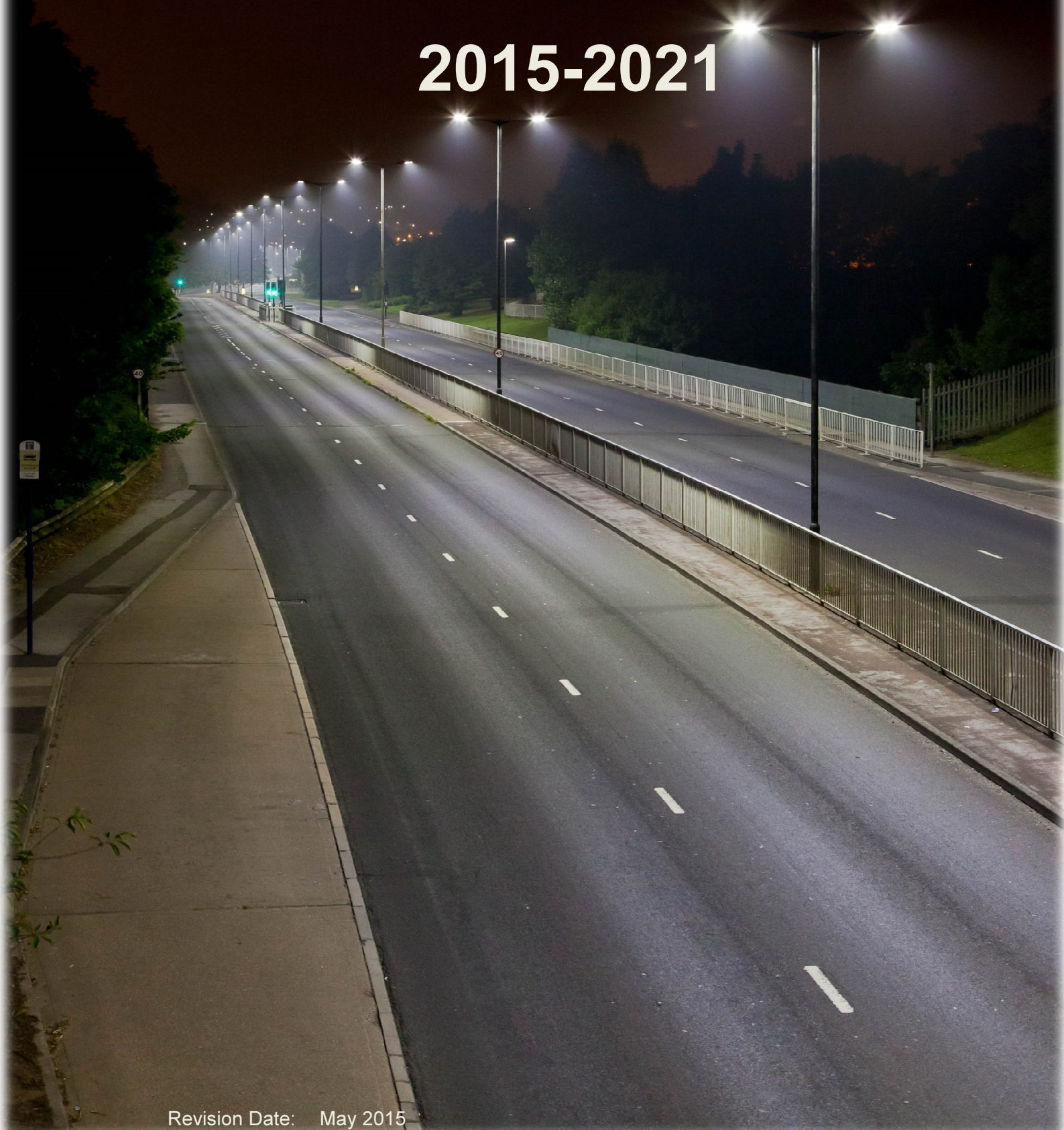


ROTHERHAM METROPOLITAN BOROUGH COUNCIL
Environment & Development Services
Streetpride

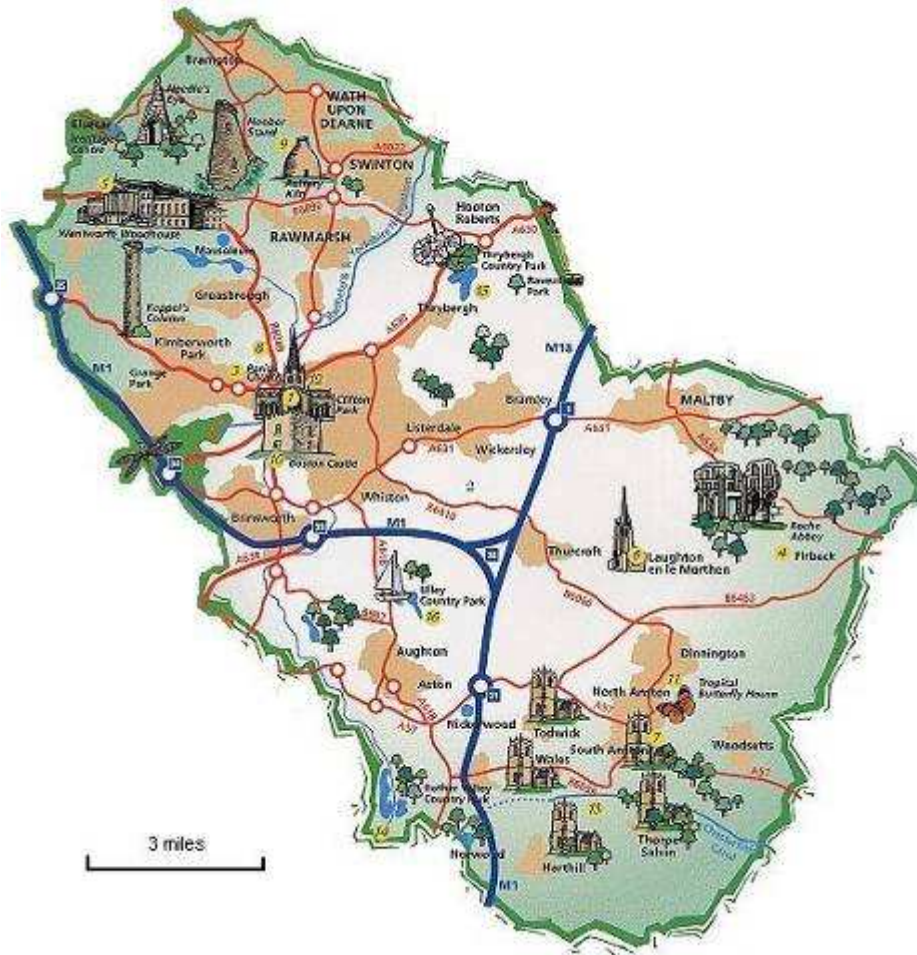
HIGHWAY ASSET MANAGEMENT PLAN

2015-2021



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1 ABOUT ROTHERHAM



Rotherham is made up of three constituencies, seven Area Assemblies and 21 Wards.

