approve the Scheme at a minimum the DTp should fund the following highway improvement and traffic calming measures prior to the opening of the sliproads.

(i) Junction improvements at A113 Abridge Road/A1168 Chigwell Lane

(ii) Junction improvements at A113 Abridge Road/A112 Gravel Lane

(iii) Junction improvements at A113 Chigwell High Road/A123 Hainault Road

(iv) Junction improvements at Oakwood Hill/Roding Road

(v) Traffic calming measures in the Chigwell Conservation area along Chigwell High Road and Vicarage Lane

(iv) Closure of Pudding Lane for access only

3.3.1.50. The cost of these proposals is approximately £750,000 - £1 million.

3.3.1.51 DTp have indicated they are unable to guarantee that funds would be made available via the TSG system. Even if funds were made available to the Essex County Council as the Highway Authority, there is still no guarantee that they would allocate such funds to the schemes that EFDC have identified.

3.3.1.52. The Secretary of State should direct that the DTp reconsider their assessment with a view to developing a traffic model which is capable of fairer and more realistic appraisal of the proposed sliproads.

3.3.1.53. *Design of Sliproads.* The design of the northbound on slip allows for one lane of 3.7 m plus a 3.3 m hard shoulder with an auxiliary lane running parallel to the main carriageway, i.e. a parallel merge. The DTp traffic consultant has given evidence that it is unlikely that flows exceeding the upper limit of the design standard for a single lane on slip (1,350 vph) would arise for traffic using the sliproad, being constrained by the capacity of the new roundabouts on Chigwell Lane. The DTp have now estimated that the 2012 design year evening peak hour flow would be 1,476 vph (low growth). The roundabouts, particularly the smaller southern one, would therefore not be able to cope with low growth traffic forecasts and should be redesigned now.

3.3.1.54. It is considered that low growth forecasts are correct taking into account potential growth at Stanstead Airport. DT22/92 Layout of Grade Separated Junctions (Document D13a) indicates that the existing 3 lane provision south of the northbound on slip would be adequate on low growth assumptions. However, north of the junction an additional lane should be provided.

3.3.1.55. Para 3.2 of DT22/92 states " .... if higher flows have been used in the design of the mainline carriageways the equivalent number of lanes should be used instead of design flows ....". This paragraph is intended to deal with a situation where the circumstances would justify the use higher lane capacity, for example in the situation of an urban motorway with speed limits of 50 mph where lane capacities in excess of 1,800 vph could be expected. Upstream of the merge low growth flows anticipated are 5,150 suggesting a flow at 85 kph. Downstream of the merge would be 6,626 suggesting a flow of 60 kph.

3.3.1.56. This situation does not apply at Junction 5 where the M11 has been designed to normal rural motorway standards and 120 kph speed appropriate to the national 70 mph limit. It would be entirely inappropriate to sanction a lower implied design speed for M11 at Junction 5 simply to justify a higher lane capacity and hence lower geometric standards.

3.3.1.57. The practical effect of implementing the Scheme without introducing a lane gain downstream would be to cause an abrupt change in average traffic speeds from 85 kph to 60 kph which would lead to flow instability and congestion in the main line motorway with significant safety implication.

3.3.1.58. A fourth main lane could be added at a later date but this would commit expenditure in the future. It could be done by replacing the embankment with a retaining wall. The building of a fourth lane should be properly considered now and the costs be included in the assessment of the Scheme. The fourth lane would however be a cost with no benefits

to off set the cost. Normally departmental standards look 15 years ahead, i.e. 2012 in this case. If calculated to 2005 it would not then comply with Department standards.

3.3.1.59. REED 3 have acknowledged in Document P/HA/1C that even the upstream flow of 5,150 vph is at the upper limits of a comfortable flow capacity. The downstream flow of 6,626 vph is way beyond the upper limits and it is difficult to understand how in the circumstances a departure could be sanctioned.

3.3.1.60. With regard to the appropriate sliproad layout requirements contained in DT22/92 the low growth forecast of 1,479 vph falls within the design range of 1,350 - 2,700 vph indicating that two full lane (7.3 m) are required. For a rural motorway a hard shoulder of 3.3 m width should also be provided.

3.3.1.61. It is clear therefore that the design for the northbound on slip falls short of the design standards and as a consequence there are likely to be queues and delays at Junction 5 northbound on slip with the knock-on effects to the roundabout feeding the on slip and in turn the local road network.

3.3.1.62. Under cross examination the DTp have stated that departure from standards would require dispensation from REED.

3.3.1.63. The letter from REED3 dated 20 May 1994 (Doc.P/HA/1C) submitted to the Inquiry following a request for departure from standards indicates only that "REED 3 would be minded to approve". It should also be noted that there is no intention to provide additional main line capacity north of the junction. This has formed the basis of the REED 3 decision and must therefore be questioned as REED 3 has accepted merge type E as the recommended layout for the projected flows but ignores this due to their presumption on the lack of provision of additional mainline capacity.

3.3.1.64. The assessment is based on low growth forecasts despite the fact that DT22/92 states that it should be based upon "the highest value of total design flow". The estimate does not take account of any additional traffic diverting from M25 at Junction 29, or as a consequence of the Hackney - M11 link road or a possible rail heading from Harlow and Bishops Stortford.

3.3.1.65. The current design would require 3 departures from standard (use of low growth forecasts, provision for only one merge lane, no lane gain north of junction). Para 1.4 of DT/92 would require a full technical, environmental and economic justification in all 3 cases, together with proposed ameliorative action.

3.3.1.66. It is likely that J.Sainsbury plc would apply for planning permission for the construction of a retail superstore at the site owned by them at Old Station Road, Loughton. At the Tesco 1993 Inquiry the Inspector considered it was more likely than not that some form of foodstore would be built on that site. These comments would be a material consideration in considering the merits of whatever scheme is put forward at the Local Plan Inquiry to be held at the earliest at the end of 1994.

Rebuttal to EFDC's case by the Highways' Agency

3.3.1.67. *Design of sliproads.* As the local road network is only capable of absorbing growth below low growth, engineering design should look at low growth. Increase in the capacity of the M11 by widening it to a 4 lane carriageway is not part of the Secretary of State's published road programme. The design of the existing motorway north of the junction, therefore, becomes a constraint on the sliproad design. B-type layout (figure 2.4 of TD 22/92) can be used in the design. The forecast merge flow at low growth (1476 vph) (probable occurrence) is only 9% (126 vph) above the limit for a single lane merge sliproad (1350 vph) as determined by Table 3/1 of TD 21/92. As the flow level is close to the boundary of flow regions, anything above the lesser standard is therefore an over provision of requirement. A second lane would add 2,250 vph to capacity but only 126 vph would be justified.

3.3.1.68. *50/52 Chigwell Lane.* The Department is continuing to discuss the future of 50/52 Chigwell Lane with the affected parties.

3.3.1.69. *Pedestrian Crossing facilities and lighting.* The Department will provide appropriate crossing facilities to serve those who wish to cross from Oakwood Hill to Langston Road. The provision of pedestrian guardrailing will be considered and reviewed as part of the Stage 2 Safety Audit. The Department recognises the benefits of lighting as a means of reducing the number of night time accidents and would consider such an installation if an economic case for it can be made.

3.3.1.70. *Funding by the Secretary of State.* No account has been taken by EFDC of highway improvements that will not now be needed as result of traffic relief.

3.3.1.71. Essex County Council has consistently received a larger proportion of its bid than the region as a whole and a significant proportion of the total allocated to the region. The Secretary of State is fully aware of the need for improvements and will take them into account when assessing the amount of TSG and SCA granted to Essex County Council. There are always likely to be more bids than money available and it must be for the County Council to allocate the priority of the Schemes within their package.

3.3.1.72. *Criticism of Former Model.* The M25 transfer has been taken into account. The likely effect of the Hackney-M11 link road has not been substantiated by evidence. The traffic appraisal manual issued by DTp specifies that transport studies should be undertaken economically and efficiently and this guidance has been followed. The Manual states "the Department's view is that the purpose of traffic appraisal is to provide sufficient information to allow good decisions to be made, and be seen to be made, and no more than this. The common sense and the judgement of the Department's professional officers based on experience should be used to save time and expenditure in the field.....". A larger more sophisticated model would employ identical growth factoring techniques to determine future traffic volume to those used in the present model which has been validated twice.

3.3.1.73. The model only uses a weighting of time and distance to determine route choice but the Agency, based on professional experience, has reflected the considerations of comfort and driver choice when interpreting the model output.

3.3.1.74. *Estimation of Movement.* The difference between EFDC and the HA in the areas assumed to generate traffic transfer is shown in Figure A2 (Doc P/HA/5A). The DTp considers the area used by them is more appropriate. That area fully allows for those trips which would gain most from transfer. It should be noted that extensive improvements to the A13 are scheduled in the next 3 years and it has been accepted by EFDC that some traffic, perhaps a lot of traffic movements ,would use the A13 route direct on to the M25.

3.3.1.75. *Impact on Local Roads.* Some 64,000-66,000 veh km per 12 hour day (1997) will be extracted from the local roads. These movements would instead use the motorway system. This clearly benefits residential, shopping and rural (the Forest) environments when considered in the overall context. The result presented by EFDC with regard to a number of junctions being overloaded or approaching overload does not bear comparison with actual observations made by DTp. By way of contrast, the junction will relieve queues at the Wake Arms roundabout (A104/A121) as well as congestion at the mini roundabouts in Loughton and in Epping.

3.3.1.76. *Heavy Goods Vehicles.* The percentage of HGVs in the area is low (5% in 1989) over the whole day. Controls exist to limit the use of Chigwell High Road and hence limit the effect of HGVs on the Chigwell conservation area.

3.3.1.77. *Sliproad Capacity.* If full M25 transfer were to occur the southern roundabout may need modification prior to the design year and this could be achieved by a reserved left turn lane from the off slip.

3.3.1.78. *Rail Heading.* The use of such short term demands or reliefs on the road network should not generally form a significant element of long term trunk and primary route planning. The forecasting methodology is unable to accurately assess relative pricing regimes into the medium to long term future required by highway scheme analysis and evaluation. Peoples' choices vary from time to time in this respect. Consideration of the possibility of development by a superstore and the further possibility of additional car parking being provided at Loughton station is too speculative. There is no planning application at this time for these developments.

3.3.1.79. *Noise.* The essential difference between EFDC and HA in their approach to the assessment of the effects of changes in traffic noise is the way in which the first sieving exercise is conducted. Applying the 25% criteria, those with a -2.1 dB(a) or a + 1.6 dB(a) noise change could be disregarded from further studies. The + or - 1.dB(A) change approach is the more common sense approach and is fully supported by the latest public research on community reactions to noise changes.

3.3.1.80. Para 3.5 of DMRB states "more recent research indicates that ..... in the period following a change in traffic flow people may find appreciable benefits or disbenefits where noise changes are as small as 1dB(A)".

3.3.1.81. Changes from the existing vibration climate would only occur on those inhabited links predicted to have a meaningful change in the number of lorries. No such links are identified and accordingly no statement on vibration was included in the ES.

3.3.1.82. Ground borne excitation as HGVs pass over irregularities in the road surface can be minimised if the Highway Authority keeps its roads in a reasonable state of repair. Incidences of building damage are rare. Air borne excitation is due to the exhaust note of HGVs coinciding with a resonant frequency of the building or element of a building but there is no sufficient acoustic energy in the sound wave to cause building damage, although sometimes annoyance is caused to residents.

