Chapter 11: Efficient Maintenance

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This chapter sets out the Greater Nottingham strategy with respect to demonstrating efficiencies in Highway Maintenance investment and the relationship with the Transport Asset Management Plan requirements. It highlights the general issues concerning highway maintenance and looks at how maintenance resources are prioritised to maximise benefits in pursuit of performance indicator targets.

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11.1 Background

The highway network is a key community asset, supporting the national and local economy and contributing to the character and environment of the areas it serves. Roads are part of everyday life for all sections of the community whether as users or receivers of products and services.

The local road network is central to the integrated movement strategies for the conurbation, contributing to the delivery of wider economic, social and environmental objectives and its effective management and maintenance has the potential to benefit regeneration, social inclusion and community safety programmes and strategies. The length of the Plan area network is set out in Table 11.1.

Table 11.1: Plan Area Network Details

Classification of Road	Carriageway (km)
A	214
B	85
C	333
Unclassified	1,625
Total	2,257

The purpose of the highway maintenance strategy is to identify key objectives and establish a framework to promote an effective maintenance regime which will contribute towards the delivery of local and national transport objectives and performance targets and guarantee value for money and investment efficiency.

Maintaining the structural integrity of the highway network is at the core of delivering the Plan objectives, underpinning many elements of the overall transport strategy including improvements to bus services and facilitating walking and cycling trips.

11.2 Highway Maintenance Objectives

The main objective of the authorities is to manage the highway network in order to provide safe, efficient and effective movement of people and goods whilst preserving and enhancing the environment. Highway maintenance will be undertaken by means of a systematic logical approach based upon a strategy developed in accordance with the principles of Best Value. The key objectives of the highway maintenance strategy are summarised below:

- Deliver the statutory obligations of the authorities,
- Be responsive to the needs of users and the community,
- Safeguard and protect the safe, effective and efficient operation of the highway network for all users through comprehensive monitoring and maintenance,
- Provide a framework to prioritise, integrate and direct capital and revenue investment to maximise investment efficiency and meet Best Value Performance Indicators (BVPIs),

- To provide effective management of the highway network asset and ensure effective allocation of resources,
- Facilitate the delivery of key LTP objectives and outcomes,
- Support the highway network management strategy and integrated transport objectives,
- Contribute to the reduction in road accidents/casualties as part of the authorities' overall strategies for casualty reduction,
- Provide clear statements of highway maintenance policies, standards and procedures and review on a regular basis,
- To support and add value where possible to wider policy objectives, and
- Minimise construction disruption through integrating multi-objective transport scheme implementation and co-ordination with other street-works.

These principles are incorporated into a network management regime with the following core objectives:

1. Network Safety
- Complying with statutory obligations
- Meeting users' needs

2. Network Serviceability
- Ensuring availability
- Achieving integrity
- Maintaining reliability
- Enhancing quality

3. Network Sustainability
- Minimising cost over time
- Maximising value to the community
- Maximising environmental contribution

Most journeys, at some stage, require access to the highway network, whether by foot, by cycle or other motorised modes of transport. Well maintained transport assets have a key role to play in delivering transport targets across the whole range of LTP strategy measures.

Central to the maintenance strategy is a comprehensive approach to surveys and monitoring to establish a base-line pavement condition reference against which progress towards targets can be measured, and to identify and prioritise a programme of measures which provide an optimum future condition of the network, balanced against likely available resources to ensure the achievement of meeting those targets. The extent and scope of surveys will enable longer term planning of investment across the Plan area network from both capital and revenue sources, permitting key maintenance schemes to be rationalised and prioritised to co-ordinate with LTP Integrated Transport Measures (ITM) and deliver improved value for money and BVPIs. The strategy will be core to the Transport Asset Management Plan (TAMP).

11.3 Maintenance Allocation Criteria

The principal, over-arching criterion for the allocation of maintenance resources will be based on an assessment of need through a variety of pavements condition surveys which are described later in this chapter. The indicators relate to principal road condition (BVPI 223), non-principal classified road condition (BVPI 224a), unclassified road condition (BVPI 224b) and footway condition (BVPI 187). These surveys enable a first order programme to be established. The schemes identified will then be prioritised and appropriate resources allocated based upon an additional sub-level range of criteria. These are described below.