Rotherham also has 27 Parish Councils and two Town Councils.

The population of Rotherham is around 253,000, covers an area of 285 Km² and is 50% Rural.

Rotherham has borders with Barnsley (to the north), Derbyshire (to the south west), Doncaster (to the east), Nottinghamshire (to the south east) and Sheffield (to the west).

Rotherham Council is responsible for maintaining over 700 miles of roads.

2 INTRODUCTION

2.1 Introduction

The highway network that is managed by Rotherham Metropolitan Borough Councils (RMBC) represents the biggest financial asset that we are responsible for, it is therefore essential that it is well managed and maintained.

In recent years the highway network has suffered deterioration due to reduced funding levels, which has been accelerated due to severe weather over a number of years. It is therefore more important than ever to use the limited resources available in the most efficient way to get the maximum value from maintaining the highway assets. This Highway Asset Management Plan (HAMP) details the Council's approach to efficiently maintaining the highway network as set out in the Highways Asset Management Policy and Strategy documents.

2.2 Purpose of the Highway Asset Management Plan

Asset management is a strategic approach that identifies the optimal allocation of resources for the management, operation, preservation and enhancement of the highway infrastructure to meet the needs of current and future customers.

The purpose of this HAMP is to identify and set out the maintenance requirements for the highway network in Rotherham in line with the nationally recognised framework. It is based on the principles set out in the Highway Infrastructure Asset Management Guidance (issued May 2013) and the Highway Maintenance Efficiency Programme (HMEP), both commissioned by the Department for Transport (DfT).

The framework can be used as an effective tool when managing the highway network and states that as part of the process it would be useful to take into consideration the following factors:

- A strategic approach over the long term
- Meeting stakeholders' needs
- A systematic approach
- Optimal allocation of resources
- Managing expenditure over the asset lifecycle
- Meeting performance requirements in the most efficient way
- Managing risk
- Operational delivery

The HMEP includes 14 recommendations, which it states should be considered as the minimum requirements to achieve an appropriate level of benefit from asset management. Below is a summary of the recommendations;

1. Asset Management Framework
2. Communications
3. Asset Management Policy
4. Performance Management
5. Asset Data Management
6. Lifecycle Plans
7. Works Programme
8. Leadership and Commitment
9. Making the Case for Asset Management
10. Competencies and Training
11. Risk management
12. Asset Management Systems
13. Performance Monitoring
14. Benchmarking

The HAMP has therefore been set out as an evolving document that will shape, determine and facilitate the long term future methods of managing the highway assets. The continuous development, review and improvement of the HAMP will take into account; asset data, levels of service, performance, lifecycle analysis, whole life costing principals, stakeholder expectation, statutory requirements and funding availability.

Through improving information and analysis of the maintenance of the highway assets, services can be delivered more efficiently. Highway maintenance budgets can then be used to prevent deterioration of the asset as much as possible and optimise the service with available resources. This will also support our priority to maintain a safe highway network.

2.3 Drivers for Highway Asset Management

As the highways asset is a valuable resource, which contributes to the economic viability of our Borough and to the wider Sheffield City Region, it is essential structured management of the asset is put into practice.

The main drivers for the HAMP approach have been:

Governmental reports;

- Audit Commission report entitled *Going the Distance: Achieving better value for money in road maintenance* (2011).
- All Party Parliamentary Group on Highway Maintenance report entitled *Managing a valuable asset: Improving local road condition* (Oct 2013).

Local and national transport policy;

- The DfT first recommended in 2004 that HAMP's be produced by local authorities and has continued to promote them.
- Sheffield City Region Local Transport Plan for 2011-2026.

Financial reporting;

- Whole of Government Accounting (WGA) asset valuation for local highway authorities.
- Valuations are required for WGA reporting submitted to HM Treasury annually and also provide a basis for lifecycle analysis.

Budgetary planning issues including;

- Levels in local authority highway maintenance budgets.
- Value for Money principles.
- The Prudential Code - with existing resources becoming increasingly difficult to secure and stretch, the Prudential Code was introduced to encourage authorities to manage assets through 'spend to save' principles. Asset data analysis associated with the HAMP provides the evidence base to enable spend to save and value for money principles to be considered as a viable funding process.

Managing stakeholder expectations;

- The improved information and data produced and collected as part of asset management implementation is useful for providing an understanding of maintenance requirements and constraints of limited budgets.

2.4 Scope of the Highway Asset Management Plan

There are many components that form part of the highway infrastructure and require consideration within management principles. The scope for this HAMP focuses towards the assets of highest value. Comprising of;

- Highway Network (carriageway and footway)
- Drainage
- Street Lighting
- Bridges and Structures
- Traffic Systems

3 IMPLEMENTING ASSET MANAGEMENT

3.1 Good Asset Management

Good asset management is essential in enabling RMBC to effectively deliver highway services to achieve our long term corporate priorities. Asset management principles enable informed decisions to be made about investment and maintenance funding. Resources can then be targeted at where they are most effective and enable the identification and management of risk associated with our statutory duty to manage and maintain our highways.

The Council recognises the importance of good highway asset management and as such this forms part of the roles and responsibility of the Highway Asset Principal Engineer. The role is to provide a source of expertise for the Council, as a specialist in highway maintenance, providing guidance to management and other staff where appropriate, including taking a lead role for highway asset management.

3.2 Data Management

Asset inventory information is the foundation stone on which asset management processes are built, since information regarding the network is essential for its efficient and cost effective management. Rotherham's asset inventory data is held electronically to ensure up to date and accurate information is available. For the highway, Symology Insight contains the relevant information for highway planned and reactive maintenance (pothole repairs) works. Insight also holds the carriageway and footway inspection data. It can be referred to when undertaking any assessment and review of the highway and when responding to customer enquiries.

Table 3.2.1 Rotherham's asset inventory data

Asset Type	Information System
Highway Network	Symology Insight
Drainage	MapInfo Database
Street lighting	Deadsure.
Structures	Symology Insight
Traffic Systems	Traffic Systems spreadsheet

Carriageway condition data surveys are undertaken across the highway network and information analysed using UK Pavement Management System (UKPMS) within Symology Insight software. The UKPMS module is used for calculating Gross Replacement Cost (GRC) and Depreciated Replacement Cost (DRC) for carriageways and footways.

Accuracy and completeness of inventory and condition data, and the management of associated systems is essential. The upkeep of relevant, up to date information is the key to effective management of the network. For a data management system to be effective it is essential that priority is given to its development, operation and upkeep. For assets not held

on either Insight or Deadsure inventory database, MapInfo tables and spreadsheets have been created to hold information, for example on traffic calming assets and watercourses. These have been created as part of the developing highway asset management approach. The street lighting asset information held on Deadsure is a common database that is shared by all relevant staff who have access to the key information. A visual inspection was undertaken in 2010 to assess the asset and this is constantly updated when reactive maintenance visits are undertaken to street lighting units. In addition, mandatory electrical testing is undertaken every 6 years in line with IEE regulations (Institution of Electrical Engineers). This information is also recorded on the database along with condition data collected at the time of the visit to constantly update the relevant asset information on the register.