3.3.1.83. *General Environment, Lady Patience Meadow.* The Draft Deposit Local Plan policies post date the ES by nearly 12 months and were not included in the earlier Roding Valley Local Plan of 1985 which was current at the time of publication of the ES. It is envisaged that the suggested translocation receptor site of Great Hamon Mead will be controlled by EFDC and managed by Essex Wildlife Trust and as such would have a more secure future It could be integrated into the Local Nature Reserve and would be more easily managed and accessible to the public. Great Hamon Mead is approximately 3.5 ha compared to the 2.1 ha of Lady Patience Meadow, which is vulnerable to fertiliser enriched surface water from the golf course. EFDC have agreed that the landscape impact will be relatively limited. On the north-east side of Oakwood Hill roundabout a new hedgerow of similar character to that existing is proposed to replace that lost in the Scheme and a belt of native tree planting to the south-west of the roundabout will take place. A new hedge would be planted between Oakwood Hill and Chigwell Lane and the secondary area of woodland beyond the new hedge would be reinstated.

3.3.1.84. The level of landscaping detail in connection with the northbound on slip is appropriate.

3.3.1.85. With regard to the southbound off slip the DTp contend that the existing southbound on slip and adjacent golf course development are not natural features and consequently the special landscape area policy of the County Council is not applicable in this respect and consequently the development of the north facing sliproads is compatible with the character of the area.

3.3.1.86. About 4 properties close to Rolls Park Corner and perhaps one in Abridge Road may experience moderate levels of visual intrusion. The new southern roundabout would be more than 400 m away from the residential properties and would be essentially a flat two dimensional feature. The roundabout should be viewed in the context of the existing roadside vegetation along Chigwell Lane. The additional visual impact of the Scheme would be slight. The visual impact of the proposed new bridge over the River Roding would be similar to that of the existing bridge. In both instances the viewing distance to residential properties is more that 500 metres and any view from them would be against the backdrop of the existing M11 embankment. Planting would achieve an average height of 6 m in 15 years.

3.3.1.87. *Effect on Conservation Areas.* The potential impact of road schemes on historic buildings is likely to be the same as those on modern buildings. The impacts which are more acute in conservation areas are vibration and effects on visual amenities. There is a degree of visual intrusion in all 3 conservation areas caused by motor vehicles. The areas are different in character. In Epping vehicles impinge on visual amenity virtually all the time because of greater traffic flows and parked cars. In Abridge the impact is less marked. In Chigwell vehicle flows vary considerably throughout the day with concentration at peak hours and little intrusion at others. There are fewer HGVs due to existing bans and there are few parked cars. The Chigwell conservation area consists

mostly of residential properties and activity is slight. There are few pedestrians and the area is therefore appreciated more by people passing through it comparatively swiftly in motor vehicles.

3.3.1.88. Epping conservation area is mostly a town centre with hustle and bustle. The level of visual amenity is appreciated by a large number of people working and shopping. In Abridge there is a moderate degree of pedestrian activity. The River Roding bridge is Grade II listed and will benefit from a peak hour reduction of 20%.

3.3.1.89. *Planning and green belt policies.* The Scheme complies with existing planning policies and with regard to town centres PPG6 suggests effective management strategies including rerouting through traffic, traffic calming measures and the improvement of the pedestrian environment. The Scheme, in securing traffic reductions through Epping High Street and Loughton High road, both prime shopping centres, meets the aims of government and local policies in respect of improving town centre shopping facilities in a positive fashion.

3.3.1.90. The Epping Forest Act 1878 requires preservation of its natural aspect and the keeping of the Forest as unenclosed for the recreation and enjoyment of the public. It is designated as an SSSI. The Scheme would reduce the amount of traffic through the Forest leading to an enhancement of its amenities and benefiting the hundreds of thousands of people who use it every year.

3.3.1.91. The Deposit Draft Local Plan considers the employment areas in Loughton as "very important to local businesses and attractive by virtue of their access by road (which would be enhanced dramatically by the provision of the proposed north facing sliproads at Junction 5)."

Case of Loughton Residents' Association

3.3.1.92. The Association has 700 members. The anticipated increases in traffic (24%) on Oakwood Hill and its attendant knock-on effect would have a marked effect on the people who live on this road. The survey indicates that the increase would be almost exclusively generated from within Loughton and Buckhurst Hill and all additional traffic movements cease after the road junction at Buckhurst Hill station. It is believed that this increase would almost be made up in natural growth and takes little or no account of any additional traffic generated by the Scheme. The M11 is frequently slow moving at peak periods and it would not be too long before many vehicles use the local road network as an escape route. Oakwood Hill is in fact a continuous route to the Woodford Green area and is also a main feeder route for most of the major schools in area.

3.3.1.93. With regard to Figure 15 Revision A in Document D/1A the Association has no faith in the traffic figures predicted but people in the area know that they would see a large increase in traffic particularly at peak hours when the motorway is busy, as people "ratrun" to avoid the congested sections of the M11. Similarly junctions tend to act as magnet for vehicles.

3.3.1.94. The real gain is to Epping Town where reductions in traffic are 23%. The implication is that Loughton should become an Epping Bypass. Loughton currently suffers from frequent delays and any increase could prove disastrous for the town.

3.3.1.95. Figure B of P/LRA/1 indicates that in Oakwood Hill there would be a 10% increase in car traffic and a 15% increase in HGVs. In Chigwell High Road the increase would be 8% cars and 25% HGVs

Case of Chigwell Local Safety Advisory Committee (CLSAC)

3.3.1.96. The overall effect of the Scheme is to transfer congestion into residential areas of Loughton, Chigwell and Buckhurst Hill (population over 50,000). The Scheme is therefore a traffic congestion transfer exercise not a traffic relief scheme. The Agency's commitment is to economic requirements but does not give an equal weight to environmental aspects including the health and safety of people who live in the area.

3.3.1.97. A proper bypass of Epping would continue to relieve the communities of Loughton and Buckhurst Hill and make maximum use of the opportunities created by the original bypass effect of the Epping New Road (150 years old).

3.3.1.98. The only traffic reduction which the Department can claim is Goldings Hill. Reductions in the Loughton High Road and Rectory Lane are problematical as access to the site of the proposed sliproads could depend on the use of the High Road and probably also Rectory Lane. Goldings Hill and Rectory Lane have few dwellings fronting directly on to them and any benefit is therefore marginal. There are a limited number of railway crossings, the only satisfactory one being Rectory Lane. Roding Road has a low narrow bridge. The third at Buckhurst Hill in Palmerston Road is residential, narrow and suffers from on street parking. Every road approaching the interchange has a school or schools on or near it.

3.3.1.99. On the eastern side the approach to the interchange would be through Chigwell Village which is just as important a conservation area as Epping High Street. Otherwise the approach must be via Roding Lane, Valley Hill and Oakwood Hill which people locally would regard as unsuitable as the route already suffers badly from a high volume of traffic on a narrow road made worse by on street parking.

3.3.1.100. Other concerns are the risk of London bound commuters leaving the M11 at Loughton, either to use the local road network to cut across to the North Circular Road or to park their vehicles in nearby roads prior to using the Central Line into London. Both possibilities would lead to an undesirable increase in usage of local roads.

3.3.1.101. The Agency does not justify its support for the relief of Epping High Street, a conservation area, against the introduction of extra traffic into Chigwell High Road, also a conservation area, but apparently not regarded as important. The population in Loughton, Chigwell and Buckhurst Hill is 50,000, and in Epping is 11,000.

3.3.1.102. With regard to HGVs all roads leading to Junction 5 are residential and any increase in the number of HGVs would be a matter for grave concern. There is a serious omission with regard to predicted HGV flows. The Committee would wish to ensure that there would be adequate provision against intrusion by HGVs.

3.3.1.103. The loss of the lorry park would be of grave concern as money would have to be spent on replacing it.

3.3.1.104. The ES shows possible air pollution problems in Chigwell. While legislation requires effective physical measures to ensure success against air pollution it is by no means certain that such measures exist or would do what is necessary. There is a big difference of opinion among experts in this field. There is a direct link between traffic levels and the health of people who live nearby. Vehicle emissions trigger asthma attacks. There is doubt about the effectiveness of catalytic converters (see Appendix P/CLS /2/D - Retail Fuels Technical Bulletin). The only certain way of protecting people's health against the effects of vehicle emission is a restriction of usage. A further study is necessary.

3.3.1.105. The way in which time savings are calculated needs to be explained. Only traffic to and from industrial estates in Oakwood Hill and Langston Road could benefit in this way. All other traffic starts or finishes elsewhere and time taken to reach the interchange could seriously effect the overall time saving. The proposals would cause extra congestion on the local network and all local traffic would be delayed particularly if there is a demand for measures to slow down traffic in Oakwood Hill and Chigwell High Road.

3.3.1.106. There is a strong possibility of more accidents due to the increased traffic on the residential roads leading to the interchange. There are several potential danger spots. Extensive safety measures would be required particularly to control the speed of traffic.

3.3.1.107. Pedestrians are blamed for causing stop start driving in Loughton and Epping resulting in fuel wastage, air pollution and traffic noise. The sliproads may help Epping in this respect but not Loughton.

3.3.1.108. The Committee supports EFDC with regard to their criticism of the lack of reasonable facilities for pedestrians and cyclists.

3.3.1.109. Unless the existing northbound exit is merged with the proposed northern roundabout a dangerous situation would remain whereby a right-hand turn is needed for traffic travelling towards the east.

3.3.1.110. Present proposals suggest the translocation of Lady Patience Meadow. If the present southbound slip on the M11 was moved to the opposite side (south) of Chigwell Lane, the off slip could avoid the Meadow all together.

3.3.1.111. Generally the Committee is deeply concerned about the safety of the local community within the area. The Scheme is fundamentally flawed because it brings extra traffic unnecessarily into the heavily populated areas of Chigwell, Loughton and Buckhurst Hill. Public consultation was curtailed.

3.3.1.112. The disadvantages arising from traffic problems and risks to health outweigh the tenuous advantage claimed by the Department. The proposals should be dropped in favour of a comprehensive review of all traffic problems in the area. It is unacceptable to single out one or two which the new sliproads might ameliorate but would cause greater problems from the concentration of traffic into this one location surrounded by unsuitable access routes.

3.3.1.113. Other solutions may then be found including a by-pass of Epping.

Rebuttal by HA to Chigwell Local Safety Advisory Committee's Case

3.3.1.114. Even with the allowance for the transfer the M25 traffic, some 64,000 - 66,000 vehicle kms will be transferred off the local road network which secures a safety benefit of 9 accidents a year. Substantial quantifiable economic benefits accrue and the Scheme yields a strong positive NPV even when the M25 transfer traffic is included. These benefits have not been contested. Changes in flow expected on the roads cited by the Committee are accounted for in the Agency's analysis, and it is expected that less than 30 additional vehicles would use the Albert Road/Hillside Avenue route in the morning peak in 1997.

3.3.1.115. Essex County Council already have a specific package of measures identified in their TPP known as the "M11 Junction 5 network improvements."

3.3.1.116. With regard to grants to Essex County Council for local safety schemes, the lorry park and conservation areas, these matters have been addressed in the rebuttal to EFDC.

3.3.1.117. Air quality has not been dismissed and detailed modelling has been undertaken from which it is apparent that the Scheme is neutral overall in air quality terms. Failure of individual catalytic converters or use of dirty fuel are factors independent of the Scheme and are not material considerations for the Inquiry. It is accepted that there is an underlying upward trend in asthma diagnosis and treatment, but other factors are implicated as strongly as air pollution such as early exposure to cigarettes and dust mite allergies . The Scheme is not expected to cause any significant impact on asthma cases as air quality will be similar to that experienced at present.

3.3.1.118. The alternative Scheme relocating the existing loop road on the west of Chigwell Road has been considered but would require construction of three sliproads with the associated cost implications and additional disruption to motorway users during construction. Removal of the existing loop sliproad would also remove established landscaping and could alter the hydrology of Lady Patience Meadow.

3.3.1.119. Public consultation was not curtailed. Responses were received after the formal consultation period and were taken account of. The concerns of the Committee are understandable but not substantiated by fact

3.3.1.120. While an Epping by-pass would provide benefits to Epping, it would have an adverse affect on green belt countryside, and as admitted by EFDC was not a reality.