Strategic Importance of Route – the Principal Road network including the A60, A6514 (now de-trunked), A606 and A6011 Primary Routes within the Plan area provide the key network supporting strategic transport movements. However, many B and C category roads provide routes of more than local importance, carrying high volumes of traffic, and resources are allocated accordingly. Key indicators are route function/hierarchy, traffic flow, percentage Heavy Goods Vehicles, and links with regional/national/international networks.

Within the first Plan period, an example of this was the treatment of Trent Bridge/London Road in 2005/6. This is a route of strategic importance connecting the large residential areas of West Bridgford and Gamston to the south of the River Trent with the City Centre and routes beyond, via Trent Bridge and the A60 London Road Primary Route. This principle extends into the second Plan period with resources being allocated to over 15 routes on the Principal Road network spread over the five-year programme.

Bus Frequency – the bus strategy is central to delivering key LTP objectives. Many radial routes have services providing frequencies in excess of 30 buses per hour. Smooth, high quality running surfaces offering enhanced comfort and journey ambience are essential to promoting buses as an attractive alternative to the car, and resources will be allocated to reflect this objective. It will be important, however, to ensure that the treatment is introduced in a way to minimise disruption to bus services as far as is practicable. Key indicators are bus frequencies/ headways and total passengers carried.

Accessibility – a key objective of the LTP is to make areas of employment, education, health, shopping, town centres and leisure and recreational facilities accessible to all. To facilitate this, it is essential that pedestrian and cycle links to public transport facilities and services from residential areas and centres of attraction are well maintained and have adequate lighting to ensure safety and improve actual and perceived levels of personal security.

The City has invested heavily within the first Plan period in the upgrading of footways in residential areas to assist pedestrian movements and enhance accessibility to the public transport network. Treating residential footways is considered important as they are of high priority to residents, and resources are allocated accordingly.

Relation to Other Strategies – in prioritising route maintenance, the relation to other key strategies will be taken into consideration. These include the Bus Quality Partnership and the School Travel Plans strategies.

Relation to Other Schemes – it is essential to co-ordinate the implementation of transport schemes with maintenance measures to ensure that the complementary benefits are captured and to reduce disruption effects. In this latter respect, it will also be important to co-ordinate local and trunk road maintenance with the Highways Agency at locations where these networks interface. Opportunities will also be explored of ways to work with the Highways Agency to ensure effective integration of these schemes.

This was put into practice as part of the Beechdale Road highway maintenance and road safety schemes. With a combined allocation of £1.5 million the two schemes were constructed as one integrated project minimising construction disruption and introducing economies of scale. Future maintenance of the Ring Road is being co-ordinated with the development of the Ring Road Major scheme.

Opportunities to Reallocate Roadspace – if a route is identified for maintenance treatment, that does not automatically mean a like-for-like replacement. Opportunities will be explored for the reallocation of roadspace if appropriate. Examples of this could be the replacement of a general traffic running lane with a bus lane or cycle lane, or the widening of footways to improve walking conditions for pedestrians and/or facilities for cyclists. This is consistent with the LTP's general approach to demand management.

In the first Plan period three key maintenance schemes were implemented, Hucknall Road, Carlton Road and Radcliffe Road. All schemes included for reallocation of roadspace to non-car use with widened footways and dedicated cycle lanes in the first scheme and bus lanes in the latter schemes. Further opportunities will be explored in LTP2.

Development Sites – opportunities will be explored through agreements with developers to provide financial contributions towards infrastructure improvements to serve new developments, including, where appropriate, resources to improve pavement conditions and street lighting to facilitate local access especially for pedestrians, cyclists and public transport.

Recent examples of this are the Section 106 agreements for the Glasshouse Student Village which provides for local footway and carriageway upgrades and the Trinity Square redevelopment which provided significant improvements to footways and the public realm, integrating with the City Centre Major Scheme, the Turning Point.

Opportunities to Pool Resources – the strategy will seek to achieve better value for money through economies of scale brought about through pooling of resources of the two authorities (and where appropriate the Highways Agency) and implementing cross-boundary maintenance schemes under a single contract. This principle will also extend to LTP ITM schemes at cross-boundary locations.