The database is flexible in the fact that reports can be easily created to give an overall view of the asset at any one time. This information has been used to develop the forward plan of asset replacement and assist with the lifecycle planning of the street lighting asset.

3.3 Asset Valuation

WGA has been introduced for highways local government accounting. There is a phased introduction to this method, and to moving away from the historical costing method that has traditionally been used, to assess the value of local authority highways assets. The WGA method is based on the value of the assets owned by the highway authority. The figures required are the Gross Replacement Cost (GRC), which represents the value of replacing assets as new and the Depreciated Replacement Cost (DRC) which represents the value of replacing assets in the current state of repair or age. Estimates are calculated on the basis set out in the CIPFA Code of Practice – Guidance to Support Asset Management, Financial Management and Reporting (published March 2013).

The new WGA accounting methodology could potentially affect the way in which funds are allocated in the future. The value of the asset and the effect of any proposed works programme upon that value will be an important consideration.

Highway Teams has made WGA submissions as per the above timetable, working closely with Symology Ltd. and RMBC Finance Team. Table 3.3.1 shows the 2013/2014 submission totalling £1.726bn.

Table 3.3.1 WGA Submission 2014

Asset Type	Gross Replacement Cost (GRC)	Depreciation	Depreciated Replacement Cost (DRC)
Carriageways	£1,256,734,000	-£54,773,000	£1,201,961,000
Footways	£218,942,000	-£27,142,000	£191,800,000
Structures	£164,092,000	-£6,627,000	£157,465,000
Lighting	£47,621,000	-£5,000,000	£42,621,000
Traffic Systems	£13,600,000	-£6,443,000	£7,157,000
Street Furniture	£25,000,000	-£1,000,000	£24,000,000
Total	£1,725,989,000	-£100,985,000	£1,625,004,000

Valuation requires robust asset information to ensure financial reporting requirements can be met. DRC valuation methods in the CIPFA Code mostly require estimation of the expected lives of the assets and their components and the age of the assets. Alternatively, methods for other asset groups use the condition of the assets to estimate depreciation and hence find the DRC.

3.4 Training and Development

Staff development and competencies required for highway infrastructure asset management has been identified by the Council as a necessity and critical to the management of the assets. Asset data is collected in-house by staff that have been trained on optimising data sets and UKPMS (Symolgy Ltd.), Whole Gvt Accounting (CIPFA) and the use of condition data (WCA) with the appropriate systems being regularly updated.

Key officers have been on several comprehensive asset management workshops and training held by Defra and the Environment Agency. The training included the collation and recording of highway asset data, mapping of the data producing flood risk areas and hazard maps, identifying flood risk areas, potential effect on the environment including climate change and planning requirements for future planning applications. The Council's Local Flood Risk Management Strategy and Action Plans identify the need for skilled resources and accuracy in managing highway infrastructure assets. Continuous health checking is carried out by those responsible for the individual asset groups.

A new training course has been introduced called 'Bridge Inspector Training' to facilitate asset management competence within Highways Structures Services. Appropriate officers will be enrolled on this course to gain the necessary training and accreditation.

4 LEVELS OF SERVICE

4.1 Levels of Service

Levels of service refer to a measure of the service quality achieved from highways assets. The level of service reflects the way the service is delivered and how it is perceived by customers. Levels of service include the performance and condition of the asset itself, the quality of the service that the asset provides and the performance of an authority in delivering that service.

Extensive information on the highway services provided by RMBC is available on the Council website and online reporting facilities are easily available through multiple channels.

A programme of consultation Roadshows are being undertaken in 2015 with Rotherham residents and partners, this will enable local people the opportunity to inform the budget process by saying what's important to them for Rotherham going forward. This will then shape the Corporate Vision, inform service provision and the HAMP will evolve to support these new priorities.

It is essential that limited resources are targeted to where they will have the greatest effect. The level and type of service provided will therefore be dependent on where and how the funding is targeted. In accordance with the HMEP pothole Review "Prevention is Better Than Cure" a review was undertaken to minimise the number of reactive actionable defect repairs (potholes) and where possible provide a first time and permanent repair to these defects, this also contributes to the whole life cost of the network and customer satisfaction. This example is detailed in section 4.5.

4.2 Legislative Requirements

Rotherham refers to and complies with a range of legislation, regulations and guidance in order to determine the level and standards of service provided. Examples of legislation and guidance are identified below list:

Legislation

- Highways Act 1980
- Road Traffic Regulation Act 1984
- New Roads and Streetworks Act 1991
- Railways and Transport Act 2003
- Traffic Management Act (TMA) 2004
- Disability Discrimination Act (DDA) 2005
- Flood and Water Management Act 2010
- Clean Neighbourhoods Act 2005

Guidance documentation

- Traffic Signs and General Directions (1994)
- Well Lit Highways (2004), Code of Practice for Street Lighting

- Well Maintained Highways (2005), Code of Practice for Highway Maintenance Management
- Management of Highway Structures (2005), Code of Practice for Structures
- Management of Electronic Traffic Equipment (2011), Code of Practice for Traffic Systems

A fundamental part of our activities focus around:

- The explicit duty to maintain the highway and its assets
- Powers to improve, ease movement and protect highway users
- Duty to co-ordinate activities undertaken on the highway

The introduction of the Traffic Management Act 2004 (TMA) aimed to pull together all the relevant duties and powers in order to assist authorities in managing the highway network and delivering a sustained level of service. Under the TMA local authorities have a network management duty to co-ordinate works on the highway to minimise traffic disruption. This is to ensure the availability of the highway network to service users. RMBC also operates a Street Works Permit scheme based on a Yorkshire wide model.

The permit scheme gives more control over how and when road and street works are undertaken by works promoters. It assesses works conditions and works methodology before granting permission to enter the highway. In some instances RMBC will direct works promoters to undertake planned works at a less disruptive times of the day or by using a less disruptive form of traffic management.

Through the permit scheme RMBC may also request that promoters undertake works on consecutive calendar days to minimise works durations and when possible work collaboratively with other promoters to reduce highway network occupancy and congestion.

4.3 Managing Customer Expectations

The expectation of the highway user is an important element in the Highway Asset Management Planning process, as it is for the users' benefit that the service is being provided. There is a need to focus on the requirements of service users and give emphasis to accounting for their needs.

Consultation is an important mechanism for defining and managing customer expectations. Customer surveys can also be used to establish the degree of satisfaction with current levels of service. Specifically, surveys can assist by identifying which aspects of the service are of most importance to the customer (e.g. whether street lighting is more important to customers than salting) and also the degree of satisfaction with particular aspects of the service.

Rotherham undertakes to inspect and survey the highway in order to determine and ensure that the highway is maintained in a safe and serviceable condition to comply with the recommendations of 'Well Maintained Highways, the Code of Practice for Highway Maintenance Management' and in accordance with the Highway Authorities statutory obligations. Rotherham has developed its own Code of Practice for Highway Inspection and Assessment, which is developed from 'Well Maintained Highways'. This code is reviewed annually and published on the Councils website for customers to view.

Combining these two elements can provide useful information to focus attention on the areas of highest importance to customers.