Case of the Chigwell Park Residents' Association

3.3.1.121. Members of the Association live in a residential estate of 5 roads on the west side of Chigwell High Road (A113) which is accessed by one road, Chigwell Park, just south of Chigwell Station.

3.3.1.122. The road traffic increase is some 28% using the A113 which is only 17 ft wide at points and cannot be widened.

3.3.1.123. The Scheme would be detrimental to Chigwell, especially along the High Road (A113) with regard to noise and air quality. Chigwell is already subject to traffic stop/start

driving, air pollution and traffic noise. The opportunities for further domestic and commercial development would be encouraged in the Chigwell Conservation Area as a result of the proposals. There is already an outline planning application for a religious centre to be built at Grange Farm on the A113 providing for 1,900 persons and 600 cars. The Association fully supports the Chigwell Local Safety Advisory Committee.

3.3.1.124. Safeguards to prevent the use of feeder roads (ratruns) on the B170 and the A132 are insufficient.

3.3.1.125. Vehicle emissions from the increased traffic flow would effect pupils and others attending the 3 day schools on the A113 all of which have access or egress on to that road.

3.3.1.126. There are a large number of listed buildings in Chigwell which could be placed further at risk due to increased traffic disturbance.

3.3.1.127. The choice of the proposed sliproads rests on economic convenience and the convenience of vehicle owners who do not necessarily live in close proximity to the proposed construction.

3.3.1.128. Any access or egress to the M11 should be provided by the construction of an Epping bypass road.

3.3.1.129. There are no car parks in Chigwell and no shops, only a restaurant, a large public house and school. Parents currently wait in their cars to pick up their children in the entrance to Grange Farm.

Rebuttal by HA to Chigwell Park Residents' Association

3.3.1.130. The DTp has acknowledged the disadvantages of the Scheme in terms of its impact on a settlement such as Chigwell but considers on balance that the overall benefit to the community as a whole outweighs the disadvantages.

3.3.1.131. During the 1991 Public Consultation 62% of the respondents supported the Scheme, which was widely advertised.

3.3.1.132. The Department has demonstrated that there is no real noise benefit as a result of building the Scheme although it is acknowledged that properties on the A113 will experience an increase of 1dB(A). Properties to the south of Vicarage Lane will have smaller increases that will not be perceptible. Air quality along Chigwell High Road has been demonstrated to be satisfactory. Other concerns of the Committee are responded to in other rebuttals.

3.3.1.133. The schools are set back from Chigwell High Road and vehicle emission concentrations reduce rapidly with increasing distance from the road. Air quality at the schools is expected to remain at a high standard. Vibration and visual impact concerns have been rebutted elsewhere.

3.3.1.134. Generally the HA has evidence that the proposals for the Scheme would meet with support from people in Chigwell as the new sliproad would provide an easier shorter

route to the north and improve access to the nation's strategic network. Construction of some form of Epping bypass would be of no benefit to Chigwell residents.

Case for Hillside Avenue Residents' Association

3.3.1.135. Hillside Avenue forms part of the continuous route from Oakwood Hill via Valley Hill, Loughton Way, Albert Road and Buckhurst Hill. After Hillside Avenue the route continues via St Barnabas Road on to the vicinity of Junction 4. There is currently a major problem on the M11 at Woodford with traffic getting on to and off the motorway. Tailbacks occur regularly during both the morning and evening rush-hour. The problems that cause this congestion should be addressed and adequate solutions put in place before any new junction proceeds, otherwise commuter traffic would use local roads and the new junction to escape the delay. It is wrong and unrealistic to expect that local resources should fund the upgrading of local roads and junctions where necessary as well as the safety measures needed to exclude unsuitable vehicles from some roads and manage/calm the extra traffic.

3.3.1.136. Three local roads are likely to be used by commuter traffic travelling to and from London. They are all residential roads and are quite unsuitable for use as a surrogate motorway. The routes are:

(i) The A113 through Chigwell and Woodford Bridge, which is already heavily used at peak time, especially through Woodford Bridge.

(ii) The route between Oakwood Hill and St Barnabas Road previously referred to. This is already a favourite route with commuters being an almost straight road from Debden to Woodford ending as a sliproad on to Charlie Brown's roundabout near Junction 4 of the M11.

(iii) The A121 reached by Chigwell Lane, Borders Lane, Alderton Hill and Old Station Road.

3.3.1.137. All three routes connect with each other at various points so drivers can change routes if one becomes too jammed. These are dangerous "ratruns" especially to school children. All these roads have at least one school on them. The new M11 link would put pressure on Junction 4 and would mean commuter traffic would use local roads more and more to bypass Junction 5.

Rebuttal by HA of Hillside Residents' Association's case

3.3.1.138. While the Scheme transplants some traffic problems from one area to another the Scheme results in a net reduction of traffic on local roads and provides a net positive road safety benefit.

3.3.1.139. Other matters raised have been rebutted elsewhere.

Other objectors appearing at the Inquiry

3.3.1.140. Six other residents appeared at the Inquiry including the owner of 52 Chigwell Lane who has lived there for 30 years. His wife is asthmatic and life is intolerable and it would be worse if the Scheme proceeds. Traffic in the vicinity is chaotic and air pollution is terrible.

3.3.1.141. Other local residents echo the fears of EFDC and other objectors concerning the likely increase of traffic in the area. In addition apart from one mile of the dual carriageway of the A1168 there are no roads within a radius of some miles of the junction which are adequate to act as motorway feeder routes.

3.3.1.142. A large increase in HGVs would occur on the roads in northern Loughton.

3.3.1.143. Rectory Lane and Oakwood Hill become very congested at rush hour times and queues of 350 m up to Borders Lane occur. Even if the roundabout is constructed, this would not ease the problem as 2 lanes go into a single lane with 8 traffic impediments in Rectory Lane. In Oakwood Hill there would 2,100 extra vehicles. On the north side of the junction of Oakwood Hill and Roding Road, a new residential development is proposed. This would cause 500 vehicle movements in 12 hours all using the junction. The possible toll charge on motorways would bring more cars on to local roads. Drivers would use ratruns even if slower journeys are made merely to keep their wheels turning.

3.3.1.144. One objector did not raise any objection to the proposed northbound on slip but objected to the southbound off slip The reduction in width from 2 to 3 lanes of the M11 at Junction 4 causes traffic to back up in the morning past Junction 5, nearly to the intersection with the M25. The Scheme would be an open invitation to all vehicles travelling south to leave the motorway and continue down Oakwood Hill. The Department has not taken into account the full effect of traffic leaving the motorway due to the bottleneck at the Redbridge junction.

3.3.2 **Those who made Written Representation:**

London Borough of Redbridge

3.3.2.1. The traffic predictions prepared for DTp indicate an increase of 13% in the volume of traffic using the A113 Chigwell Road and an increase of 10.3% in traffic using the A123 Fencepeace Road. Predicted decreases in traffic on other roads in Redbridge are small and do not offset the effects of the increases.

3.3.2.2. Chigwell Road and Fencepeace Road are already overloaded at peak periods. The additional traffic predicted would increase queues and delays already experienced on these roads and worsen their accident records.

3.3.2.3. On the A113 Chigwell Road the areas of particular concern are:

(a) Chigwell Road/Manor Road junction
(b) Woodford Bridge shopping centre and conservation area
(c) Chigwell Road/Broadmead Road junction
(d) Southend Road/Chigwell Road junction (Charlie Brown's roundabout)

3.3.2.4. Fencepeace Road together with High Street, Barkingside and Cranbrook Road form part of the A123. On this road the particular areas for concern are:

(e) Fencepeace Road/New North Road junction
(f) Fencepeace Road/High Street junction (Forwell Cross roundabout)
(g) Barkingside shopping centre
(h) Eastern Avenue/Cranbrook Road junction (Gants Hill roundabout)

3.3.2.5. Junction 4 of the M11 where it meets the A406 North Circular Road is severely congested at peak periods. The resulting queues and delays influence drivers' route selection and the distribution of traffic on the adjacent road network. There is particular concern about the adverse effects that the congestion at Junction 4 has on the roads in Redbridge and in the future, if the Scheme proceeds, at Junction 5, when the A104 and A113 would not only be parallel to the M11 but would also become access roads to and from it. The A123 would be another access route formed. The delays at Junction 4 of the M11 are set out in Appendix 2 of Redbridge's submission (Doc P/LBR/1). The DTp have only measured journey times during the morning peak hour and at an off peak hour. The omission of the evening peak means that a complete picture has not been given. Figures taken from Appendix 2 indicate that flows on the network in the morning and evening peaks are not tidal and it is incorrect to assume the conditions in the morning and evening peak periods can be reversed.

3.3.2.6. The influence that the congestion and delays at Junction 4 have on route selection is addressed in a letter from DTp dated 22.03.1993 which states "the Department is concerned that the queuing which occurs on the M11 (southbound) and A406 (northbound) in the peak hours and a study of Junction 4 has been completed. There are 2 courses of action recommended; one is short-term, the other is long term and would involve substantial works. The Department has therefore instructed Essex County Council to prepare a Scheme aimed at increasing the southbound capacity at Junction 4, with a view to carrying out any works prior to the Scheme at Junction 5..... This would be done as a short term measure and can be completed within the next financial year (April 1994 - March 1995)". Redbridge welcomes these proposed improvements but only those on the M11 southbound could be carried out prior to the provision of the new sliproads at Junction 5. Bearing in mind the recent review of DTp's Trunk Road Programme there must be considerable uncertainty about this long term improvement being achieved.

3.3.2.7. There is no guarantee that funds would be available by way of TSG. The Scheme fails to meet the majority of the Government's policies and objectives set out in Section 5.7 on

page 10 of the HA's Statement (D1), in particular through traffic would not be removed from unsuitable roads in Redbridge. The Scheme results in traffic being reduced on the motorway and increased on the local road network.

3.3.2.8. The objectives of enhancing road safety, encouraging long distance traffic to use the M11, making an overall improvement in the local environment and an overall reduction in traffic on local roads would not be achieved.

3.3.2.9. Whatever advantages that may be gained from the Scheme would be at the expense of the residents of the Borough who live beside the A113 and the A123 or use these routes for their daily journeys.

Rebuttal by HA to London Borough of Redbridge

3.3.2.10. The traffic model indicates modest increases in southbound traffic in the morning Peak hour on the A123 amounting to 13%, comparable to natural growth over a period of 5 to 7 years. A similar prediction is made in respect of the A113 south of its junction with the A123.

3.3.2.11. The overall result in respect of accidents is that net reductions are achieved.

3.3.2.12. DTp is committed to implementing a Scheme on the southbound carriageway of the M11 at Junction 4 in 1994/95 to, improve flow conditions in the morning peak and a scheme is being developed for the northbound carriageway thereby encouraging drivers to use the M11 rather than other corridors.

3.3.2.13. There is no evidence that drivers are deterred from using the M11 due to congestion at Junction 4 of the M11. Timed trips by DTp indicate that the M11 is a faster route than other routes. The local road network is more congested than the M11, where the queues are moving, and traffic is less likely to transfer to LBR's network, where the queues are static.

3.3.2.14. There is no evidence to support LBR's view that the sliproads could load LBR's road network disproportionately more heavily in the evening peak period.

3.3.2.15. DTp will consider applications for TSG to mitigate increased traffic impact. DTp has made grants to LBR including 59%, 57% and 92% of bids over the last 3 years.

3.3.2.16. LBR is relatively remote from the Scheme

English Nature

3.3.2.17. An integral part of a statutory local nature reserve would be destroyed if the Scheme proceeds. It would be a major impact.

3.3.2.18. In addition to the loss of the small area of land the noise and the intrusion would substantially reduce the value of this section of the LNR as an educational resource and nature trail. Lady Patience Meadow, a SINC, would be destroyed. It is an important local wild life site and has a population of the regionally rare plant Carex acuta (Slender Tufted Sedge). This species and other important sedge (e.g. Carex Nigra) in the site are

specialist plants of riverside fens with exact hydrological requirements. As a result of development and drainage they have been in continuous decline during the 20th century.