An example of pooled resources and procurement under a single contract is Mansfield Road, a cross-boundary scheme. Similarly winter maintenance material is jointly purchased to achieve economies of scale.

The maintenance allocation criteria area will be informed by the TAMPs and interim TAMP reports are included in sections 11.7 and 11.8. The TAMPs will review the condition of all the highway assets, as well as define desired levels of service and the corporate risks and

intervention levels. Once these have been established, an integrated renewal and maintenance programmes will be developed for all Plan area transport assets.

11.4 Surveys and Monitoring

Condition surveys are primarily intended to identify deficiencies in the highway fabric which, if left untreated, are likely to adversely affect network serviceability and value.

The surveys are procured in order to efficiently prioritise planned maintenance programmes, as well as obtain information on the nature and severity of the deterioration of the network to assist in determining the most appropriate treatment.

At present the following surveys are procured:

- Visual Inspection surveys – usually Detailed (walked), but may be Coarse (from a vehicle) – on all footways (BVPI 187) and all unclassified carriageways (BVPI 224b), and
- SCANNER (TRACS Type) surveys – machine based – undertaken on principal carriageways in 2004/5 (BVPI 223) to be extended to cover non-principal classified carriageways (BVPI 224a).

Prior to 2004, deflectograph surveys were carried out on the Principal Road Network that enabled identification and prioritisation of major works required on them as well as producing BVPI 223.

Sideways-force Coefficient Routine Investigation Machines (SCRIM) identify lengths of road where skid resistance is below investigatory levels which correlate to an increased risk of wet skidding. It is intended to initiate a 3-year rolling programme of SCRIM surveys covering the whole of the Principal Road Network.

Pavement condition survey results for City and County roads within the Plan area are reported separately in Chapter 13: Targets and Monitoring.

Whilst significant work will still be undertaken on the Principal Road Network, investment will also be concentrated on reducing the backlog on the non-principal network, which still requires significant investment over several years, in both the rural and urban networks in the Plan area.

In addition to the structural surveys and monitoring undertaken, questionnaires were sent out to 10,000 households in late 2005 within the City to gauge public opinion on the condition of roads and footways, and factor this into the prioritisation process for investment.

11.5 Bridges and Highway Structures

Bridges form an integral and often critical part of the highway network and it is essential that adequate funds are available for managing, and maintaining these vital assets. Details of the bridge stock and number that require strengthening have been reported in the APR each year.

Policies and strategies exist to carry out general inspections, principal inspections and strength

assessments for all bridges and culverts on the highway network, to carry out appropriate maintenance, refurbishment and strengthening work and to ensure that the bridge stock is maintained in a proper state to safely carry traffic loads.

General inspections take place every two years and capital funded principal inspections take place at frequencies not exceeding 10 years (except for significant structures which are inspected every five years). Underwater inspections are carried out at intervals not exceeding three years. Local performance indicators have been developed to measure our performance in relation to bridge inspections.

In the past funds have been prioritised towards bridge strengthening works. Priority for expenditure has been based on a hierarchy of road classification and an ad hoc consideration of the importance of each structure to the local economy. It has been accepted that not all structures need to carry 40/44 Tonne vehicles and that in certain locations weight restrictions are acceptable.

Further work is still required on the identification and assessment of retaining walls. Determination of ownership of walls can be a long and costly process. In addition there are a number of vaults, cellars and caves beneath the highways within the City Centre which are poorly documented.

In order to improve the effective management of the Highway Authority owned bridges, the Bridge Condition Indicator (BCI) has been used for all general bridge inspections since 2003. For Nottingham City the bridge stock condition score when weighted by deck area has been found to be 79. This would indicate that the stock is classified as being in poor condition.

For Nottinghamshire County Council, the bridge stock condition scores for 2005 have been calculated to be 77.4 for critical elements and 87.2 for overall bridge stock. These scores indicate poor condition for critical elements and fair condition for the overall bridge stock. The scores for the whole of the Plan area may reflect that historically maintenance work has been underfunded.

In addition progress is being made towards the adoption of the other proposed performance indicators in accordance with the trial application document “Guidance Document for Performance Measurement of Highway Structures” prepared by Atkins.

