10 PHASING AND SENSITIVITY ANALYSIS

10.1 INTRODUCTION

10.1.1 The timing of the implementation of the various schemes and policies comprising the Transport Plan has particular implications for the success of the overall strategy, funding and the realisation of benefits. GOMMMS draws attention to the need to optimise the relationship between investment and the benefits to be gained.

10.1.2 This section of the report outlines a recommended programme of implementation. The financial implications of achieving this are described in Section 11. The main aims of the programme are to:

- resolve the most urgent problems
- identify schemes to give early benefits
- introduce behavioural change as early as possible
- optimise overall benefits in relation to the considerable investment required
- minimise risk to the overall plan by potential obstacles to implementation.

We are particularly keen to identify and facilitate schemes for early implementation to address most urgent problems, especially safety, and to commence introduction of the overall philosophy of the plan, especially behavioural change.

10.2 CO-ORDINATED IMPLEMENTATION

10.2.1 The Transport Plan comprises an integrated package of measures which when combined together create a new scenario for travel within the A453 corridor. Implementation of the overall package will require the political and public will to achieve it, but this is strongly recommended. The temptation to ‘cherry pick’ schemes with well tried and tested mechanisms for implementation and to defer schemes which may be more difficult to implement should be resisted.

10.2.2 Certain schemes in the Transport Plan are closely linked, whilst others are heavily constrained by the procedures necessary to implement them. The programme aims to allow for gradual improvement of understanding of the choices to be made in travel behaviour, and to reinforce the philosophy of the Transport Plan.

10.2.3 The principles underlying the co-ordination of the recommended programme can be summarised as follows:

- Public transport improvements should be introduced ahead of demand management measures.
- Demand management measures should be introduced gradually.

- Long planning periods for large infrastructure schemes have to be taken into account.

- Early benefits can be achieved with interim highway schemes.

- The major public transport and highway schemes for Clifton need to be in place before the dualling of A453 from M1 to Clifton.

- Many of the smaller schemes involve continuous programmes throughout the Study period.

10.2.4 The overall programme is illustrated in Table 10.1 and funding implications are described in Section 11.

10.2.5 There are constraints to be recognised in developing an implementation programme. Major investments require funding and some must undergo statutory procedures with the possible need for a public inquiry. Furthermore, the provision of transport infrastructure and services is the remit of a wide range of public and private sector bodies sometimes with competing and conflicting interests and between whom co-ordination has not always been easy to achieve.

10.2.6 The transport providers involved in implementing the recommended schemes each have their own procedures for scheme assessment and implementation and financial considerations. This can mean that schemes associated with one provider are more easily funded and implemented than others and schemes seemingly invaluable within the MMS context may not fare so well under different appraisal procedures by provider bodies.

10.3 PHASING OF RAIL SCHEMES

10.3.1 The Study shows a strong demand for train travel in the A453 corridor for journeys to and from London, Leicester, Derby, and also for local movements. The Transport Plan has a strong emphasis on improved rail infrastructure and services, and is supported by Railtrack, the Train Operating Companies (TOCs) and the Strategic Rail Authority.

10.3.2 We propose a short term programme of improvements to enhance the profile of rail services building upon the start already made by providers. Key Schemes include:

B2a/b Replacement of Rolling Stock (MML & CT)
B7 Local Park and Ride at EM Parkway Station
B8 Nottingham Derby Improved frequency
B9/11 Station Upgrades and Real Time Information
K6 Information and Marketing

We also recommend integration of ticketing with local public transport services and temporary measures to reduce platform congestion due to layover trains at Nottingham Station.

10.3.3 Improvements in services can be commenced immediately. Midland Mainline has already instigated its programme of rolling stock renewal and more frequent services. There are well known difficulties for the TOCs however in committing investment within the current franchising arrangements. However, because of the strong potential for mode transfer to rail, the Study recommends the early introduction of these improvements.

10.3.4 The proposed new Parkway Station at Ratcliffe on Soar is close to start of construction. The Study shows that a Park and Ride facility for journeys to and from Nottingham would be competitive and likely to attract many users, offering a journey of around 15-minutes to the City centre. It has a particular advantage that it can be introduced as soon as the Station opens (currently programmed 2003/4), well before the alternative road or light rail improvements in the corridor.

10.3.5 The main rail infrastructure improvement schemes for Trent junction, the re-signalling from there to Nottingham, and the modernisation and expansion of Nottingham Midland station are important components of the Transport Plan. We recommend that these schemes are implemented as early as practicable. In particular there is an urgent need to replace the existing life expired signalling system. The final stage of the Trent Junction improvement, the construction of the Attenborough flyovers, will involve Statutory Procedures under the Railways Act, and must therefore be programmed in the medium term, but should receive priority.