3.3.2.19. Access to the nature reserves would be obstructed by the proposed roundabout and pollution of the reserve ditches from road run off along Oakwood Hill may become a problem.

3.3.2.20. Funds should be made available to assist in the redesign and new interpretation of the Reserve's nature trail and access should be provided across the roundabout to allow a safe entrance to the Reserve and nature trail.

3.3.2.21. Traps or diversion drains should be provided for oil and other pollution likely to run off Oakwood Hill.

3.3.2.22. The Scheme would involve significant environmental damage and the land lost would not be replaced. The ES (D6) is unsatisfactory and without clear guarantees of mitigation in the areas stated, the Scheme is unacceptable.

3.3.2.23. A commitment from DTp to transfer the strip of marsh land it owns between the M11 and LNR into an extension of the LNR is required, and the DTp should ensure that suitable land is available for translocation of Carex acuta, which should be monitored and managed for up to 5 years.

3.3.2.24. With regard to translocation the characteristics of donor and receptor sites need to match closely if the translocation is to stand a chance of success. It is impossible to create a replica of the plant communities of the donor. Invasive competitive species increase. Existing sites have not been surveyed to provide the base information to allow an informed assessment to be made at the Inquiry. The receptor site at Great Hamon Mead, suggested as a receptor site, has not been fully described with regard to its habitats and topography. In any event Great Hamon Mead contains much interest of its own and there would therefore be a net loss of nature conservation interests from the area.

3.3.2.25. There should be a commitment that construction would be delayed to allow for the translocation work and to allow searches for the best potential receptor site, especially if the proposed sites do not prove suitable.

3.3.2.26. There are very few semi-natural wet meadows and marshes left in Essex and the number of potential sites is therefore small. Slender Tufted Sedge (Carex acuta) is recorded rare, found only in 10 sites countywide.

3.3.2.27. A junction realignment through the golf course could result in the meadow being surrounded by sliproads but the site could still have adequate access from Chigwell Lane. The meadow is close to the LNR which is a large managed site and would therefore remain a viable management unit.

Rebuttal by HA to English Nature

3.3.2.28. Mitigation measures have already been full described including the lease arrangements of Great Hamon Mead with Essex Wildlife Trust and/or EFDC which would enable the LNR to be extended.

3.3.2.29. Concerns about translocation are considered in the Design Brief. Surveys of both donor and receptor sites are being undertaken.

3.3.2.30. The start of the Nature Trail could easily be resited further along Oakwood Hill some 100m from the Oakwood Hill/Chigwell Lane junction where the traffic lights are not phased for pedestrian use.

3.3.2.31. With regard to road run-off being detrimental to the LNR this should be considered bearing in mind that run-off is contributed by a much wider area.

3.3.2.32. Rerouting of the southbound off slip would increase the length of the sliproad and therefore the cost of the Scheme, land severance would be greater, the golf course would lose 2 or 3 tees and there would be a greater intrusion into the landscape.

Essex Wildlife Trust

3.3.2.33. The Trust is involved in the management of the Roding Valley Meadows LNR under a management agreement with the land owners, EFDC and the Grange Farm Trust. If the Scheme proceeds part of the LNR would be lost and this loss is contrary to the policies of the Essex Structure Plan and the Local Plan. There would also be significant damage to the access for both pedestrians and for management purposes to the routes of the nature trail.

3.3.2.34. There is inadequate trapping for oil and water and there should be strict conditions relating to this.

3.3.2.35. The Trust puts forward the same views as English Nature with regard to the importance of Lady Patience Meadow. It does not believe that sufficient research has been put into the hydrology and species composition of Lady Patience Meadow or of the proposed receptor site.

3.3.2.36. There is unacceptable risk that the proposed translocation would fail. English Nature and DTp have moved too quickly to seeing this as a solution.

Rebuttal by HA to Essex Wildlife Trust

3.3.2.37. Rebuttals to other objectors cover the points made by this objector

Essex County Council

3.3.2.38. In 1985 DTp asked Essex County Council to undertake an initial study into the Scheme. The study was completed in 1986 and concluded that there was a significant demand for the north facing sliproads and that the Scheme would provide a good economic return. Although the study showed the Scheme would divert a significant amount of traffic away from areas such as Epping it noted that some areas such as Chigwell would experience an increase in traffic flow. On balance it was felt the traffic benefits outweighed the disbenefits. This position remained the same when the Sideroads Order was published in July 1993. The County Council initially therefore resolved to support the proposal in principle but had concerns about the detailed design but also sought a commitment from

the DTp to make funds available for measures necessary on roads likely to experience an increase in traffic flow.

3.3.2.39. The concerns over the detailed design have been resolved. With regard to the cost of mitigating works the DTp has undertaken to take account of this when deciding the County Council's allocation for minor works and local safety Schemes in the annual TPP settlement.

3.3.2.40. The County Council's view is that the cost of any mitigating work should be included in the sliproads Scheme and should not be taken from the County's TPP allocation for minor works and local safety schemes. In view of the DTp's assurance that the allocation would reflect the costs of these works it had been decided to withdraw the holding objection. In view of the additional evidence coming to light concerning the M25 transfer traffic, the County Council now considers that the disbenefits outweigh the benefits and it therefore supports the stance of the EFDC.

3.3.2.41. Should the Scheme be approved the County Council would expect it to be dropped from priority 1 status to priority 3 and that the DTp should pay the total environmental and traffic management costs arising from the project (approximately £1 million) and that the payment should in no way effect the level of TSG and SCA granted to the County Council.

Rebuttal by HA to Essex County Council' case

3.3.2.42. Construction of the north-facing slips will allow the Romford area motorway-bound traffic a choice of routes, either to continue using the strategic primary road network (A12) or the principal County network. The DTp considers that the M25 transfer traffic should continue to use the strategic network and that measures should be not be taken to encourage traffic to transfer away from the A12 to the A1112/A113 route

3.3.2.43. The question of Road Programme priorities is a matter of Government policy and is beyond the remit of the Inquiry. Further points have been addressed in other rebuttals/responses.

Buckhurst Hill Residents' Society

3.3.2.44. The Society concludes that the Scheme would be a traffic congestion transfer exercise not a traffic relief scheme. A proper bypass for Epping would relieve many of the problems of Oakwood Hill and Valley Hill etc. Traffic reduction would be on roads where few dwellings front directly on to them and the benefit is therefore marginal. London bound commuters would use the local road network to cut across to the North Circular Road or to use the Central Line into London parking their vehicles in nearby roads. Doubts and fears similar to other objectors were expressed in respect of HGVs, the lorry park, economic justification, time savings, accidents, air pollution and the lack of facilities for pedestrians and cyclists. The proposals should be dropped in favour of a comprehensive review of all traffic problems in the area. It is unacceptable to single out one or two, which the new sliproads might ameliorate. Other solutions must then be found; the most obvious being an Epping bypass.

3.3.2.45. The Society's case is similar to that of the CLSAC and is rebutted in a similar manner by HA.

Residents of Gravel Lane

3.3.2.46. The residents of Gravel Lane were only informed of the traffic implications for Gravel Lane after the Inquiry had commenced. It is approximately 6.1 m wide and forms part of the A1112. Traffic levels would increase with the construction of the M11 link road as traffic transfers from trips along the A12 in the Romford area to the improved M11 route. This increase would be further compounded by the sliproad proposals. Higher traffic levels on Gravel Lane would lead to higher numbers of accidents as visibility from private drives in most cases is poor due to the nature of the Lane. Traffic queues of 15 vehicles are already noticeable at the northern end of Gravel Lane at its junction with the A113 during the evening peak. This would be compounded to unacceptable levels with the additional traffic.

3.3.2.47. The present lorry ban on Gravel Lane is abused and the proposals are likely to encourage further HGVs to ignore the ban. The traffic impact of the proposals on the Chigwell area have been grossly underestimated by DTp and the proposals should be refused until a more thorough investigation of their traffic impact has been undertaken by DTp.

3.3.2.48. A petition against the proposals signed by all the residents of Gravel Lane (except one) was presented to the Inquiry.

Rebuttal by HA

3.3.2.49. The Agency has specifically dealt with the points raised. Traffic, air quality noise, environmental and planning issues have been thoroughly explored and consideration given to the effects of the additional traffic. Even with the M25 transfer the case for providing the sliproads remains robust in economic, environmental and safety terms with an overall reduction in traffic on local roads and an overall improvement in noise and environmental issues.

The Ramblers' Association

3.3.2.50. The new interchange at Debden should take account of the possibility of extending the riverside access southwards which would permit the development of an attractive and safe way of joining the Roding Meadows with the proposed Abridge/Passing Ford Bridge walkway.

3.3.2.51. Proper provision should be made for pedestrians and cyclists

Rebuttal by HA

3.3.2.52. Pedestrians/cyclists surveys have not demonstrated a level of use that merits a special crossing for facilities across Chigwell Lane to Langston Row. However, crossing points would be clearly identifiable and dropped kerbs would allow use by cyclists as well as by pedestrians.

3.3.2.53. With regard to a new walkway, DTp does not have the authority to create such a new route but in any case the land between the M11 and Langston Road is low lying and subject to flooding. A pedestrian subway through the proposed M11 northbound on slip embankment to allow future creation of a walkway would cost approximately £90,000 and the Agency does not consider that this additional cost is warranted *given* a lack of commitment to provide the walkway.

Debden Sports Club

3.3.2.54. Negotiations have taken place with the Highways Agency and the Club continues its objection unless:

(a) the new access point as shown on drawing RO1734.A2.019 is implemented, and

(b) no part of the nature trail would start or finish in the grounds of the Club

Further points made in written representations by other objectors and responses by HA

Written representations were received from 50 other objectors and included many of the arguments put forward by objectors previously referred to in this report. In addition the following points were made.

3.3.2.55. *Objection.* The Scheme would infringe on a nature reserve.

3.3.2.56. *Response.* The Scheme has been modified following negotiations with Debden Sports Club and would result in a decrease in the area of a nature reserve required for the Scheme. This equates to some 1,950 sq m out of a total 500,000 sq m. The Department has offered to lease land in its ownership known as Great Hamon Mead to EFDC.

3.3.2.57. *Objection.* Noise changes would be unacceptable.

3.3.2.58. *Response.* Noise changes would not be significantly affected by traffic on the sliproad. Noise Changes in the area where traffic flows are predicted to change would be less than 1 dB(A) and as such would not be noticeable.

3.3.2.59. *Objection.* The effect on several new housing developments adjacent to the Rectory Lane area has not been taken into account.

3.3.2.60. *Response.* Rectory Lane would experience a decrease in traffic but the traffic consequence of new housing developments are a matter for consideration by the Local Planning Authority.

3.3.2.61. *Objection.* Concern about the implications of more traffic using Valley Hill.

3.3.2.62. *Response.* This has been considered by the Department and while routes such as Valley Hill are likely to experience an increase in the number of accidents occurring each year the Department has demonstrated the Scheme would yield a net safety benefit when considering the whole area effected by the Scheme. The Department is committed to reducing accidents by one third of their 1990 level by the year 2000 and would consider applications by the Local Highway Authority for TSG for local safety schemes.

3.3.2.63. *Objection.* The Scheme would greatly increase the problems and inconvenience with people in Loughton, Debden, Buckhurst Hill and Chigwell whilst alleviating problems in Theydon Bois and Epping.

3.3.2.64. *Response.* It is accepted that traffic flows would increase in some parts of the area while bringing reductions in flows to Epping, Theydon Bois and other parts of Loughton.

3.3.2.65. The Scheme results in a net reduction of traffic on local roads in the order of 60,000 vkd (vehicle kilometres per day). The Scheme also provides a net positive road safety benefit and as a result, a strong economic case has been made demonstrating the Scheme is a worthwhile investment.