Rotherham is one of more than 70 local highway authorities that take part in the National Highways and Transportation (NHT) public satisfaction survey. The surveys are sent to a random sample of 3,300 households in the town. The survey covers a range of transport issues, including the condition of roads, pavements, rights of way, cycle routes, the speed and quality of repairs, road safety, congestion and pollution, local buses, community transport.

The 2014 Survey results identified the most important issue to respondents is the condition of the highway. It is also the largest area of dissatisfaction with less than 20% of the people surveyed being satisfied with its condition compared to an average of 34%. This information has been used to inform additional funding requirements to maintain the roads in Rotherham.

4.4 Gathering Customer Feedback

RMBC has facilities in place for customers to provide feedback and report defects through a 'One Stop Shop' approach. All telephone calls and electronic communications are handled at first point of contact by experienced staff within the Councils Corporate Contact Centre.

Telephone calls are managed through a singular and dedicated 'Golden Number' accessible between the hours of 0800 to 2000 Monday to Friday. This is further complimented by an emergency reporting provision available to customers at all other times. In addition, a face to face service is accessible for customers to report issues in various localities across the Borough during the hours of 0900 to 1700 Monday to Friday.

Every customer contact is recorded and enquiries or reports are mapped through a system of scripted questions designed to ensure that recorded reports are accurate and responded to within an appropriate timeframe. Quality checks on reports are routinely carried out by management teams and customer satisfaction is tested through mystery shopping exercises and ad-hoc outbound telephone surveys.

RMBC operates a 'Learning from Complaints' process which looks to identify any learning that has been evidenced as a result of dealing with a customer contact. This could be as a result of a complaint, informal complaint or service request. The learning could be a simple change to the way that we deliver our service or full service review

All lessons learnt are held on a corporate database with quarterly performance reports provided to senior managers. Improvements are also detailed as part of an Annual Complaints Report.

Customer questionnaires are also sent to properties affected by a highway maintenance scheme asking for feedback on performance including (2014/2015);

- Satisfied with pre-start information about the works - 94% satisfaction
- Did the works start on time - 94% satisfaction

- Satisfied with the quality of the work carried out - 100% satisfaction
- Was the site left clean and tidy - 93% satisfaction

4.5 Improving service by providing a first time and permanent repair to pothole defects

Traditional pothole repairs may not look aesthetically pleasing but are fit for purpose in that they return the highway to a safe condition. However, there are a high number of pothole repairs carried out each year as illustrated in the table below.

Table 4.5.1 Reactive actionable defect repairs:

Year	No. Actionable Defects	Cost	Cost per Defect
2007/2008	11,638	£240,163	£21
2008/2009	12,062	£242,872	£20
2009/2010	15,624	£249,760	£16
2010/2011	28,229	£418,291	£15
2011/2012	28,347	£427,204	£15
2012/2013	32,530	£455,142	£14
2013/2014	32,386	£395,356	£12
2014/2015	34,069	£435,463	£13

An assessment was carried due to the rising number of potholes, associated costs to repair and customer feedback.

In 2012 research was carried out to identify equipment that could be used to provide a first time and permanent repair to these defects. A mobile milling machine, 'Multihog', was trialled which could mill out carriageway surfaces and can move from site to site under its own power (no need for a low loader or to be towed). This proved very successful and had the added benefit of having a winter service pack (Salter and plough), which could be attached.

With the new process the benefits were clear to see from a very early stage as the repairs looked neat and tidy, lasted through a winter and customers liked this type of repair.

As part of the review process it was to identify and classify reactive actionable defect repairs. Prior to January 2013 there were two priorities for dealing with these defects:

- Priority A – Defect to be repaired within four hours of identification. This was for very serious defects, e.g. street furniture lids missing.
- Priority 1 – Defects to be repaired within 24 hours of identification. This was used in the vast majority of cases.

In January 2013 work started on a radically different approach to repairing these defects. Two new priorities were introduced; the removal of the reactive actionable defect within 48 hours and the follow up permanent repair within 10 working days. This was achieved by

Highway Inspectors carrying out a further risk assessment on a defect to ensure suitability. Once the defect was identified the highway delivery team organised for the defect to be milled to a depth of 20mm with the 'Multihog' and any remaining depth below 20mm to be repaired. This gave a patch which was a uniform 20mm deep. The team would then follow up with a permanent repair to these patches.

Benefits:- Since the introduction of the programme 4,500 first time and permanent repairs have been carried out to pothole defects. Additionally, a significant area of highway has been renewed adjacent to the pothole defects. These locations would have been highly susceptible to potholes forming in the future. The method of reinstatement has prevented this from happening and reduced the potential cost of future repairs and customer complaints. These repaired locations then inform future works programmes for surface treatments as large areas are now suitable for this type of cost effective works.

Rotherham is one of the first councils in the country to use the machine which has generated significant interest and visits have been hosted from other Local Authorities including: Bury, Derbyshire, Darlington, Lincolnshire, Tameside, Bardon Contracting etc,. The initiative has also received media coverage in the 'Surveyor', 'Highways' and 'Local Authority Plant and Vehicle' magazines (April 2012), the 'Rotherham Advertiser' (13 November 2012), as well as featuring in a case study by Multihog.

5 COMMUNICATION, MONITORING AND REPORTING PERFORMANCE

5.1 Communication and Consultation

As part of the management of highway assets good communications with stakeholders is essential. Engagement has been carried out with key stakeholders on the strategy for managing our highway assets and our decision making process.

In May 2015 several consultation workshops regarding highway maintenance funding and the decision-making process were undertaken with RMBC Councillors. Councillors endorsed following good Asset Management principles to prioritise works that consider lifecycle planning and cost options, by carrying out well-timed interventions works rather than a 'worst first' approach. A similar workshop was carried out with the Customer Inspection Service and Learning from Customers Forum. The Customer Inspectors consist of Rotherham residents of mixed age ranges, gender and some with physical disabilities, they further endorsed following good Asset Management principles to prioritise works that consider whole life cost options.

Other key stakeholders have been consulted on our approach to manage and maintain the highway network:

- RMBC Councillors
- Doncaster Metropolitan Borough Council
- Barnsley Metropolitan Borough Council
- Sheffield City Council
- South Yorkshire Police
- South Yorkshire Ambulance Service
- South Yorkshire Fire Service
- South Yorkshire Passenger Transport Executive
- Major Bus Operators
 - First
 - Stagecoach
- Network Rail
- Parish and Town Council's
- Yorkshire Water and Severn Trent Water
- Major Utility Companies
- Environment Agency

Consultation on potential changes to the highway is an important part of communication with customers to ensure service users' needs are reflected in changes made to the highway network. The prioritisation methodologies demonstrated in the decision making process include elements of customer priorities.

For major highway schemes, full consultation exercises are carried out in advance of works starting. For routine maintenance schemes, contact is made with all residents and businesses fronting the works prior to design; informing them of start dates, contact details and a request to undertake a questionnaire on completion of the works.

RMBC Councillors are consulted and asked for suggestions for future highway works as part of the forward works programme. Highways Engineers have also attended Parish Council

meetings to discuss the works programme methodology. In addition, the works programme is updated regularly and displayed on the Councils website for customers to access.