Initial indications for the whole Plan area is that bridges represent only a minor restriction on the highway network with the stock availability score between 95 and 100 indicating Very Good Availability.

The reliability performance measure has highlighted the importance of comprehensive and reliable assessment data and that ongoing funds will be required to review assessments. In a number of cases assessment of service bay has not been carried out, or the only available information has been to base the assessment on a load comparison. For these structures the reliability score is significantly lower than for bridges where a comprehensive assessment has been carried out. For the City Council it would appear that there are a number of structures with ‘Poor’ reliability, but work to assess the reliability of the entire bridge stock is still ongoing.

Targets regarding the availability and reliability of the bridge stock can not be set until the end of the trial working period of these performance indicators, while identification of the outstanding workbank in accordance with Part C of the Atkins document has commenced.

In the past funds have been prioritised towards essential bridge strengthening works. As the number of weak bridges requiring strengthening on the network declines the emphasis will move towards structural maintenance. Within the County area of the Plan, parapet replacement, protection and improvement work and bridge deck waterproofing and re-waterproofing is in progress following assessments. Parapet improvement works on bridges in the City and on C and U/C roads is still to be identified and will be part of the work undertaken as part of the development of the TAMP.

Following the Selby rail crash, all relevant bridges have been assessed using the Network Rail Protocol. Working in partnership with Network Rail, works have been carried out on 13 of the 15 bridges scoring greater than 90, to reduce the incursion risk. There are two outstanding bridges scoring greater than 90 where there are physical constraints to providing protection on the highway and these are with Network Rail for decision on possible protection measures on their land.

In order to improve the decision making process regarding the effective expenditure of maintenance money available, and to assist in their effective management, bridges will be included within the TAMP currently being developed.

11.6 Lighting

The authorities are responsible for approximately 75,000 streetlights throughout the Plan area which provide benefits in terms of:

- Reduced numbers and severity of road casualties,
- Reduced levels of crime and the perceived fear of crime,
- Creating a friendlier night time environment that encourages walking and cycling, with an enhanced perception of community safety,
- Improving accessibility for socially excluded groups, particularly for women, children and the elderly, and
- Stimulating the night time economy – letting a town or City continue to thrive after dark.

Well designed and maintained street lighting, can therefore play an important part in encouraging the use of public transport, cycling and walking and regeneration initiatives. The age and condition of the existing lighting stock is a cause for concern however, and at the beginning of 2005 there were approximately 4,000 'poor condition' lighting columns in the County area of the Plan, with a very large backlog of 'average' condition columns.

Similarly, a condition survey of the City Council's street lighting has indicated that there are approximately 5,500 concrete columns and 1,600 cast iron columns which are 30 or more years old. Although not dangerous, these columns will require replacing as soon as possible. Of the steel columns there are 8,500 non-galvanised columns in the 20 to 30 year age range which can be classified as being in 'average' condition. In recent years an enhanced specification

with thicker steel and superior protection have been installed which will have a life expectancy greater than 40 years.

The authorities have therefore set aside £4 million of non-LTP capital funds to begin to remove the backlog of below standard columns. A prioritised replacement programme of the below standard columns will take place during the period 2005-2009.

Both authorities have submitted an Expression of Interest for the next tranche of Public Finance Initiative (PFI) funding to procure extra resources for street lighting schemes. The City Council has also appointed consultants to undertake an Option Study for the improvement of its street lighting services, while the County Council made an unsuccessful PFI bid in 2003.

External funding of £3 million for street lighting upgrades particularly in relation to matched funding for fear of crime schemes has been attracted since 2001 within the Plan area by the City, County and their District Council partners.

The authorities continue to improve the lighting outage rate and are introducing BVPI 215a and BVPI 215b, the new national performance indicators for average outage times. Current targets are less than 7 days for the authorities' faults and less than 15 days Distribution Network Operator (DNO) faults.