10.3.6 The recommendation of the Gedling Park and Ride service is related mainly to achieving more efficient operations for Midland Mainline at Nottingham Midland Station, but also to the future development of the South Nottinghamshire Rail Network services. Alternative means of avoiding the lengthy standing times for MML trains at Nottingham Station are conceivable if land for rail use east of the Station is protected. However, the whole scheme should be implemented concurrently with or in advance of the Nottingham Station improvements.

10.3.7 The integration of ticketing is a major administrative challenge but highly desirable. The full benefits can be gained only when a convenient user-friendly system is available for the whole of the ‘turn up and go’ rail, light rail, and bus travel, which is dominated by everyday commuting and shopping trips. There are many problems to be solved and it can be expected to be an incremental process. A moderately cautious view has been taken for the programme.

10.4 PHASING OF LIGHT RAIL SCHEMES

10.4.1 The extension of the NET route to Clifton is a key contributor to promoting transfer to public transport in the A453 corridor. This Study strongly supports the project’s early implementation. It is likely to require mixed private and public investment, and requires the completion of a number of Statutory Procedures (including approval under the Transport Works Act). Generally these projects have a long lead time prior to construction, however, the recent experience of NET Line One should greatly assist the promoters and we comment on funding issues in Section 11.

10.4.2 Integration with other public transport services will contribute to the successful operation of NET.

10.4.3 Initially, access to the NET based Park and Ride site at Clifton South could be from the Gotham Road with a direct access from the A453 incorporated in the M1-Clifton dualling scheme.

10.4.4 The NET extension to Beeston and Bramcote, although less central to the A453 corridor, is nevertheless important for mode transfer in the corridor as a whole, particularly with its convenient interchange with the Clifton route and Line One at Broadmarsh. We have assumed this scheme to follow the construction of the Clifton extension.

10.5 PHASING OF BUS SCHEMES

10.5.1 A wide range of bus network improvement schemes are included within the Transport Plan. These include the renewal of the bus fleet, with the provision of modern fully accessible vehicles, real time and other information provision alongside other improvements at bus stops. There are also various "soft" measures including better integration and promotion of services, and integrated ticketing. These improvements need to be implemented in a co-ordinated and holistic way as part of Quality Partnership for the Corridor. An ongoing programme of improvement throughout the Study time period is assumed.

10.5.2 Particular schemes for priority implementation should include:

D2 Bus Lane. A453 Farnborough Road to Silverdale Flyover
D5 Clifton Local Bus Service Improvements
D8 Bus Real Time Information System
D10c Bus Service to Clifton Village
D12 Bus Marketing and Information
D14 Bus Fleet Renewals
D23 New Generation Bus Stops
Integrated Ticketing

We strongly recommend a focus of improvements to services in the A453 Corridor by further development of the Bus Quality Partnership approach.

10.5.3 Whilst delays for buses could be reduced by the immediate construction of bus lanes within the existing layout of the A453, such an approach is not appropriate because of the impact they would have on congestion levels. Improvements in flow are inextricably linked to the highway schemes. The Study traffic forecasts indicate that the highway schemes would provide enough capacity to prevent congestion from disrupting service schedules. The schemes for bus lanes on the Gotham Road and north of Farnborough Road should not be required until towards the end of the Study period. However in order to maintain the viability of the shuttle bus service between East Midlands Airport and Parkway Station the scheme for bus priority measures at M1 junction 24 are proposed to be implemented earlier, to be concurrent with, or part of, the traffic signals and safety highway scheme.

10.5.4 Other aspects of bus improvements included within the Preferred Option are centred on service changes and improvements. Whilst, in theory, these can be made quickly as they do not rely on major infrastructure schemes there are other operational factors that must be considered, e.g. the recent shortages of bus drivers. It is considered that to get the most benefit from any service changes they should be co-ordinated with other infrastructure improvements as a means of promoting a whole service approach, particularly to attract those people who do not currently use bus services. We have considered priority implementation of the Kegworth Express bus service on A453 but feel that a competitive service is unlikely to be possible before the major highway improvements are in place.

10.6 PHASING OF HIGHWAY AND TRAFFIC MANAGEMENT SCHEMES

10.6.1 The Transport Plan envisages a large transfer to public transport over the next 20 or so years. However, the current heavy dependence on roads, together with the associated congestion and safety problems, mean that the phasing of implementation of the highway schemes will strongly affect the progress towards resolution of the transport problems of the A453 corridor. It is important however that this is set within the context of the strategy which promotes public transport improvements and demand management.