3.3.2.66. *Objection.* Satisfactory access to the M11 exists at Harlow.

3.3.2.67. *Response.* Access is possible at Harlow but this is not convenient for many travellers, particularly at times of the day when Epping High Street is congested.

3.3.2.68. *Objection.* Stonards Hill would become a ratrun.

3.3.2.69. *Response.* This is a side road off Roding Lane, which is off Oakwood Hill. The Agency is satisfied that it would not be attractive to drivers as a ratrun.

3.3.2.70. *Objection.* The Scheme is not needed.

3.3.2.71. *Response.* An economic and environmental assessment has been carried out for the Scheme using accepted assessment techniques. The cost of the Scheme is weighed against the savings in vehicle operating costs, journey times and accidents to produce a figure which demonstrates the cost effectiveness or otherwise of the Scheme. The Scheme has a positive cost effectiveness figure of some £16-26 million.

3.3.2.72. *Objection.* There will be increased visual intrusion due to lack of landscaping and the view from some properties may be adversely affected.

3.3.2.73. *Response.* The visual intrusion of the Scheme is unlikely to alter significantly from the present situation and may possibly in some aspects improve.

3.3.2.74. *Objection.* The Scheme would destroy Chigwell Conservation Area.

3.3.2.75. *Response.* The Scheme may have an adverse effect on the Chigwell Conservation Area but it is not considered this would destroy the character of the area.

3.3.2.76. It would not have such an effect on matters such as noise and vibration, air quality safety and visual impact so as to justify the cancellation of the Scheme. While it is regretted there would be an impact on Chigwell the overall balance of the effects of the Scheme would be beneficial.

3.3.2.77. *Objection.* The Scheme would attract HGVs on to local roads.

3.3.2.78. *Response.* HGVs are present in relatively low numbers (about 5%) in the vicinity of the junction due to the network of existing lorry bans. The Scheme would allow HGVs from

Debden and Oakwood Hill industrial estate to access M11 directly for all long distance journeys. This should further reduce the number of HGVs on local roads.

3.3.2.79. *Objection.* The design of the approach to the roundabout and into Oakwood Hill is inappropriate.

3.3.2.80. *Response.* The design of the roundabout and its approach roads have been carried out in accordance with departmental standards.

3.3.2.81. *Objection.* The landscaping proposed in the vicinity of the nature reserve at Oakwood Hill would obscure sight lines.

3.3.2.82. *Response.* The proposed planting at this point has not been finally agreed as further discussions are likely with Essex Wildlife Trust. No planting would be introduced which would impinge on recommended site lines standards.

3.3.2.83. *Objection.* The increase in traffic in Pudding Lane is unacceptable being from a projected 500 vehicles decrease to a projected increase of 3,200 due to the Scheme. This represents a 740% change.

3.3.2.84. The junctions of Pudding Lane and Gravel Lane with Abridge Road are already severely congested in the mornings and this would be exacerbated if the Scheme is adopted.

3.3.2.85. There is a high incidence of accidents in Pudding Lane, including one fatality and many unreported minor accidents. Road safety schemes are required to ensure that the road is safe.

3.3.2.86. *Response.* Suitable traffic measures can be implemented to maintain or improve standards of safety on Pudding Lane. This is a matter for the Local Highway Authority and the correct procedure for funding has already been set out.

3.3.2.87. *Objection.* While calming devices can restrict speed they would not reduce flow. They can increase congestion, cause slow moving queues and exacerbate atmospheric pollution. They do not solve noise problems and my even increase noise and vibration problems where traffic is slowed in hilly situations such as the Chigwell Village conservation area, especially if HGVs are still permitted to use the A113.

3.3.2.88. Traffic management or calming measures could not bring about any beneficial change to 3 locations in particular, mainly the junction of A113 Chigwell High Road with Station Road, the junction of A113 Chigwell High Road with A123 Hainault Road and the junction of A113 Chigwell High Road with B170 Chigwell Rise.

3.3.2.89. *Response.* An environmental advantage for Chigwell is not claimed but a net improvement county wide would result.

3.3.2.90. Traffic calming through Chigwell has been suggested by EFDC but not yet implemented. It would not necessarily increase congestion, noise or poor air quality. A well designed scheme would secure benefits of reduced vehicle speeds, improve safety and be less threatening to pedestrians. A traffic calming scheme on the A113 would not cause traffic to divert, there are few reasonable alternatives.

3.3.2.91. *Objection.* There are no significant traffic problems in Epping nor unacceptable delays, hazards to safety or displeasure to pedestrians. Any shopping area or market centre such as Epping requires an element of congestion to give it life. The passage of shoppers from one side of the road to the other being a natural process. The townscape of Epping is robust with its wide street, low buildings, market and parking areas and significant wide green town space at either end. It is well capable of taking the traffic load.

3.3.2.92. *Response.* HA has demonstrated that the benefits of reduced traffic in Epping (reduction of 5200 vpd in 1997) will be readily perceived by residents, shoppers, market traders and businesses because of the high level of streetside activity. Delays in Epping are significant for much of the day and result in inconvenience and inefficient use of vehicles. Congestion is bad for air quality and users of the street. The relief of congestion would aid the vitality of the town.

3.3.2.93. *Objection.* There is a profound environmental case to be made for diverse and diffused routes to gain access to the motorway system (Junction 26 - M25, Junction 7 - M11) together with other routes which could be established north-eastwards to the M25.

3.3.2.94. The value of spreading traffic to and from the motorway system over a substantial part of robust sections of a local road network can only improve in its logic as future growth occurs on the M11 and traffic increases dramatically on a widened 4-lane M25.

3.3.2.95. *Response.* The argument that the existing pattern of access to the M11 and M25 is diffuse and that north facing slips would concentrate motorway access is false. As more access points are provided motorway based trips would be spread over more of the local network rather than less. This allows greater use to be made of the motorway network and as previously stated some 62,000 veh km would no longer be driven on the local road network every day as a result of building the slips.

3.3.2.96. *Objection.* Traffic calming proposals for Roding Lane leading from B170 Chigwell Rise to Chigwell Village are being discussed between EFDC and the residents in particular, for speed humps in Roding Lane, which presently act as a filter for some traffic going east and exiting in the village. If speed humps are to be provided such filtered traffic would probably use the B170, then east on the A113 thus worsening the present situation at the Chigwell Rise junction. The proposed additional traffic through the Chigwell conservation area is totally unacceptable unless it can be shown that it would be bypassed by traffic management, routing vehicles away from or around Chigwell. The Agency's ES is inadequate in its treatment of the impact of increased traffic movements in the conservation area. Many properties in the village are close to the carriageway and already suffer noise and vibration nuisance. While airborne noise can be counteracted by double glazing their efficacy in residential properties is removed on opening to provide natural ventilation. These factors have not been properly recognised by the Agency, particularly in so far as HGVs which presently use the A113.

3.3.2.97. *Response.* The ES was published prior to DMRB. The impact of the Scheme on the conservation area has been investigated thoroughly and debated between the Agency and EFDC. The Agency's rebuttal to EFDC (Paras 3.3.1.67-91) sets out the position fully. Overall the impact of the Scheme on conservation areas generally is beneficial taking into consideration the balance of all impacts both negative and positive to the Conservation

Areas of Chigwell, Epping and Abridge. Noise levels of 64 dB(A) in Chigwell are at properties immediately adjacent to the road and reflect the current situation. Additional traffic as a result of the Scheme would add about 1 dB(A) which would just be noticeable.

3.3.2.98. The existing HGV restriction to the south of Chigwell and A113 effectively restrict the use of the route by HGVs and they account for 5% of the total flow, about half the national average. A total ban in Chigwell is not practicable in view of deliveries to traders and to residences. The Scheme is unlikely to change the level of HGV users of the A113.

4. FINDINGS OF FACT AND CONCLUSIONS

4.1. Having regard to all of the foregoing considerations, I have made a number of findings of fact upon which I base my conclusions. These findings are cross referenced (by paragraph numbers in parentheses) to the sources in my report. My findings and conclusions are:

4.2. An Environmental Assessment has been carried out (Document D5) and I have taken full account of that Statement together with other environmental evidence, including written comments from statutory consultees and others.

4.3. The Scheme was opposed by the County Council and the District Council in which it would be situated. It was also opposed by the adjoining London Borough of Redbridge, English Nature and the Essex Wildlife Trust. Of these EFDC appeared at the Inquiry and the remainder made written representations. A representative from English Nature attended the site visit.

4.4. The Inquiry was characterised by the helpful and constructive public participation both in support of, and in opposition to, the Scheme.

4.5. The main grounds for opposing the Scheme were:

i) That it would take, as part of the proposed northern roundabout, a small area of the Roding Valley Meadows LNR. The southbound on slip would destroy Lady Patience Meadow (a small area to the south of the M11) and its habitat which includes some scarce varieties of sedge (paras 3.3.1.4-9 and 3.3.2.17-27).

ii) Although the proposed slip roads would be a convenient way for vehicles to join the M11 motorway for motorists wishing to proceed north up the M11 or to join the M25 at Junction 6 of the M11 (Junction 27 of the M25) it would act as a magnet for vehicles originating from a much wider area than that immediately surrounding the proposed slip roads, who would use the local, predominantly residential, roads as feeder roads rather than the already congested primary roads leading to the M11 and M25 (paras 3.3.1.41-43 and 3.3.1.112).

iii) That the local feeder roads (some of them through conservation areas) were quite unsuitable to accept the increased traffic which would occur, if the Scheme proceeded, without an adverse effect on the local community caused by additional

traffic, noise, air pollution, danger to motorists, cyclists and pedestrians, many of them schoolchildren, and damage to historic listed buildings.

iv) That the proposed landscaping was insufficient and the proposals would adversely affect the visual amenities of the area.

v) That the Lorry Park was an asset which should not be lost (para 3.3.1.103).

vi) That the design capacity of the northern slip is inadequate for the traffic flow projected on it (para 3.3.1.53-65).

Dealing with these in turn -

4.6. *Loss of part of LNR.* The actual area that would be lost as a result of the Scheme is 2,500 sq.m out of a total of 500,000 (0.5% of the total) and is furthest away from the SSSI area (para 3.1.3.18). There was little public support for the retention of this area of the LNR. While the loss of any part of a LNR is to be regretted, I do not consider that the comparative size and position of the area to be lost is significant.

4.7. *Loss of Lady Patience Meadow.* This is 2.1 ha of wet and dry grassland and is suitable for some species of sedge which are scarce in Essex (para 3.1.3.22). As neither English Nature nor Essex Wildlife Trust appeared at the Inquiry it was not possible to test their evidence by cross-examination or to explore the extent to which the species affected were scarce nationally or in adjoining Counties. I note that the sedge communities developed as a result of the construction of the M11 impeding drainage (para 3.1.3.22) The Agency has offered to translocate these species to another nearby site, Great Hamon Mead which adjoins the River Roding and the LNR and which could be made available for environmental management and public access (Para 3.1.3.27), which is not currently the position with regard to the Meadow as it is owned by the Golf Club (Para 3.1.3.22). Furthermore use by the Club of fertilisers could be harmful to species of rare grass (Para 3.3.1.83). Translocation of the species of sedge to be found in this meadow would be costly and there would be no guarantee of success (Para 3.1.3.23). However the mere making available to EFDC and the Essex Wildlife Trust of a substantial area of land adjoining the existing LNR away from harmful fertilisers, contributes significantly to the environmental enhancement of the area. I have fully considered the environmental arguments put forward in connection with this Meadow and consider the Agency's proposals constitute a positive and lasting environmental gain whether or not translocation takes place or succeeds. Despite the considerable public participation in this Inquiry, there has been little or no concern shown by members of the public about the loss of the Meadow or the Sedge.