Throughout the Plan period the authorities intend to:

- Negotiate and implement a Service Level Agreement with Central Networks for street lighting connections and disconnections using the national Service Level Agreement as a framework,
- Identify safety critical street lighting both in terms of road and community safety – in order to introduce an enhanced maintenance regime,
- Update the authorities' Street Lighting Guidance and produce new code of practice in light of 'Well-Lit Highways Code of Practice for Highway Lighting Management' which was published in November 2004,
- Re-tender the energy supply contract using an electronic auction, when full consideration will be given to the use of green energy, and
- Promote use of lower energy white light sources in new lighting schemes, and
- Develop a long term strategy for the replacement of the street lighting stock.

Street lighting is included within the authorities' TAMPs. At present the authorities use 'SLIMS' as the street lighting inventory database, however, a highways asset management system is currently being procured. Among the options is the replacement of SLIMS within an integrated asset management system. Data from the street lighting module within in the asset management system will feed into the TAMP.

11.7 Transport Asset Management Plan Interim Report – Nottingham City Council

Background

The City Council has continued to make progress in developing its Transport Asset Management Plan (TAMP) with the assistance of OPUS International Consultants.

Guidance on the structure and content of the TAMP is taken from the County Surveyors Society's 'Framework for Highway Asset Management', the 'Guidance Document for Highway Infrastructure Asset Valuation' and the recently-published Highway Lighting, Maintenance and Structures Codes of Practice.

Dedicated resources, in the form of a working group led by a Project Manager, have been allocated to produce the Plan using the above guidance included in workshops facilitated by OPUS, together with knowledge gained and shared by other service providers.

Objectives

The objectives in producing an Asset Management Plan (AMP) for the City's highway network are:

- To identify the key highway assets to be included in the Plan,
- Review current practice,
- To ensure these assets meet current and future requirements for AMPs,
- To build an inventory of items that comprise the asset,
- To identify the current condition of these items, taking into account whole-life cycle parameters as well as maintenance of the data itself,
- To identify the levels of service appropriate to the key assets,
- To determine the valuation of the asset and ensure processes are in place for updating this whenever required,
- To ensure risk management is considered,
- To develop improvement action plans.

Progress to Date

Following the agreement of the structure of the draft AMP, the production of the document has been assisted through the use of group workshops that have:

- Reviewed the quantity and quality of existing data, thus promoting implementation of a strategy to collect up-to-date and reliable information,
- Discussed service options, levels of service and performance indicators as a basis for producing performance reports on services provided,
- Been introduced to the principals of lifecycle planning and Whole-Life Costing to facilitate production of lifecycle plans for each element of the highway network (carriageways, footways, structures etc.),

- Been outlined the ideals of effective risk management and how to categorise, assess, compare and contrast risks,
- Recognised the need for sound business processes to be in place, as well as learning how to develop and evaluate them,
- Been introduced to the concept of long-term programming to aid understanding of the process of developing long-term plans and projections,
- Been shown the relationship between asset management and valuation to enable greater understanding of the need for data for valuation purposes and the methods of producing valuations.

The data required to fully support the AMP is identified in the appendices to it. An investigation into the level and condition of data currently held has been undertaken, with gaps identified. Priority is to be given to developing a strategy for the collection / replacement of missing / unreliable data which will include identifying criticality and 'owners' i.e. those responsible for producing and using it.

Lifecycle plans have been developed for individual highway assets – carriageways, footways, public rights of way, structures, trees, street lighting and road safety cameras. These plans identify not only the cost but also the anticipated life of treatment options as well as detail the procedure used to assess the relative cost-effectiveness of different treatment strategies. By developing a long-term strategy, options will allow for consideration of not only the most cost-effective treatment at a single point in time, but also the timeliest intervention. Resources will be directed towards identifying preventive maintenance interventions, i.e. treatments that have minimal whole-life cost, but at the same time will halt the deterioration of the asset's condition.

Whole-life Costing

Whole-life costing is a key influence in the development of lifecycle plans. As these plans are progressed, a full financial assessment of each asset will be undertaken, along with detailed studies on the long-term implications of creating new assets.

The impact of new transport schemes on whole-life costing has been taken into consideration before submission with the LTP and included in the TAMP.

Valuation of Assets

Although estimated valuations have been produced on the individual assets, giving a total of approximately £800m, an accurate valuation of the whole asset, using the guidance document published in 2005, will possibly confirm the highway network as being the City Council's most valuable asset.