Communication with statutory undertakers is also crucial to effectively manage the highway network. Knowledge of intended locations for future statutory undertakers work is valuable information in the decision making process for developing future works programmes.

Works on the highway are coordinated through scheduled quarterly meetings between works promoters, which include statutory undertakers (water, gas, electric and telecommunication companies etc.), representatives from Highways England, and highway maintenance management teams. Future works programmes are shared, and through our duty to issue statutory notices under the New Roads and Street Works Act 1991, planned excavations in newly laid carriageways and footways are prohibited for up to 5 years. These meetings ensure that we discharge our duty to minimise disruption on the highway in accordance with the requirements of the Traffic Management Act 2004, and fulfil the aims and objectives of The Yorkshire Common Permit Scheme for road and street works.

A communication strategy is being developed to demonstrate our approach to asset management to the public through the Council website. This will enable the Council to keep stakeholders informed of performance, routine scheduled works and our proposed actions to respond to emergency situations.

5.2 Internal Management and Communication

One of the key elements of highway asset management is ensuring a holistic approach to the delivery of services, promoting integration of processes, information and systems. RMBC highway asset managers support this by attending weekly meetings to review works programming to ensure effective delivery of services. This leads to a more efficient way of working through service-wide decision making considering projects that impact on two or more asset groups.

Examples of the benefits of a coordinated approach are given below;

Example 1. When reviewing planned works, if both the installation of traffic calming measures (Road Safety Team) and carriageway resurfacing works (Highway Assessment Team) are required, it is essential that the carriageway resurfacing is undertaken first as a newly resurfaced carriageway would be essential to accept the speed humps. Communication of forward works programmes across the teams will ensure such instances can be identified and coordinated.

Example 2. To coordinate routine/scheduled works on the highway network a traffic management procedure is in place for high speed/dual carriageways. Officers coordinate programmes across street lighting, drainage, grass cutting and highway repairs to utilise a single traffic management / road closure programme is utilised to minimise disruption to users and keep costs to a minimum.

Example 3. A protocol has been agreed with South Yorkshire Police to take advantage of any potential emergency temporary closures on the highway network. Maintenance teams will then use this opportunity to carry out routine inspections/maintenance of highway assets to minimise disruption to users and keep costs to a minimum.

5.3 Performance Management Framework

Performance management is coordinated by the Council's Corporate Performance and Quality Team and key performance indicators are reviewed quarterly and reports submitted to the senior management team. RMBC's performance management framework supports the asset management strategy by having a systematic approach to measuring performance.

The framework demonstrates how performance is managed to deliver the corporate vision to ensure roads are safe and well maintained. An example of this is the management of the principle and non-principle road networks. Performance data identified that these roads were not at a national average condition and also the funding requirement to achieve this standard. Subsequently, investment programmes have been put in place and the corporate priority has been achieved for these roads.

Performance indicators have been reviewed by Government and National Indicators have been replaced with alternative reporting requirements. These new requirements have been collated in a Government document entitled, The Single List of Central Government Data Requirements from Local Government and are referred to as the 'Single Data List' - Appendix A. These include road condition data, road lengths, winter stock holdings and a series of flood risk data requirements.

In addition to the Single Data List Highway asset teams also manage service performance through a suite of Corporate and Local Indicators - Appendix B.

5.4 Benchmarking

A range of incentives, tools and techniques have been developed to assist performance improvement and these have been adopted where applicable in the development of the HAMP. These measures include benchmarking, best practice guidance and Codes of Practice. Performance improvement can refer to efficiency and service levels being well aligned with service user priorities and does not necessarily refer to increased funding for raising service levels.

5.4.1 Asphalt Industry Alliance - ALARM Survey

Rotherham participates annually in the Asphalt Industry Alliance independently commissioned ALARM survey which aims to take a snapshot of the general condition of the local road network.

Table 5.4.1 ALARM Survey Key Findings 2015

Key Findings	Total ¹	Rotherham
Percentage of authorities responding	53%	
National shortfall in annual road structural budget	£428m	
Average annual budget shortfall per authority	£3.7m	£1.5m
Percentage of budget used on reactive maintenance	23%	7%
Estimated time to clear carriageway maintenance backlog ²	12 years	10 years
National estimated one time catch-up cost	£10.7bn	
Estimated one time catch-up cost per authority	£93m	£55m
Percentage of authorities reporting additional costs e.g. Flood Damage	31%	
Average additional cost per authority	£5.7m	£0
Frequency of road surfacing ²	64 years	25-50 years
National number of potholes over past year	2,380,730	
Average number filled per authority last year	20,702	34,069
Average cost to fill one pothole	£52	£13
Total spent filling potholes in past year	£124.4m	£435k
Amount paid in road user compensation claims	£20.2m	£218k
Average number of utility trenches over past year per authority	15,776	3,207

¹ – England only

² – All road classes

Although the findings are a snapshot it is useful to be able to identify specific comparisons that can be used to inform service decisions.

For example;

Average annual budget shortfall per authority - Although RMBC has a £1.5m shortfall in funding, this compares favourably compared to the national average of £3.7m funding gap.

Percentage of budget used on reactive maintenance – This demonstrates that RMBC is better than the national average at minimising spend on pothole type repairs and promotes spending through programmed maintenance.

Average number of potholes filled per authority last year – This is significantly higher in Rotherham than the national average which could be an indication that the highway network is deteriorating and requires investment. Further investigatory works is planned in 2015/16 to establish why this is higher than the national average.

Average cost to fill one pothole – With a high number of potholes in our borough the cost to repair them is extremely important. If the potholes were repaired using the national average rate it would require funding of £1.7m compared to our own cost of £435,000.

5.4.2 Association of Public Service Excellence (APSE)

Rotherham is a member of the APSE which enables benchmarking of services for similar Authorities (family groups) through Performance Networks.

In September 2013 RMBC Highway Services was the national winner of the Best Service Team for Highways, Winter Maintenance and Street Lighting teams for innovation and partnership working in this field. The award was in recognition of the developments in winter salting technology, street lighting LED implementation programme and the 'First Time Fix' to potholes initiative. RMBC Highway Services have given presentations to Local Highway Authorities at APSE Performance Networks sessions.

The tables below illustrates RMBC performance for each key performance indicator against the 2013-14 average performance of our family group. Both tables show RMBC is consistently performing better than our family group average.