10.6.2 We strongly recommend early implementation of highway and traffic management schemes to address key safety and congestion problems including:

E28 Barton Lodge safety Improvements
E29 Crusader Roundabout full signalisation
E14 Junction 24 Interim Scheme
F13 30 mph Speed Limit on A453 through Clifton
E30 Farnborough Road Junction – Extended Exit Flare Southbound

10.6.3 The Study strongly recommends the early implementation of schemes to resolve the safety problems on the M1 – Clifton section of the A453, namely the improvements at Junction 24 and at Barton Lodge. The problems around the Power Station and Ratcliffe on Soar will be overcome by construction of the access to the proposed Parkway Station.

10.6.4 For junction 24 we recommend early implementation of improvements under scheme E14 to the existing layout as follows:

- Dedicated left turn lane from A453(s) to A50(w)
- Widened approach for M1 Southbound off slip
- Increased radius and central hatching on exit to A453(N)
- Re-mark carriageway over southern bridge to 3 lanes
- Full signalisation.

10.6.5 We also recommend early implementation of schemes to reduce the most serious congestion problems on the Clifton section of the A453 route. At Farnborough Road junction, the southbound exit flare should be lengthened to improve traffic merge to the single lane for outbound traffic. For Crusader Roundabout minor amendments to the approaches are proposed along with full signalisation to reduce and facilitate pedestrian movements.

10.6.6 The larger schemes involve statutory procedures that take time to complete. Time to completion for schemes requiring Highway Orders can be in the range of 3 to 10 years depending on their complexity and impact.

10.6.7 It is proposed that the dualling of the M1 – Clifton section should not be completed before the improvements to the highway and to public transport through Clifton are operational, and should not be started until after these are fully confirmed and committed. Although desirable for other reasons earlier completion would result in prolongation of congestion and safety problems on the critical Clifton section of the A453 as well as increasing the difficulty of constructing the Clifton four lane improvement scheme. The phasing programme reflects these constraints and objectives.

10.7 PHASING OF CYCLING AND WALKING SCHEMES

10.7.1 As a whole, the cycling and walking schemes consist of a considerable number of diverse improvement schemes, together with external actions such as travel behaviour initiatives. The programme appropriately adopts an ongoing commitment, commencing in the early part of the implementation period in response to Government Objectives. Similarly to the public transport network we recommend a holistic approach to walk and cycle strategies within a programme for completion by 2011.

10.7.2 The completion of a cycling and long distance walking route between Nottingham and Kegworth depends on the dualling of the M1-Clifton section of the A453 as the recommended new minor road links require the acquisition of land as part of the dualling scheme.

10.8 PHASING OF DEMAND MANAGEMENT AND TRAVEL BEHAVIOUR SCHEMES

10.8.1 Measures to reduce the growth of private road traffic are the key complementary elements of the Strategy for a balanced future transport system for the A453 corridor. They have to be introduced gradually in order to give people time to adjust and the more direct measures such as workplace parking levy and public parking policies must follow the improvements in public transport in the Transport Plan.

10.8.2 The Greater Nottingham Local Transport Plan has already taken on this major issue with policies for parking controls and charges, together with City Centre Clearzone and NET Line One. The phasing programme allows the whole of the Study period for the policies to reach maturity.

10.8.3 We commend the developing initiatives being promoted by the City Council to use publicity, education, information and organisation techniques to influence travel behaviour and reduce dependence upon the private car where its use is not essential. We recommend continuation of these efforts with particular emphasis on workplace and school travel plans, and the consultancy services established in co-operation of such bodies as the Chamber of Commerce

10.8.4 Reduction of public transport fares should be implemented as early as practicable but should be co-ordinated with the improved services and quality initiatives.

10.8.5 Development Planning and Control can make a real contribution to limiting the growth in travel and significantly influence choice of mode. We commend strongly the planning and control of development as a continuous process to achieve sustainability.

10.9 PHASING OF FREIGHT SCHEMES

10.9.1 As the future progress of railfreight is an issue largely beyond the control of this Study any recommendations for scheme programme are tentative at least. As terminals are fairly major infrastructure developments requiring planning permission and possibly significant access road construction they have been placed in the later half of the period. However, locations should be considered for protection against conflicting development within early reviews of the Local Development Plan.

10.10 PROCEDURES FOR IMPLEMENTATION

10.10.1 During our studies we have become increasingly aware of the influence on any programme of implementation due to the large number of Provider Agencies whose efforts need to be combined to achieve a multimode transport plan.