Service Level Agreements

Levels of service have been drafted for agreement by the group and subsequent offer to stakeholders:

- The Highways Division in the City Development Department has a formal arrangement with the Street Scene Division of the Neighbourhood Services Department to manage unplanned

incidents on the highway and the maintenance of verges, trees, weed killing etc. A further agreement has been reached with Nottingham City Homes for the inspection of and carrying out repairs to the network of footpaths, car parking areas etc. in their ownership.

- It is anticipated that performance measures will be developed to support the management and delivery of these services, the aim being to expand benchmarking our performance with our "family" unitary authorities, within the Association for Public Service Excellence being an example.

Risk Management Procedures

The process for reviewing existing Risk Management Procedures has been outlined. Although some initial work has been carried out to identify issues which can adversely effect service delivery such as overall safety (for both users of and workers on the highway), the weather and other, physical, risks, economic and legislative constraints and finite resources, a detailed review is still to be undertaken. Risks already identified will be thoroughly analysed to determine the likelihood of occurrence and level of impact possible, which will in turn facilitate development of a risk reduction strategy.

Integrated Forward Programme

Development of an Integrated Forward Programme will cover all highway assets and ensure linkages with the objectives identified in the AMP, as well as ensuring the proposals are appropriate to the existing conditions. The programme will aim to look as far ahead as possible to allow identification of whole-life options and will build in works required from other funding streams.

The processes involved in developing the asset management plan will identify key areas where improvement can be made and will feed into the production of the Improvement Action Plan, with the aim of not only identifying specific actions required, but also linking those actions to the services which will benefit to ensure the focus is on improvement.

The TAMP is being developed to reflect local conditions and influences and will include an integrated renewal and maintenance programme. The aim is for the plan to be completed and adopted by the City Council in time for the Capital Bidding Process in August 2006.

Influence of LTP Proposals on Bringing Forward or Delaying Schemes

Establishment of the current and desired levels of service identified in the TAMP will include identification of associated corporate risks. Following this, the integrated forward work programme will be developed and long-term maintenance plans will take into account timing of the intervention (e.g. preventative rather than reactive).

Such a programme will also allow for better co-ordination of and integration with new-build and other transport schemes. When programmes have been developed for all the assets, it will be possible to identify potential conflicts much earlier and enable joint schemes to be progressed wherever possible, thereby reducing disruption as well as costs.

Customer Contact

The City Council is using a highway customer service module from an asset management system which logs enquiries/reports/complaints, generates unplanned inspections and creates work orders where there is a need for the repair of defects; speed of responses and repairs are also monitored.

Ambition

The City Council is committed to adopting an Asset Management approach. The Plan will:

- Facilitate competition against other demands for funding on a 'level playing field',
- Introduce the principle of whole-life costing to schemes, whether new-build or maintenance, and
- Clearly set out the financial requirements of the network to assist in achieving full spend of revenue and capital allocations without overspending.

It is not the production of the AMP, but taking on board the processes outlined in it, which will produce benefits to the users of the highway network in Nottingham. The Portfolio Holder for Transport and Street Services has been involved in the production of the AMP from the start of the process and the commitment is outlined in the document.

11.8 Transport Asset Management Plan Interim Report – Nottinghamshire County Council

Although the County Council already undertakes many of the practices outlined by guidance regarding the management of the highway asset, it is currently working to develop a TAMP for the County's network. The first edition of the TAMP is to be produced and available by March 2006.

A consultant (OPUS) was employed to advise the authority on both its current position and on the way forward. They deemed that the County Council were in a similar position to a lot of authorities and considered that the development of a full TAMP was an advisable step to improve management of the highway asset. Consequently an Asset Management Project Board consisting of managers and team leaders of the service areas within the County Council, involved in all aspects of managing the highway network has been established to drive the process forward.

The County Council is a member of the Midlands Service Improvement Group (MSIG), which consists of 13 authorities. Membership will help the County Councils to avoid set backs that other authorities have suffered, share best practice, develop common understanding, aid cross-boundary working (to offer value for money, such as reciprocal routine maintenance arrangements) and to benchmark practice and results within the group. The partnership also allows neighbouring authorities to adopt similar standards and principles to offer a seamless

cross-boundary service.