Table 5.4.2 Rotherham MBC – Roads/Highways Performance At A Glance Report

Performance indicators	Performance in 2013-14	Improved since 2012-13? ^
PI 03a Percentage of CAT1 defects made safe within response times		
PI 02b Condition of principal roads (TRACS type surveys - England and Wales only)		
PI 02d Condition of 'A' class carriageways (principal roads)		
PI 29 Percentage change in number of category one defects		
PI 37 Percentage of customer enquiries / requests for service closed off within council's own identified response times		
PI 38 Percentage of abnormal load notifications dealt with in time		
PI 15a Percentage of total roads/highways function cost (revenue and capital) spent directly on roads/highways repairs		
PI 16 Percentage of actual maintenance expenditure which is planned/proactive		
PI 17 Percentage of actual maintenance expenditure that is reactive		
PI 54a / 54b Staff absence - all staff		

	Performance for 2013-14 is better than the family group average
	Performance for 2013-14 is within 25% of the family group average
	Performance for 2013-14 is not as good as the family group average range above
	Performance for 2013-14 has improved from the 2012-13 result
	Performance for 2013-14 is within 5% of the 2012-13 result
	Performance for 2013-14 has not improved from the 2012-13 result

^ Please note that the cost performance may be affected by inflation and this should be taken into account

Source: APSE Performance Networks Report - 'Performance at a glance' 2015

The indicators show that highways general performance is better than the family group average. However, three indicators required further investigation.

PI02d Condition of 'A' Class Carriageways (Principal Roads) – This is an indicator that is for Scotland only and not relevant to England.

PI37 Percentage of Customer enquiries/ requests for service closed within the Councils own Identified response times - Work is being undertaken with the Council's Customer Access Team to investigate the feasibility of developing a procedure to ensure customer reports are closed.

PI38 Percentage of abnormal load notifications dealt with in time - A review has been carried out and a submission will be made for the 2014-15 period.

Table 5.4.3 Rotherham MBC – Street Lighting Performance At A Glance Report

Performance indicators	Performance in 2013-14	Improved since 2012-13? ^
PI 01b Average cost of monitoring and replacing street lights excluding bulk/capital replacement	●	▲
PI 03 Percentage of lamps restored to working condition within 7 days	●	▬
PI 04 Average time to repair lamps (authority only)	●	▬
PI 02a Percentage of street lamps not working as planned	▲	
PI 18b Average annual electricity consumption per street light (KWH)	●	▬
PI 29b Mean time between failures (MTBF) in years	●	▬
PI 38a Percentage of street lamps that are dimmable or part night lighting	◆	▲

●	Performance for 2013-14 is better than the family group average
▲	Performance for 2013-14 is within 25% of the family group average
◆	Performance for 2013-14 is not as good as the family group average range above
▲	Performance for 2013-14 has improved from the 2012-13 result
▬	Performance for 2013-14 is within 5% of the 2012-13 result
▼	Performance for 2013-14 has not improved from the 2012-13 result

^ Please note that the cost performance may be affected by inflation and this should be taken into account

Source: APSE Performance Networks Report - 'Performance at a glance' 2015

The indicators show that street lighting general performance is better than the family group average. However, two indicators are below average and steps have already been taken to address this.

A programme is in place to replace 18,000 lanterns with new LED units. The lanterns have a 20 year guarantee with minimal maintenance requirements. This will reduce the number of

street lights that are not working as planned (PI 02a) significantly over the three year implementation period.

Dimmable and part night lighting (PI 38a) has been trialled but was not considered for full installation across the borough as energy costs are not consistent throughout the night and savings would not be substantial. The preferred option is to replace lanterns with new LED units which will significantly reduce energy consumptions by up to 50%.

Separately, the costs incurred by the Council's for the maintenance of approximately 45,500 gullies is estimated at £4.02 per road gully, this is compared to our APSE family group average of £9.64. Further gully emptying improvements are being implemented by capturing data telematics to improve cleansing schedules.

6 ASSET INVENTORY AND LIFECYCLE PLANNING – HIGHWAY NETWORK

6.1 Highway Network (Carriageway, Footway and PROW) Asset Inventory Information

The carriageway, footway, footpath and PROW asset inventory data is held on Symology Insight highway asset system. This system also holds streets that are not on adopted highway. The assets have unique section references and as a minimum have the following attributes:

- Length
- Width
- Surface Type
- Road Classification
- Hierarchy
- Urban or Rural

The system holds the information on all adopted roads. Any new roads are entered on the Street Gazetteer as they are created on the Local Land and Property Gazetteer (LLPG). Once a road has been adopted the asset data is collected within the period prior to the first cyclic safety inspection. For example; a road with a hierarchy of Local Access Road (Well Maintained Highway CoP Code 4b and RMBC CoP Category 6), will have the asset data collected within six months. Existing asset data is checked on a regular basis using the following process.

Rotherham has 21 Wards and the asset collection team is split North and South. Each month the asset collect team select the next two Wards in the cycle and re-collect the asset data for a road in each of the two selected Wards. Additionally, as part of the routine safety inspections system carried out on each road and have a maximum frequency of 6 months, any significant asset changes are reported to the asset collection team.

Table 6.1.1 Highway Network Lengths

	Carriageway Length (km)	Footway/Footpath Length (km)	PROW Length (km)
Motorway (M1 & M18) (Not RMBC Responsibility)*	(23)*	(0)	(0)
Principal – A Roads	114	174	0
Non-Principal – B Roads	95	109	0
Non-Principal – C Roads	178	156	0
Unclassified – U Roads	756	1250	0
PROW			421
Total	1143	1689	421

*Not included in Total

Table 6.1.2 Highway network valuation for WGA (2013/2014)

	Gross Replacement Cost (GRC) £m	Depreciation £m	Depreciated Replacement Cost (DRC) £m
Carriageway	£1,257	-£55	£1,202
Footways	£219	-£27	£192
Total	£1,476	-£82	£1,394

The Symology Insight system has been in place for a number of years and facilitates the provision of the network condition, which is broken down into four categories (RAG):

1. Green (Generally good condition). SCANNER CI 0-40. CVI CI 0-40
2. Amber Low (Plan investigation and use in conjunction with Amber High). SCANNER CI 40 to 70. CVI CI 40 to 55.
3. Amber High (Plan investigation and add to forward works review list). SCANNER CI 70-100. CVI CI 55-85
4. Red (Plan maintenance work and add to forward works review list). SCANNER CI >100. CVI CI >85.

Table 6.1.3 Carriageway condition (UKPMS) 2013/2014

Road Classification	Survey	Red (Plan maintenance work)	Amber (Plan investigation)	Green (Generally good)
Principal – A Roads	SCANNER	3%	22%	75%
Non-Principal – B & C Roads	SCANNER	7%	25%	69%
Unclassified – U Roads	CVI	21%	35%	46%

Table 6.1.4 Footway/Footpath Condition

Asset Type	Survey	Red (Plan maintenance work)	Amber (Plan investigation)	Green (Generally good)
Footway	CVI	29%	22%	49%

6.2 Carriageway and Footway Lifecycle Planning

The key objective of this lifecycle planning is to drive the efficient maintenance and long term management of highway systems by the adoption of an asset management approach. This will be achieved by the setting of appropriate targets, monitoring and measuring performance against these, reporting outcomes, and reviewing service delivery.

Like many Highway Authorities Rotherham's road network has been gradually deteriorating after suffering from years of under investment. Consecutive bad winters and severe weather events have served to accelerate the already deteriorating carriageways and highlight the poor structural condition through swift decline of the surface layers.

The WGA submitted to HM Treasury for 2013/2014 show the carriageways to have a gross replacement cost of over £1.3bn, demonstrating the high replacement value of this.