10.10.2 In Section 9 we identified the most likely main providers for each scheme. These are shown in Table 9.1. The list is far from complete, but does illustrate the complexity of the issue.

10.10.3 In addition to this, the assessment procedures and criteria by which funding is granted by government directly or indirectly for heavy rail, light rail and bus schemes, roads and traffic management, and, pedestrian/cycle schemes are quite different. Different procedures and criteria can also apply for road schemes depending on whether the scheme is promoted as a trunk road by the Highways Agency or as a local authority road.

10.10.4 An important issue emerging during the Study for highway schemes is the difference in the assessment criteria in Multi Modal Study Appraisals and those required for justification of individual highway schemes especially trunk roads throughout their preparation. Highway schemes have to undergo stringent cost/benefit tests on all parts of the design without taking into account the Multi Modal objectives. The difference is evident particularly when comparing Local Transport Plans with National Trunk Road schemes and the effects are felt mainly where the two overlap. Whilst this is mostly in the more urban part of the A453 corridor the Transport Plan continues the theme of mode transfer into the rural section.

10.10.5 All the providers are well skilled in the application of procedures relating to their schemes, but the differences between the approaches results in disparities of timescale and funds available to each provider.

10.10.6 Resolution of these issues is beyond the scope of this local MMS, but we schedule below suggestions for government to consider in order to rationalise and speed up implementation.

i) Implementation Group
We commend the concept of an Implementation Group representing all agencies whose actions are needed to implement a multimode transport plan. This body would co-ordinate implementation identifying and overcoming obstacles in advance of delay.

ii) Plan Led Procedures
We recommend further consideration of a plan led approach in which a total plan/strategy would be incorporated into the strategic planning process e.g. a Regional or County Structure Plan. The need for and scale of facilities and policies would be considered at this level. Local and Scheme Order procedures would focus on details of implementation.

iii) Statutory Procedures
We commend the rationalisation of the Statutory Procedures required to implement different types of transport scheme. Currently different procedures are required for road and rail schemes, and even between trunk road and local authority promoted schemes.

iv) Assessment and Funding Criteria
Different provider agencies frequently have to apply assessment and funding criteria particular to their sector. This can mean that schemes which are viable within an MMS assessment can appear not to be so when re-assessed under different, largely funding related, criteria imposed upon particular agencies.

v) Competition Act and Public Transport Co-Ordination
Current rules under the Competition Act inhibit integration of public transport networks and services, particularly integrated fares and ticketing. Recent reviews of the situation are laudable, but the Act remains unduly restrictive.

vi) Ring Fencing of Special Revenues
We commend the approach of 'ring fencing' for investment in public transport, walk and cycle facilities revenues from road user charging in its various forms including the Workplace Parking Levy.

In evolving new or modified procedures a careful balance must be struck between expediency, democracy and protection of the individual. For this reason we have not assumed any significant change to the 'status quo' in identifying the programme.

10.11 SENSITIVITY ANALYSIS

10.11.1 Section 2.3.7 described three sensitivity tests to examine the implications of different development assumptions on the robustness of the transport strategy. The tests carried out are summarised as follows:-

a) Double patronage at East Midlands Airport (to 8mppa)

b) Transport Strategy viability with Reduced growth in Rushcliffe
Rushcliffe population at 2011 level (-10,600 = - 4000hh)
Reduce Edwalton (-1125 hh) Newton (-1500 hh)
Distribute remaining reduction in Rushcliffe.

c) Implications of Concentrated Housing Development
Add Clifton Pastures (2000hh)
Maximise Edwalton (2250hh)
Distribute balance in Rushcliffe

All the tests have been carried out for the 2021 assessment year.

a) East Midlands Airport Sensitivity Test

10.11.2 The Transport Model has been utilised to predict the implications on the Study area of doubling the number of passengers using East Midlands Airport (EMA) in the design year of 2021. The Preferred Option D assignments have assumed 4 million passengers per annum using EMA. The sensitivity test has examined the implications of 8 million passengers per annum using EMA.

10.11.3 The assessment has demonstrated that there would be an increase of around 12% on all the approaches to Junction 23a roundabout. Beyond this junction the impact on the M1 South and A42 are not significant. There would be an increase of around 9% on the A453 northbound approach to M1 Junction 24 for traffic departing EMA, less significant increases are evident on the remaining approaches due to the even distribution of this generated traffic.