4.8. *Unacceptable increase of traffic on local roads and the adverse environmental effect on local communities.* I find that the proposed north-facing slip roads would provide a quicker and more direct route for local motorists wishing to travel northwards on the M11 either to continue in a northerly direction or to join the M25. The slip roads would clearly be of advantage to motorists from the nearby communities of Loughton, Debden, Chigwell and adjoining areas, and to a lesser extent to those motorists from a wider area in the north east quadrant of the London area contained within the M25. The closer to the M25 access junctions, the lesser is the advantage. I find that the 'watershed' area is likely to be just to the north of Romford where motorists from the east of that area

would continue to use Junction 28 of the M25. Those from the south or west of that area would continue to use the existing routes to the M11 or proceed through local roads to the proposed new slip roads at Junction 5. Their choice would depend on a number of factors, including the proximity of the proposed new slip roads to the starting point of their journeys and the likelihood of congestion on the primary routes such as the A12, A406 (North Circular Road) and the M11 at Junction 4 which in turn would depend on the time of day the trip is undertaken. HGVs from the nearby commercial areas would find a distinct advantage in being able to gain access to the M11 at Junction 5 without having to proceed along the local road system to gain access to the M11 or M25 (Paras 3.2.14-16).

4.9. I find that the existing preferred route to the M11 northbound or the M25, for motorists from the Chigwell, Loughton, Debden and adjoining areas is via the Wake Arms Roundabout (A124/A104 junction) to the M25 at Junction 26 or through Epping town to Junction 7 of the M11 at Harlow. Travelling from these areas to the Wake Arms roundabout involves travelling through Epping Forest (Paras 3.1.2.19 and 3.1.3.20-21). I also find that there would be a considerable reduction in traffic using these routes if the Scheme proceeds. This would be beneficial to Epping Town and Forest but it is necessary to balance against this the degree of disbenefit which would occur to other areas as a result of increased traffic being attracted through them to gain access to the proposed slip roads.

4.10. It has been suggested that the same benefits could be achieved by the construction of an Epping by-pass without any disbenefits (Para3.2.3). I do not consider that there is a realistic prospect of such a by-pass being constructed in the forseeable future and it would probably involve the loss of a considerable area of Green Belt countryside.(Para 3.3.1.120).

4.11. The HA's computer traffic model did not originally include traffic which might use the slip roads to access to the M11 (and also possibly the M25) at Junction 5, rather than Junction 28 of the M25 As a result of representations by the EFDC's traffic consultant this was rectified, however there was still divergence of opinion as to the extent of this M25 transfer, the HA's calculations being some 15% less than that of EFDC. This can be accounted for by the fact that the area from which EFDC considered the transfer would be made extended further to the south and was therefore greater than that used by HA for the purpose of this calculation.. Existing traffic problems cause motorists to try alternative routes. Road improvements such as those planned for the A13 (Para 3.3.1.74) may persuade drivers to gain access to the M25 at Junction 28 via the more major roads instead of via inferior roads, with traffic lights and tight bends, to the proposed slip roads.

4.12. It is impossible for any computer model to forecast traffic flows with complete accuracy and in this case there are many aspects of the local road network which could change as a result of road improvements or deterioration in traffic conditions due to congestion in this part of London, particularly on the A406 and the M11 at Junction 4. I accept what many of the objectors say when they contend that motorists would try to find alternative routes on local side roads if congestion on the more major roads becomes unacceptable. However I consider that the computer model predictions provide a useful guide as to the likely traffic flow on local roads if the Scheme proceeds. I do not consider that they are so seriously flawed as to make the predictions unreliable. Any omissions that have been

suggested relate to matters which are too speculative to include in the model. A reappraisal is not therefore justified.

4.13. In this case the model predicts that roads to the west of the M11 in the vicinity of Junction 5 would, with one exception, benefit by reduced traffic flows, whereas virtually all those to the east would suffer as a result of increased traffic flows. The exception is Oakwood Hill and its continuation southwards. This forms a continuous route from Junction 5 to the A406 and I agree with some of the objectors who have concerns that motorists would use this route as a 'rat run' to avoid the congestion which builds up on the M11 between Junctions 4 and 5 (Para 3.3.1.136). It is mostly residential and is unsuitable for any volume of through traffic. The increased traffic predicted would result in traffic congestion and dangerous conditions for motorists and pedestrians particularly school children attending the many local schools in the area. A comprehensive system of traffic calming measures would be needed to deter motorists from using this route as a possibly less congested route to the proposed slip roads.

4.14. With regard to the roads to the east of Junction 5 the only approach to the Junction is via Chigwell Lane (A1168) and in turn the only approaches to that road are from the southern section of the A113 (Chigwell High Road) through the narrow roads of the Chigwell conservation area or from the northern section of the A113 (Abridge Road) via either Gravel Lane (A1112) or Pudding Lane, both of which, particularly the latter, are unsuitable due to their width and bends for any substantially increased volume of traffic (Para 3.1.2.26-27). Much would depend on the extent to which the M25 transfer traffic contributes to the use of these Lanes. It is not predicted that there would be any significant change in traffic flows on Gravel Lane but on Pudding Lane it is predicted that there would be an increase of 900 vehicles in a 12 hour day (low growth). Consequently if the Scheme proceeds measures would be needed to prevent the intrusion of further vehicles in the narrow streets of the Chigwell Conservation Area which not only contains old historic buildings but several schools which already are the cause of considerable congestion (Paras 3.3.2.97 and 3.3.11-13).

4.15. The London Borough of Redbridge has expressed concern that traffic wishing to join the M11 at Junction 5 from its area would pass through the already congested A123 which has a continuous frontage of mixed residential and commercial uses (Paras 3.3.2.6-9). The predicted increase is 1,200 vehicles in a 12 hour day (low growth). Again measures would be needed to ensure that traffic intending to join the M11 would find it more acceptable to join at Junction 4 rather than Junction 5.

4.16. The HA contend that traffic flows would be influenced by decisions relating to traffic management policies which Local Authorities would be taking in the future. Essex County Council and EFDC have such policies and can be expected to bring forward traffic management schemes in a responsible way to mitigate problems. Both these Councils are clearly unwilling to accept the financial burden of carrying out road improvement schemes that would be necessary a result of constructing the proposed slip roads. Legal submissions were made concerning the obligation of Dtp to bear the cost of these improvements. I will deal with these later.(Para 4.28).

4.17. The expert witnesses who gave evidence on noise levels differed in their interpretation of DMRB. The HA's witness considered that noise changes of + or -1 dB(A) should be included in the initial calculations whereas EFDC's considered that DMRB should be

applied strictly and consequently noise calculations should only be made where traffic flow changes exceed 25%. The HA contended that DMRB is guidance to be sensibly interpreted and that as 1dB(A) increases or decreases in noise levels produce a public response it would be proper to calculate changes in noise levels on this basis. I consider that the HA's approach in this connection seems to be more logical and produces an overall result of 455 properties who would enjoy a noise reduction against 125 who would suffer a noise increase (Para 3.1.3.5).

4.18. With regard to air quality, a detailed analysis had been carried out after rigorous testing. The evidence presented to the Inquiry suggested that the air quality effect of the Scheme was broadly neutral. This was not challenged by EFDC's expert witness. Some objectors expressed fears that the predicted increased traffic flows in some areas could be injurious to health (Para 3.3.1.104). Their concern is understandable, but the expert evidence is such that I consider their fears to be unfounded and that air quality would be within the guide value set by the EC Directive except at 2 locations where the limit would be approached with respect to carbon monoxide emissions (3.1.3.50). Nitrogen dioxide emissions could exceed the EC Directive guide value at a few locations but should be well below the EC Directive limit values. One of these locations is 50/52 Chigwell Lane. The existing environment there is poor due to the presence of the M11 and would get worse if the Scheme proceeds. HA has indicated its willingness to acquire those properties.

4.19. Although there may be little prospect of health hazards or significant increase in noise levels, the significant increase in the volume of traffic on unsuitable and residential roads is a matter which causes local residents understandable and justifiable concern and which must adversely affect their quality of life. Continuous traffic at certain times of the day, difficulty for pedestrians in crossing roads and other matters associated with heavy traffic would all have their effect.

4.20. *Landscaping and visual affect.* I consider that the landscaping proposals (paras 3.1.1.15 and 3.1.3.15) are satisfactory. They should be looked at in the context of the existing views from the south, with the background of the existing motorway embankment and the industrial buildings on the skyline. There may be some visual intrusion at the outset, but I consider the new roads and their landscaping will soon merge into the background views. There should be little intrusion into views from other directions apart the possible loss of several mature oak trees at the junction of Oakwood Hill and Chigwell Lane as result of the proposed roundabout (Para 3.3.1.19). I consider that these provide a lasting, positive and apparent environmental benefit to a whole community as well as passing pedestrians and motorists. I consider the possibility of their destruction of greater environmental importance to the average citizen than the loss of a species of sedge which may or may not be rare but which will not be noticed by the majority of the community. I would recommend the HA to investigate the possibility of realigning the proposed northern roundabout with a view to saving some of these trees.

4.21 *Loss of Lorry Park.* I do not consider that this is a sustainable ground for objection as an alternative site has been identified on the Langston Road Industrial Estate and that compensation would be paid to EFDC (Para 3.2.7).

4.22. *Design Capacity of the northern on slip road.* Although a single lane is marginally below the standard set out in DMRB, approval for the departure from that standard has

been given by REED3 (Document P/HA/1C). It was suggested by EFDC that the number of lanes on the mainline M11 was inadequate but this is a matter of policy for the Secretary of State and there is no indication that his policy is to widen the M11 within the M25. I consider the design of the slip road (Type B) remains acceptable provided the low growth traffic flows factor is the correct one to apply. I accept the HA's argument that in this case, as the peak flows have increased at a rate slower than low growth. and as the local road network is only capable of absorbing growth below low growth, engineering design should look at low growth (Para 3.3.1.67).

The Benefits of the Scheme.

4.23. In brief the benefits of the Scheme suggested by the HA and the Supporters are:

i) High economic benefits, with an NPV of several times its cost (Para 3.1.2.42).

ii) Substantial accident savings, (Paras 3.1.2.31 and 32).

iii) Vehicle kilometres reduced on local roads (Para 3.1.2.30).

iv) Improved accessibility to and from the north.

v) Reduced costs for industry and commerce, particularly in relation to the Oakwood Hill and Langston Road industrial estates (Paras 3.2.14-16 and 3.3.1.91).

vi) An overall environmental improvement in the area (Para 3.1.1.7).

4.24. I do not intend to dwell on the first five of these benefits as there has been little convincing evidence against them except in so far as it is alleged that they are based on incorrect or insufficient information supplied to the model. I have already made reference to the results obtained from the model (Para 4.12) and do not consider that it was so flawed as to render the first five benefits unattainable. I therefore consider that these benefits would occur if the Scheme were to proceed.

4.25. The last alleged benefit (environmental improvement) causes me some concern in that I have been urged by counsel for the Agency to look at the total picture and in the environmental context to look at the net results of the forecast traffic flows, air pollution counts and noise assessment surveys. I have also been asked to look at the net number of private residences and historic buildings and roads that would be affected by the Scheme by, in effect, subtracting the number of properties that have disbenefits from those that have benefits and concluding that if a plus number results there is an 'overall' benefit. I do not think that this method of assessing benefits necessarily produces a fair result. In my opinion it is not right for an area, property, street or community which suffers considerable disbenefits to have them set off against a collection of benefits which in total (but not in gravity) may outweigh those disbenefits.

4.26. It was clear from the evidence, that without costly traffic measures being undertaken by the local Councils, the increase in traffic flows in Chigwell, Oakwood Hill (and its southwards continuation) and, to a lesser and more uncertain extent, in certain areas of the London Borough of Redbridge, would be damaging for some of the reasons outlined by the objectors. The Agency contend that this is a matter for the local Highway Authorities and that is the direct consequence of the way the highway responsibilities are divided in the Highways Act 1980 and is unavoidable.