The Council recognises the importance of strategic roads being well maintained, to avoid a negative impact on Rotherham's economy. The importance of maintaining strategic routes aligns with Sheffield City Region LTP goals, which is to 'Support Economic Growth by ensuring our highway networks are well maintained to keep people and goods moving effectively'.

Through the use of lifecycle planning we have been able to identify the level of funding needed to achieve the level of service required by the Corporate Priority. The injection of £5m capital funding over the period 2008/2009 to 2010/2011 and sustaining around £1m LTP annual maintenance funding is one of the main reasons that the Principal Roads in Rotherham are in a good condition compared to the national average.

Similarly, the Non-Principal Network is also in a relatively good condition compared to the national average due to having an injection of £3m capital investment over the period 2011/2012 to 2013/2014 and sustaining around £0.5m LTP annual maintenance funding.

In order to stem the decline in condition of the Unclassified network it is essential that this part of the highway network is adequately maintained and accorded sufficient priority for funding over the coming years. Lifecycle planning identified a capital funding investment of approximately £15m was required to achieve the national average condition for this network. The Council has already committed £5m over the next two years to start to address this and reports will be produced for senior executive consideration to support a further investment of £10m to enable all Rotherham's roads to be as good as or better than the national average.

Table 6.2.1 Highway Condition Comparison Latest figures available from DfT (2013/2014)

Road Classification	RMBC (2013/2014)	National Average (2013/2014)
Principal – A Roads	3%	4%
Non-Principal – B & C Roads	7%	8%
Unclassified – U Roads	21%	18%
Footways	25%	Not available

6.2.1 Carriageway

Estimates for treating the highway network were calculated in 2014 (treating all the red and high amber carriageway and footway). This estimate totalled £82m for the highway network. However, economies of scale would be likely for work on such a major scale, which would potentially reduce this estimate. The value of work required to bring the network up to an acceptable standard would be dependent on the timescales over which work was completed.

The WGA Code of Practice method for calculating the depreciated value for the carriageways, which can be used to represent the cost to treat all poor condition carriageways, is to be undertaken by a UKPMS module. This module is available through the Insight system and is required to calculate Depreciated Replacement Cost (DRC) for inclusion in all WGA submissions.

It would be impractical to treat such a high proportion of the network each year, since the congestion impacts of this would be huge even if the funding were available. However, these figures are useful to show the amount of investment required.

Across the whole network if the standard for carriageway condition was to be brought up to an acceptable level, there would still be an annual 'standstill' investment required to sustain this level. To maintain a "standstill" condition for the highway network requires a year on year maintenance budget of approximately £6m based on a design life of 40 years.

A lifecycle planning toolkit has been made available as part of the HMEP resources which uses inventory and condition data to create deterioration models for carriageways, footways and ancillary assets (street furniture, road markings etc). This has been considered and trialled and is now embed within Symology Insight.

6.2.2 Footway

The total cost for treating poor condition footway based on the CIPFA code depreciation methodology is £27m. This does not include kerbs as these are included with carriageway estimates for the WGA process. Analysis of the condition data for footways, has confirmed this using the condition index from CVI of 55 and above.

6.2.3 Maintenance Treatments

Rotherham's approach is to move away from traditional maintenance options, not concentrating on repairing worst first, and more towards treatments that extend the life of a road. It is therefore important to have a wide range of treatment options available so as to allow the most appropriate treatment to be used on the appropriate site.

Following an assessment of the condition data various outcomes are taken forward and the treatments types available are described below and are listed in hierarchical order:

- **No works required.** This may be the outcome of the initial works preparation due to the defects do not yet requiring attention, works are planned in the future or others carrying out works (for example Statutory Undertakers or other Rotherham teams).
- **Safety Defect Repair.** The vast majority of these are in the carriageway (potholes) and are treated by sweeping out the defect, placing the appropriate material (usually 3mm Fine Cold Asphalt or preparatory mixed material) and compacting. Safety defects can range from a missing gully lid to a fissure developing, they all have one thing in common, they need urgent attention. For this reason the vast majority cannot be planned, so are classed as reactive maintenance. The exception to this is those potholes that are repaired by the "Multihog" permanent repair process.

The following treatments are all classed as non-reactive and can be planned. These treatment types become more complex, time consuming to implement and expensive as you move down through the treatments list.

- **Patching.** This can be overlay, one course or multiple courses, patching in small areas, from 400mm square to about the size of a dining room table. The “Multihog” is being used on some of these to excavate the existing surface. Where there is more than 30% (by area) of patching require this treatment is not suitable.
- **Super Patching.** These are patches at least 50m in length and at least half width of carriageway or full width of footway. This is used where there me be a number of localised patches that can be joined up or larger areas of deterioration. These can be overlay, one course or multiple course patching. Usually a large milling machine is employed to excavate these types of patches in bituminous surfaces.
- **Surface Treatment.** This can be accompanied by pre-patching and is used on surfaces where there is fretting or minor defects; the existing surface should be sound for this treatment to be successful. There are several types of surface treatments we use, footway/footpath Microasphalt, carriageway Microasphalt, carriageway surface dressing, carriageway thin surfacing (6mm) and carriageway thin surfacing (10mm). The Microasphalt and surface dressing seal the surface and provides a uniform appearance; it does not improve the surface shape. Thin surfacing seals the surface, provide a uniform appearance and improve surface shape. They can also be used on surfaces less stable than for those where Microasphalt or surface dressing is used.
- **Overlay.** Usually just the surface course, but can be accompanied by patching. It is used on surfaces which are generally sound, but the ride quality is poor. May not be suitable where the overlay reduces thresholds heights.
- **Resurfacing.** The existing surface is excavated to accept single or multiple courses, does not include Sub-Base. This is used on surfaces where there is significant surface deterioration and the surface would not support a surface treatment or overlay.
- **Reconstruction.** Excavate and replace the existing construction with new, includes Sub-Base. This is used on surfaces where there is a major breakdown in the surface and is usually accompanied by failure of lower layers.

6.2.4 Unadopted Highways

There is a small, but significant, length of highway in Rotherham that has never been adopted despite being used by vehicular traffic. These roads are maintained by what is termed “The Street Manager” and are usually the adjacent residents, but can be the land owner. There are approximately 120km of these unadopted roads across the town. Many of these roads are in a poor condition and pose a problem because if they were to be adopted in their current poor state, without being brought up to a good standard, there would be a considerable maintenance burden. However, allocating resources to unadopted highways would divert essential resources from the adopted highway network. RMBC does provide advice to Street Managers and will, where necessary, carry out essential emergency works.