10.11.4 The sensitivity test has demonstrated that the impact of doubling the numbers of passengers per annum is relatively localised to Junction 23a and Junction 24 of the M1. However, the impact would result in the earlier implementation of the highway improvements proposed at these junctions.

b) Strategy Viability with Reduced Growth in Rushcliffe

10.11.5 A sensitivity test has been carried out using the Transport Model to assess the implications of reduced growth in Rushcliffe. The population of Rushcliffe has been held at the 2011 level with a proportion of the reduction applied to the development sites at Edwalton and Newton, the remainder distributed throughout Rushcliffe.

10.11.6 The test was carried out using the Transport Model and has demonstrated that there would be a minor reduction in the demand for travel throughout the Study area, however the reductions are small and would not result in any changes to the Preferred Strategy.

c) Implications of Concentrated Housing Development

10.11.7 A sensitivity test has been carried out to assess the implications of concentrated housing development in Rushcliffe on the Preferred Option D. The development at Clifton Pastures was added, the Edwalton site maximised and the implications tested using the Transport Model.

10.11.8 The results of the test demonstrated that the development of Clifton Pastures would have a significant impact on the A453 corridor with additional traffic on the A453 from Crusader roundabout to Silverdale ranging from 3% to 8%. Maximising the Edwalton development would result in increased congestion at the A52/A606 roundabout. The impact beyond this junction is not significant.

10.11.9 Although there are significant increases in forecast traffic flows brought about by the test assumptions, it is considered that the opportunity would exist through the planning process to provide innovative initiatives to reduce the reliance on the private car should these developments be taken forward.

10.11.10 The impact of this concentrated housing development test would necessitate the earlier implementation of the highway improvements proposed for the A453 through Clifton.

Table 10.1 Possible programme of implementation 1st year of operation shown : ▭ ongoing: ▭

Ref. No	SCHEME	2003 - 6	2007-2011	2012 - 2016	2017 - 2021
B1	East Midlands Parkway Station				
B2a	Replacement Rolling Stock Midland Mainline				
B2b	Replacement Rolling Stock Central Trains				
B3	Trent PSB (Parkway-Nottingham) signals and track impts.				
B3	Trent PSB (Attenborough South) Flyovers				
B5	Car parking at local stations				
B6	Nottingham – Parkway train service				
B7	Local Park & Ride facility at EM Parkway Station				
B8	Nottingham-Derby improved train service				
B9/11	Station upgrades to modern standards + Real Time information				
B14	Multi Mode smartcard ticketing -all public transport modes				
B13,15	Nottingham Station Masterplan redevelopmt with extra platform				
B17	Gedling Station & Park & Ride service				
C2	NET extension to Clifton				
C3	NET/bus/rail interchanges				
C4	NET extension to Beeston				
C13	Clifton South Park and Ride				
C17	NET extension Beeston to A52 Bramcote rdbt				
D2	Bus lanes A453 Farnborough Road to Silverdale Flyover				
D4	M1 Junction 24 bus priority				
D5	Clifton local bus service improvements				
D8	Bus Real Time information				
D10c	Bus service to Clifton Village				
D12	Bus marketing (costed as part of K2/4/6)				
D14	Renewal of bus fleet				
D15, 16,17	A453 express bus services Kegworth - Nottingham				
D11, 18	Bus/NET/Rail integration of services				
D20a	City bound Bus lane Clifton Lane (Gotham road) to Crusader Rdbt.				
D21	Local parking at major bus stops, Kegworth, Power Stn.				
D23	New generation bus stops Kegworth, Power Stn., Clifton				
E2	M1 – Clifton dual carriageway scheme				
E13	M1 junction major improvement with A50 – M1 flyover				
E14	M1 junction minor improvement (safety & capacity)				
E24	A453Clifton single 4 lane improvement				
E28	A453 Barton lane Safety improvement				
E29	A453 Crusader Roundabout traffic signals				
E30	A453/Farnborough Road southbound flare extension				
F5	Extension of Urban Traffic Control to A453 Crusader roundabout				
F13	30 mph speed limit on A453 through Clifton				
G	Cycling schemes: Separate network of tracks, signing, safety schemes, cycle parks, re- surfacing of tracks.				
H	Pedestrian schemes: Segregation, Security : CCTV, priority, traffic calming, more crossings, safer school routes				
J5	Rail heads and sidings for road/rail transfer.				
I2	Workplace parking levy				
I3	HGV bans on unsuitable roads				
I4	Further parking controls	▭	▭	▭	▭
I5	Further parking charges	▭	▭	▭	▭
I8	Extension of Nottingham City centre Clearzone				
I9	Planning controls to encourage public transport & walking/cycling	▭	▭	▭	
K2	Travel Education				
K4	Green commuter plans	▭	▭	▭	
K6	Information				
K8	Reduce public transport fares				