4.27. It would be normal and proper for local Highway Authorities to be responsible for road improvements measures required as a result of connecting their areas to a national road network system, but in this case due to the 'magnet' effect of the proposed slip roads the benefit would not only be to local road users but to a significant extent to others who would be attracted from further afield. It is this additional use of the local road network through narrow and unsuitable roads which causes considerable concern to local authorities and places an unusually high burden on the local Highway Authority.

4.28. Counsel for EFDC contended that an agreement under Section 4 of the Highways Act 1980 was possible in connection with those roads identified as requiring traffic measures and should be entered into. Section 4(1) specifically referred to a "highway that... would be otherwise affected by the construction of a trunk road", Section 4(4), would enable the agreement to relate to improvements.

4.29. Counsel for the HA made the following submission in respect of Section 4 of the Act:

> Under Section 4, the role of the Agency is to carry out work and not simply to provide money. This is the correct construction of the Section. It is aimed at the Agency carrying out work on local roads. It is accepted that the Section refers to "roads affected by schemes" and that, in theory, affects that which may occur some distance from the Scheme itself. But the concern the Agency has is that the TSG system exists, and is a well used mechanism, by which Central Government funds local road improvements carried out by local highway authorities, i.e. County Councils. TSG is distributed on the basis of merit, which is done by the Secretary of State making a judgement on merit as to how to distribute that money. This allows him to weigh the interests of one area against another in making his allocation of TSG. The concern about using Section 4 to fund schemes over a wide area in the way suggested by EFDC is that this could be a way of avoiding the TSG system and giving a priority to Essex County Council over others.
>
> To comply with the request from EFDC to utilise Section 4 would, to put it at its lowest, introduce a risk that other authorities would justifiably take the view that their interests are being prejudiced by preferential treatment of Essex County Council. A Section 4 agreement would be with the County Council, but that Council has not pressed for one.

4.30. This is a matter of law, but in my opinion the Section would permit (but not require) an agreement to be entered into between the Highway Authority and the Secretary of State whereby functions of improvement would be exercised by the Secretary of State. There are arguments in favour of such an agreement being entered into, but this is a matter for the Secretary of State to decide.

4.31. The problems that I have outlined relating to the local feeder roads can to a large extent be solved by the traffic measures suggested by EFDC by making these roads less attractive to the longer distance driver and commercial vehicles (Para 3.3.1.50). Counsel for the HA in closing, stated that the Agency is willing to work with the County Council to consider appropriate measures for these roads for inclusion in the County Council's TSG bid. I would recommend that this takes place.

4.32 There are clear advantages and disadvantages to the Scheme but on balance I consider that its benefits marginally exceed its disbenefits and consequently the Scheme should proceed subject to the modifications agreed with Debden Sports Club to provide alternative accesses to its property and 50 and 52 Chigwell Lane (3.1.1.12).

5. RECOMMENDATION

I recommend that:

The M11 MOTORWAY (JUNCTION 5, NORTH FACING SLIP ROADS) SCHEME 199

and

The M11 MOTORWAY (JUNCTION 5, LOUGHTON, ESSEX, NORTH FACING SLIP ROADS) SIDE ROADS ORDER 199

should be made modified so as to show:

(a) The private means of access to serve Debden Sports Ground replaced by a new route shown numbered 2 on plan HA18/1EC/75.

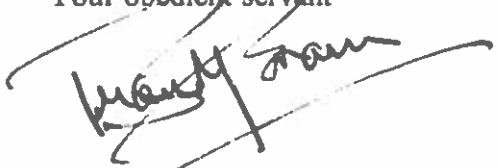
(b) The private entry to the property known as 50 Chigwell Lane replaced as shown numbered 2 on plan HA18/1EC/75.

(c) A private right of access across Debden Sports Club Grounds to serve the property known as 52 Chigwell Lane replaced by the route shown numbered 2 on plan HA18/1EC/75.

I have the honour to be,

Sirs

Your obedient servant



Brian M Evans

ANNEX A

APPEARANCES

FOR THE HIGHWAYS' AGENCY

Counsel:	Mr. Christopher Loosley
Instructed by:	The Treasury Solicitor
He called:	Mr. G. Brown of the Highways' Agency, Project Manager
	Mr. M.J. Hampton,BSc(Eng)
	Dr. G.M. Jackson, MSc, DPhil
	Dr. P.A.R. Ireland, MA(Oxon) DPhil, FRGS
	Mr. R. Woodbridge, MSc
	Mr. N. Thomas, MA

SUPPORTERS	Mr. D.O. Westrop, 6 Shelley Grove, Loughton, Essex, IG10 1BY
	Mr. A. Archer, BSc, FIMM, FGS, CGeol, 4 Brook Rise, Chigwell, Essex, IG7 6AP
	Mr. J.M. Day, Paris Hall, Copped Hall Estate, Epping, Essex, CM16, 5 HT
	Mr. M. Mulveny, Bank of England Printing Works, Langston Road, Loughton, Essex, IG10 3TN
	Mr. C.M. Leighton, 6 The Bowls, Chigwell, Essex, IG7 6NB
	Mr. G. R. Thomson, 58 Roding Lane, North Woodford Green, Essex, IG8 8NN
	Mr. L.J. Louden, 64 Etheridge Road, Loughton, Essex, IG10 2HY
	Mr. Spilman, Océ (UK) Ltd, Langston Road, Loughton Essex, IG10 3SL

OBJECTORS

FOR EPPING FOREST DISTRICT COUNCIL

Counsel:	Mr. Richard Humphries
Instructed by:	Solicitor to EFDC
He Called:	Mr. I. White, BSc, Dip.TP., MA, Planning Officer, EFDC
	Mr. D.F. Sharps, C Eng., FIMechE, FIOA, MBIM
	Mr. J.D. Hodson, Associate of Travers Morgan Transport

Mr. A.R. Savell, C Eng, MICE, MHIT

Mr. P. Cunliffe-Jones, BA Solicitor, Solicitor to EFDC

FOR LOUGHTON RESIDENTS' ASSOCIATION

Mr. M.W. Wardle, 61 The Drive, Loughton, Essex, IG10 1HG

FOR CHIGWELL LOCAL SAFETY ADVISORY COMMITTEE

Mr. H. Buchan, 1 The Avenue Loughton, IG10 4PT

FOR THE CHIGWELL PARK RESIDENTS' ASSOCIATION

Mr. A.J. Marshall, JP

FOR HILLSIDE AVENUE RESIDENTS' ASSOCIATION

Mr. R. Farnden, c/o 29 Hillside Avenue, Woodford Green, IG8 7QR

OTHER OBJECTORS

Mrs. M. Chalk, 49 Southview Road, Loughton, Essex

Mrs. B. Saggers, 40 Stonards Hill, Loughton, Essex, IG10 3EG

Mr. L.M. Wincott, 77 Coolgardie Avenue, Chigwell, Essex, IG7 5AX

Mr. G. Yewman, Bridge Farm Cottage, 52 Chigwell Lane, Loughton, Essex

Mr. R. Wilson, 3 Southview Road, Loughton, Essex, IG10 3LG

Mr. M.A. Osbourn, 97 White Hills Road, Loughton, Essex, IG10 1TU

ANNEX B

LIST OF DOCUMENTS

1. **ATTENDANCE LIST**

2. **DOCUMENTS ON DEPOSIT PRIOR TO THE INQUIRIES**

D1 Statement by the Department of Transport's representative - Mr. G.S. Brown

D1A A3 folder of figures (plans) 1 - 19

D2 The Draft Orders for the M11 Junction 5, North Facing Slip Road Scheme:

(a) The M11 Motorway (Junction 5, Loughton, Essex, North Facing Slip Roads) Scheme 199

(b) The M11 Motorway (Junction 5, Loughton, Essex, North Facing Slip Roads) Side Roads Order 199

D3 Description of Draft Orders

D4 Public Notice announcing the Public Inquiry

D5 Environmental Statement

D6 Environmental Statement - Non Technical Summary

D7 "A Feasibility Study of North Facing Slip Roads at M11 Loughton Interchange". 198 6 report by Essex County Council

D8 Scheme Plan

D9 Landscape Plan

D10 Interest Plan

D11 Department of Transport Public Inquiries Policy Statement for Trunk Roads

D12 Preferred Route Statement (February 1993)

D13 Department of Transport's standards:

(a) TD 22/92 - Layout of Grade Separated Junctions

(b) TD 19/85 - Safety fences and barriers

(c) TD 16/93 - Geometric design of Roundabouts

(d) BD 2/89 - Technical Approval of Highway Structures on Motorways and other Trunk Roads, Part 1: General Procedures

(e) HD 18/88 - Environmental Assessment under EC Directive 85/337

(f) HD 19/90 - Road Safety Audits

(g) HD 42/90 - Road Safety Audits

D14	RPAD Advice Note 12-93 -	Traffic Modelling, Forecasting and Economics for Motorway Improvement Schemes
D15	Press Notices associated with the Scheme	
D16a	Report of the Advisory Committee on Trunk Road Assessment - Sir George Leitch	
D16b	Trunk Road Proposals - Comprehensive Framework for Appraisal - Sir George Leitch	
D17	The Highways (Inquiry Procedure) Rules 1976	
D18	The Noise Insulation Regulations 1975 and Amendment 1988	
D19	The White Papers:	
	(a) "Policy for Roads, England" Volumes (i) and (ii) 1987	
	(b) Roads for Prosperity (1989)	
D20	Trunk Roads England - into the 1990's	
D21	Section 105A of the Highways Act 1980	
D22	The Highways (assessment of Environmental Effects) Regulations 1988 (SI 1241)	
D23a	Urban Road Appraisal - Standing Advisory Committee on Trunk Road Assessment	
D23b	The Government Response to the SACTRA Report on Urban Road Appraisal	
D24	The Highways Act 1980	
D25	Noise Control on Construction and Open Sites BS 5228 Parts 1,2 and 4: 1984	
D26	Wildlife and Countryside Act 1981	
D27	Land Compensation Act 1973	
D28	Report on Public Construction (July 1992)	
D29	Stage 1 Road Safety Audit (August 1993)	
D30	Local Model Validation Report (February 1993)	
D31	Technical Appraisal Report (November 1989)	
D32	Traffic Survey Report (August 1989)	
D33	Geotechnical Interpretative Report	
D34	Scheme Assessment Report (August 1992)	
D35	Trunk Roads in England - 1994 Review	
D36	The Compulsory Purchase by Non-Ministerial Acquiring Authorities (Inquiries Procedure) Rules 1990	
D37	Getting the Best Roads for our Money - The COBA method of Appraisal	
D38	The COBA 9 Manual	

D39	The Manual of Environmental Appraisal
D40	The Manual of Environmental Appraisal (Notes on current practice)
D41	Volume 10 of the Design Manual for Roads and Bridges - Environmental Design
D42	Volume 11 of the Design Manual for Roads and Bridges - Environmental Assessment
D43	National Roads Traffic Forecasts (1989)
D44	Inspectors Report into the M16 Motorway (A10-A12 Section) Public Inquiry
D45	The Highways Agency - Framework Document
D46	The Traffic Signs Regulations and General Directions 1981