The MSIG employed OPUS consultants to develop an enhanced generic framework for a TAMP. The generic plan is complete and currently being populated by individual authorities to suit local conditions. In addition the structure and content of the TAMP is also being guided by the County Surveyors Society Framework for Highways Asset Management, as well as learning from experience gained by other highway authorities.

A website has been set up which the members of the MSIG are able to access to enable them to share information more easily on issues such as benchmarking and lifecycle planning. Individual authorities have selected lifecycle plans to complete and publish on the MSIG website. The assets have been allocated into specific groups (for example, carriageway, footway, street furniture, verges, traffic signals etc.), enabling knowledge and best practice to be shared and also agreed methods of collection to be devised. It also assists in drawing comparisons between authorities.

Objectives

The main objectives in producing a TAMP for the County's highway network are:

- **To review current practice**. This work was started as part of the preliminary asset management plan which is detailed later and will be completed in the TAMP.
- **To review existing inventory provision**, identify gaps and prioritise a data collection programme to build an inventory of items that comprise the highway assets, and ensure maintenance of the data itself. Strategies have been developed to make improvements in data management and use, as these will be required to support a greater use of asset management. These strategies cover the collection/replacement of missing/unreliable data and work is underway to collect/replace this data.
- **To identify the current condition of the assets**, taking into consideration life cycle planning and whole life costing. As part of the TAMP, work on life cycle plans is being completed for individual highway assets, for example carriageways, footways, bridges, street lighting, signals, signs and lines. The work underway on the development of life cycle plans is to make sure that the best possible value for money is achieved. Whilst this is not a new concept to the Council as it has been used for a long time to make decisions on measures such as carriageway surfacing, this principal is now being used for all assets in a more Formally recorded manner.

  Each life cycle plan will document current practice, identify standards and levels of service, thus enabling performance gaps to be identified. In addition each life cycle plan will identify the cost and the anticipated life of treatment options, as well as detailing the methods used to assess the relative cost effectiveness of different treatment strategies. By developing a long-term strategy, options will allow for consideration of not only the most cost effective treatment at a single point in time but also the timeliest intervention. Resources will be directed towards identifying preventative maintenance treatments that have minimal whole life cost but at the same time halt the deterioration of the asset's condition.

  Whole life costing will be developed for each of the highway assets as part of the

development of life cycle plans. There is a strong move now towards whole life costing techniques and whilst this is not as easily applied to highways as other assets there is a need to establish what the valuation of the asset is to evaluate how much it will cost to replace using asset valuation guidance and timings. For different types of construction techniques, the authority can then determine whether it makes financial sense to invest more at the outset to save funding in the longer term and manage the asset with regards to best value and customer expectation. A TAMP will enable us to do this. The Prudential Code introduced by Government also requires local authorities to have explicit regard to asset management planning when making capital improvement decisions.

- **To determine an accurate valuation of the whole asset** and ensure processes are in place for updating this whenever required.
- **To develop an integrated forward work programme** to cover all assets, ensuring they support main objectives as well as ensuring any proposals are appropriate to the existing conditions. The TAMP will define current and desired levels of service and the corporate risks associated with these. Once these have been established, an integrated renewal and maintenance programme can be developed.

  Long term planning for maintenance will facilitate the analysis of the timing of maintenance interventions and the programming of preventive maintenance treatment thus leading to better whole life cost solutions. An integrated forward work programme will also facilitate the co-ordination of planned maintenance schemes with major and other integrated transport schemes, and potentially improve co-ordination with utility works, as required by the Transport Management Act. Once long term programmes have been developed for all assets (as a result of the development of lifecycle plans for each asset) and for each service area (as an output from other LTP strategy development) it will be possible to identify conflicts and the possibility for developing hybrid schemes (i.e. schemes that meet two purposes concurrently).
- **To identify the levels of service** appropriate to the key assets and develop future levels of service, as required to ensure these assets meet current and future requirements for TAMP and to put in place performance measures.

  Levels of service have been agreed and performance measures will be developed to support the management and delivery of these services. Monitoring and measuring of performance across all categories of work is becoming increasingly important particularly national Best Value Performance Indicators, which in turn are linked to the Corporate Performance Assessment of the Authority. It is important there are good record data systems in place which can be monitored and provide input into Performance Indicators.