3. DOCUMENTS PRESENTED DURING THE INQUIRIES

HIGHWAYS AGENCY DOCUMENTS

Day Presented	Document No:	Description
1 (17.5.94)	HA/1	HA Opening Statement by Counsel
2 (18.5.94)	P/HA/1A	Proof of Evidence of Michael John Hampton - Traffic and Economics
2 (18.5.94)	P/HA/1B	Supplementary Proof of Evidence of Michael John Hampton - Traffic and Economics
4 (20.5.94)	P/HA/1C	Information requested by EFDC during cross-examination of Mr. Michael John Hampton
8 (26.5.94)	P/HA/1D	Additional info requested by EFDC from M Hampton
8 (26.5.94)	P/HA/1E	Extract from Traffic Appraisal Manual
12 (3.6.94)	P/HA/1F	Additional Information on number of vehicles removed from non-motorway networks
4 (20.5.94)	P/HA/2A	Proof of Evidence of Dr. Geoff Jackson - noise
4 (20.5.94)	P/HA/2B	Supplementary Proof of Evidence of Dr. Geoff Jackson - noise
4 (20.5.94)	P/HA/2C	Modifications to Noise Supplementary Evidence of Dr. Geoff Jackson - noise
4 (20.5.94)	P/HA/2D	Information requested by Counsel for EFDC from HA following cross-examination of Dr. G Jackson
4 (20.5.94)	P/HA/3A	Proof of Evidence of Dr Peter A R Ireland - Environment and Nature Conservation
4 (20.5.94)	P/HA/3B	Design Brief - Translocation of Lady Patience Meadow
4 (20.5.94)	P/HA/3C	Comments of Dr. Peter Ireland on letter from Dr. J Dagley of English Nature dated 17.5.94

12 (3.6.94)	P/HA/3D	Additional Information on listed buildings adjacent to roads predicted to experience traffic increase
5 (23.5.94)	P/HA/4A	Proof of Evidence of Roland Woodbridge - Air Quality
5 (23.5.94)	P/HA/4B	Supplementary Proof of Evidence of Roland Woodbridge - Air Quality
10 (1.6.94)	P/HA/5A	Rebuttal by Highways Agency to EFDC
10 (1.6.94)	P/HA/5B	Response by HA to Travers Morgan Statement dated 27.5.94
10 (1.6.94)	P/HA/5C	Introduction by Neil Thomas
11 (2.6.94)	P/HA/02	Rebuttal to Mrs. B Saggers
12 (3.6.94)	P/HA/020	Rebuttal to Mr. Osborn
11 (2.6.94)	P/HA/026	Rebuttal to Chigwell Local Safety Advisory Committee
12 (3.6.94)	P/HA/034	Rebuttal by HA to letter from Essex CC
11 (2.6.94)	P/HA/043	Rebuttal to Mr Wincott
12 (3.6.94)	P/HA/045	Rebuttal to Mr G Yewman
12 (3.6.94)	P/HA/046	Comments on London Borough of Redbridge's objection
11 (2.6.94)	P/HA/050	Rebuttal to Chigwell Park Residents' Association
12 (3.6.94)	P/HA/052	Rebuttal to English Nature
12 (3.6.94)	P/HA/052A	Comments by HA to letter from Dr. Dagley dated 24.5.94
11 (2.6.94)	P/HA/055	Rebuttal to Mrs. M Chalk
11 (2.6.94)	P/HA/057	Rebuttal to Hillside Avenue Residents' Association

4. SUPPLEMENTARY DOCUMENTS TO HIGHWAYS AGENCY PROOFS

Day Presented	Document No:	Description
1 (17.5.94)	D1/2	Supplementary statement by G Brown, Highways Agency (including amended Figure 14A of D1A)
1 (17.5.94)	D1/3	Agreed modification to deposit documents D2b and D3
3 (19.5.94)	D1/4	Information requested during cross-examination of Mr. G. Brown

5. SUPPORTERS' DOCUMENTS

Day Presented	Document No:	Description
6 (24.5.94)	P/SUP/1	Proof of evidence of Mr G. Thompson
6 (24.5.94)	P/SUP/9	Proof of evidence of Mr. A.A. Archer
9 (31.5.94)	P/SUP/9A	
6 (24.5.94)	P/SUP/19	Proof of evidence of Mr. L. Louden
3 (19.5.94)	P/SUP/21	Proof of evidence of Mr. D. Westrop
11 (2.6.93)	P/SUP/21A	Closing Statement of Mr. D. Westrop
6 (24.5.94)	P/SUP/23	Proof of evidence of Mr. C. M. Leighton
7 (25.5.94	P/SUP/26	Proof of evidence of Océ (UK) Ltd
6 (24.5.94)	P/SUP/29	Proof of evidence of Bank of England

6. EPPING FOREST DISTRICT COUNCIL DOCUMENTS

Day Presented	Document No:	Description
1 (17.5.94)	P/EFDC/1	Proof of evidence of Ian White, Planning Officer
5 (23.5.94)	P/EFDC/1A	Listed buildings registered as local land charges
5 (23.5.94)	P/EFDC/1B	S105A of the Highways Act 1980
7 (25.5.94)	P/EFDC/1C	Extract from Roding Valley Local Plan 1985. Heritage Conservation
7 (25.5.94)	P/EFDC/1D	Listed buildings not included in the ES
7 (25.5.94)	P/EFDC/1E	Existing Essex Golf Clubs, Courses and Driving Ranges
7 (25.5.94)	P/EFDC/1F	Extracts from EFDC Local Plan, Draft Deposit Copy
6 (24.5.94)	P/EFDC/2A	Proof of Evidence of Mr. D.F. Sharpe - Noise

7 (25.5.94)	P/EFDC/2B	Effects of Traffic Noise Changes on Residents Nuisance Rating (Extract from TRRL)
6 (24.5.94)	P/EFDC/2C	Extract from Draft PPG
10 (1.6.94)	P/EFDC/2D	Fax from D. Sharpe to Dr. Jackson on A113 Chigwell High Road
8 (26.5.94)	P/EFDC/3A	Proof of Evidence of John Dean Hodson - Vol 1
8 (26.5.94)	P/EFDC/3B	Proof of Evidence of John Dean Hodson - Vol 2
1 (17.5.94)	P/EFDC/3C	Travers Morgan Report
1 (17.5.94)	P/EFDC/3D	Letter to Mr. J. Clark, Highways Agency dated 12.5.1994
2 (18.5.94)	P/EFDC/3E	Letter from Travers Morgan to Highways Agency dated 28.3.94 and reply dated 5.4.94
4 (20.5.94)	P/EFDC/3F	Extract from letter put to Dr. Jackson in cross-examination
8 (26.5.94)	P/EFDC/3G	Supplementary Proof of Evidence of John Dean Hodson
8 (26.5.94)	P/EFDC/3H	Aggregation of 1981 LTS zones to WSA zone system Fig 31
8 (26.5.94)	P/EFDC/3I	Table S3.1 Traffic flow effects of Transferred Movements
8 (26.5.94)	P/EFDC/3J	Journeys by Public Transport to Liverpool Street during am peak hour
9 (31.5.94)	P/EFDC/4	Introductory statement of Robert Charles Savell and interpretation of para 3.2 of TD 22/92
10 (1.6.94)	P/EFDC/4A	Reply of Question from Mr. Westrop
9 (31.5.94)	P/EFDC/5	Proof of Evidence of Mr. P. Cunliffe-Jones - Solicitor to EFDC
10 (1.6.94)	P/EFDC/6	Roding Valley Local Plan 1985
6 (24.5.94)	P/EFDC/7	Plan showing location of Objectors and Supporters (Only one copy with Inspector

7. OTHER OBJECTORS' DOCUMENTS

Day Presented	Document No:	Description
9 (31.5.94)	P/LRA/1	Proof of evidence of Councillor M Wardle on behalf of Loughton Residents Association
12 (3.6.94)	P/OBJ/1	Proof of evidence of Mr. C. Felton
11 (2.6.94)	P/OBJ/2A	Letter from Cllr C. Saggers to Mrs. P. Meadows, Loughton Residents' Association
11 (2.6.94)	P/CLS/1	Proof of evidence of Mr. H. Buchan, Hon Sec of Chigwell Local Safety Advisory Committee
11 (2.6.94)	P/CLS/2	Appendices to P/CLS/1

11 (2.6.94)	P/CLS/3	Supplementary Proof of evidence of Mr. H. Buchan
11 (2.6.94)	P/CPA/1	Proof of evidence of Chigwell Park Residents' Association (Mr. Marshall)
12 (3.6.94)	P/OBJ/20	Proof of evidence of Mr. M. Osbourn
11 (2.6.94)	P/OBJ/43	Proof of evidence of Mr. Leslie Wincott
11 (2.6.94)	P/OBJ/55	Proof of evidence of Mrs. M. Chalk
12 (3.6.94)	P/LBR/046	Proof of evidence of London Borough of Redbridge

8. **OTHER REPRESENTATIONS**

Day Presented	Document No:	Description
11 (2.6.94)	REP1	Roger Dixon, 127 Dugdale Hill Lane, Potters Bar, Herts EN6 2DS
11 (2.6.94)	REP1/A	Grange Farm, Chigwell, Proposed Place of Worship

9. **LIST OF SUPPORTERS' FILES**

Supporter No.	Name of Supporter
S1	Mr. G. R. Thompson
S2	Dr. & Mrs. P.R. Goddard
S3	The General Electric Company plc
S4	Higgins Group plc
S5	Roding-Mantes Line
S6	Mrs. P.F. Best
S7	Mr. R.J. Davies
S8	Mr. & Mrs. R. Berndes
S9	Mr. A.A. Archer
S10	J.H.Gracey
S11	Dinos Kyrou
S12	A. Hamid
S13	Reg J. Powell
S14	Mrs. Beryl J. Powell
S15	Alan & Mrs. K M Newell
S16	Mr. & Mrs. Southgate
S17	P.L. Hanmerman
S18	J.A. Caslaw

OBJ16	Mr. W. Davis
OBJ17	Mr. Keith S. Gardner
OBJ18	Mr. & Mrs. Hartley
OBJ19	R.M. Woodleigh
OBJ20	M.A. Osbourn
OBJ21	Mr. & Mrs. Wouldiam Fox
OBJ22	Mrs S. McNamara
OBJ23	Mrs. M. Martin
OBJ24	J. & R. Brown
OBJ25	J. & M. Murphy
OBJ26	Chigwell Local Safety Advisory Committee - (. Buchan)
OBJ27	Mr. J.A. Squires
OBJ28	Mr. D.J. Law
OBJ29	Mr. Martin Sandforth
OBJ30	Mr. Ian Fasham
OBJ31	Mr. B.P. Deacon
OBJ32	Mr. R.J. Warner
OBJ33	Miss Janice MacDonald
OBJ34	Essex County Council - (Joe Holmes)
OBJ35	Mr. T.J. Webber
OBJ36	Loughton Resident's' Association - (Mrs. Pam Meadows, Chairman)
OBJ37	Mrs. Karen Doulton
OBJ38	Mr. H. Buchan
OBJ39	Debden Sports Club - (L.P. Rowe)
OBJ40	Mr. Charles H. Long
OBJ41	Mr. J. Whaymand
OBJ42	I.R. Ironmonger
OBJ43	L.M. & P. Wincott
OBJ44	Mr. Peter C. Saunders
OBJ45	Mr. & Mrs. P Yewman
OBJ46	London Borough of Redbridge
OBJ47	M. Lawton
OBJ48	Epping Forest District Council -
OBJ49	Joan Davis
OBJ50	Chigwell Park Residents' Association - (Alan Marshall)

OBJ51	Essex Wildlife Trust -
OBJ52	Nature Conservancy Council for England
OBJ53	Buckhurst Hill Residents' Society -
OBJ54	Redbridge Friends of the Earth -
OBJ55	Mrs. Margaret Chalk
OBJ56	Epping Forest Conservative Association - Roding Branch - (Mr. T.J. Morris)
OBJ57	Hillside Avenue Residents' Association
OBJ58	Roger Wilson
OBJ59	Mr. W.F. Long
OBJ60	Cllr Carole Barrack
OBJ61	West Essex Group Ramblers' Association -
OBJ62	P.A. Lavender
OBJ63	Mr. V.J. Brown
OBJ64	Albert J. Hall
OBJ65	Mr. & Mrs. Witchell
OBJ66	Mr. & Mrs. Roffe
OBJ67	Residents of Gravel Lane
OBJ68	Mr. F.A.A. Mackenzie