  An asset management system facilitates this to a great extent across the whole spectrum of highway infrastructure. With the development of a local performance management framework, additional indicators will come into play which will require a suitable asset database to be in place so that appropriate performance reports can be produced. It is planned to benchmark our performance with other similar authorities through the MSIG. Currently this would be achieved using national indicators but it is intended that they will be supported by local indicators that are currently being developed. It is envisaged that performance measures will be strategic, tactical or operational:

  - Strategic indicators to be primarily used to report on performance to external stakeholders e.g. Best Value Performance Indicators,

  - Tactical indicators to be used as an ongoing management tool and used in resource allocation decision making,
  - Operational indicators provide information to service deliverers and used to improve the efficiency of service delivery.
- **Review existing risk management processes** in dealing with treatments of the asset.
- **To develop Improvement Action Plans** as identified during the process.
- **Ultimately to deliver a safer, improved network service** for all road users.

A preliminary Asset Management Plan was developed and approved for the County in 2004. It concentrated on the strategic level of information and gave clarity to strategy, policies and standards to maximise service delivery. The exercise was focussed on identifying where the Authority has a shortfall in these areas and also the lack of data about the asset, with a view to earmarking a prioritised programme of work to rectify the situation and enable the full benefits of a Highway Asset Management System (HAMS) to be utilised and linked to Performance Management.

The County Council has completed the procurement of a Highway Asset Management System and is currently undertaking its implementation. This implementation is expected to take approximately 18 months.

In addition to reviewing best practice at other highway authorities in order to use the more successful ideas in Nottinghamshire, the County Council's working group has determined the input required and developed a strategy for the production and implementation of the HAMS and TAMP.

The group has also completed a review of the authority's current practices. This resulted in the identification of strengths and weaknesses to enable the production of an Improvement Plan. A review of existing data has also been carried out (both in terms of quality and quantity) in order to develop a strategy to collect up to date and reliable information. The asset management system provides the facilities to record the data. The information that the Council holds will be recorded on the system and further data will be collected or purchased (such as additional survey data) to complete the database.

Customer Contact Centre

The County Council is moving towards dealing with queries from the public via a Customer Contact Centre. This will include highway enquiries and reporting of defects by the public. This affords the opportunity to introduce and link a highway customer service module from an asset management system that would log such calls/complaints and has a potential to create a works order automatically for repair of the defect. This repair can then be tracked in terms of speed of response/repair. It is also very important to know what the customer wants in terms of service delivery and a record of public contact and indeed that of elected Members. This type of information can be logged on to the system for future reference and policy development. A customer contact centre has great benefits for the public as it will mean that there will be one effective point of contact that will be able to deal with all of their Council enquiries.

Other Considerations

It is necessary to make the most effective use of resources in terms of delivering value for money services to the customer. At the present time there is a lack of information regarding the level and condition of many of the highway infrastructure assets and there is a need to collect a lot of data to bring together what will be a comprehensive asset register for the authority. Only then will it be possible to look at the maintenance of the highway asset in the round to make decisions on what asset should receive priority and relevant levels of funding. This will enable well-focussed prioritisation in the allocation of resources in terms of need. Also with the information at hand, it would then enable the authority to integrate maintenance delivery by being able to identify on a particular stretch of road what needs dealing with at any one time in line with "Rethinking Construction" which advocates such an approach.

With an increasingly litigious society, it is more important than ever to reduce the number of claims against the authority by having a safe, effective and efficient highway infrastructure. The aim is to limit the risk of accidents by ensuring a high standard planned maintenance regime is in place together with appropriate inspection regimes and records of defects and repairs. To facilitate this, appropriate systems and procedures on a countywide basis should be implemented and a TAMP will go a long way towards meeting this requirement. Risk identification, its analysis and subsequent reduction are a vital element in asset management planning.

From April 2005 the highway assets in the Ashfield and Broxtowe areas have been maintained by the district councils under 'Manage and Operate' Partnership (MOP) arrangements. This allows the propogation of policies, standards and common practice throughout the authority including members of the MOP. The district councils have therefore been involved in the development and selection of the HAMS, and consulted on the TAMP, particularly work relating life-cycle planning.