6.3 Carriageway and Footway Network Level Lifecycle Planning

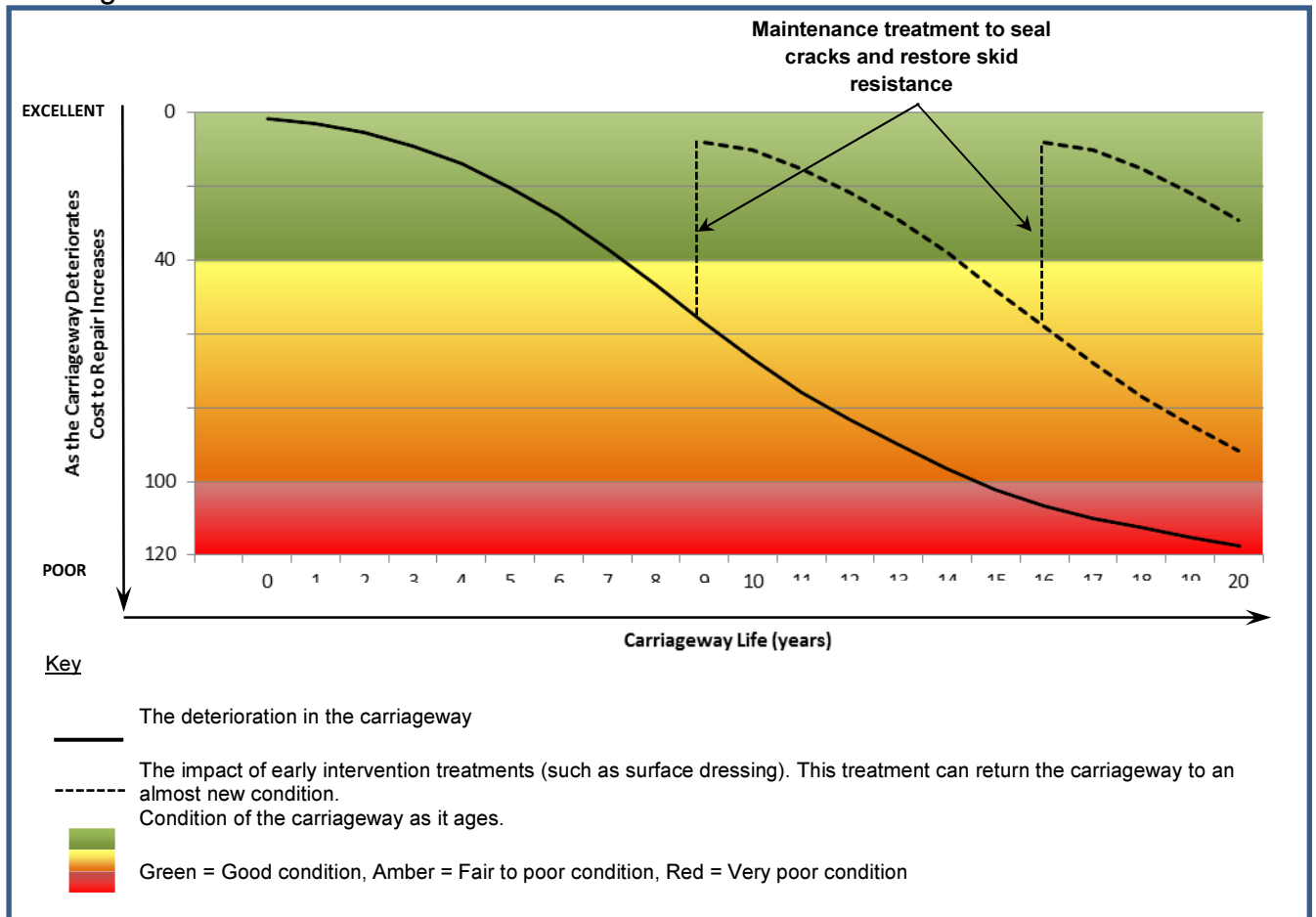
A significant prioritisation factor for the highway works programme is carriageway condition. If the prioritisation criterion was based on the highest proportion of red condition, most schemes chosen would be likely to require full depth reconstruction. However, this type of treatment is not the best value for money when considering the network over lifecycle

periods. As full depth reconstruction is expensive, only relatively short lengths of the network can be treated. In the mean-time, the rest of the network is deteriorating and each year a proportion of amber sections will deteriorate to red.

An alternative method of prioritisation is for sections that require resurfacing to be treated before they deteriorate to the point where they would require full reconstruction. This method allows much longer lengths to be treated with more cost effective resurfacing treatments and enable further deterioration of the network to be contained by treating amber lengths with less expensive treatments before they deteriorate to red condition, where structural maintenance would be required. The red sections that already require reconstruction will remain red and the treatment requirements would remain the same. Where possible, roads with a high proportion of red condition should be held in a safe condition with reactive maintenance budgets whilst a long term whole life cost approach is adopted.

The Going the Distance report, published by the Audit Commission in May 2011, recommends this approach. The report advocates a whole life cost option over 'worst first' prioritisation. It says that by considering an asset over a whole lifecycle it is possible to select the best time to intervene, which is before the asset deteriorates to a very poor condition. The diagram below represents the report's argument that failure to intervene at the right time and with the most appropriate treatment will result in poor roads and represents poor value for money.

Chart 6.3.1 Whole Lifecycle Planning



6.4 Maintenance Lifecycle Aspects

6.4.1 Creation and Acquisition

Roads created by RMBC are usually new roads built as part of strategic transport improvements such as A57 Improvement (M1 Junction 31 to Todwick Cross Roads), which was created in 2014.

Creation and acquisition of highways in this context more commonly relates to the adoption by RMBC of privately built roads such as those in newly built housing estates. Adoption standards for carriageways and footways are set out by RMBC and these can be adopted as Council owned assets once they have been confirmed to be of this standard.

6.4.2 Routine Maintenance

The planned capital maintenance programme for highways usually involves surfacing approximately 1.5% of the highway network each year with appropriate treatments. Roads included in the programme have traditionally been determined based on UKPMS condition indicators showing the highest proportions of red and amber condition, along with an element of engineering judgment. A decision making prioritisation process has been developed and set out in Table 11.2.1. This aims to bring more aspects including qualitative factors and incorporate Customer, Quality, Cost (CQC) into the decision making process.

Highway inspections are used to determine locations for which reactive maintenance is required. Details of how the Council undertakes highway inspections and assesses the highway can be found in the Code of Practice for Highway Inspection and Assessment and is available to view on the Council website. Reports from members of the public are also used to identify locations in need of reactive maintenance. Where appropriate, sections are patched as this is more cost effective than filling individual potholes. Planned maintenance is more cost effective than reactive maintenance, although the reactive maintenance element is also necessary. Good asset management principles promote moving towards planned maintenance and minimising reactive maintenance requirements. Rotherham only spends 7% of its maintenance budget on reactive maintenance compared to an average of 23%.

6.4.3 Renewal and replacement – Materials

A palette of material specifications is used in the renewal or replacement of carriageway and footway assets. All asset groups utilise materials from this palette only, so that replacement can be managed efficiently. This avoids the rising maintenance costs that can occur from using different materials in different locations across the Borough. The palette is wide ranging enough so as to respect the different nature of locations including historical locations whilst allowing asset maintenance to be managed.

6.4.4 Renewal and Replacement – Footways

The vast majority of footways (85%) in Rotherham are bituminous. With the exception of the Town centres and Conservation Areas, if any flagged footways require relaying, upgrading or reactive maintenance we will replace them with bituminous surfacing. This is a higher priority where there is vehicle over-riding damage, which can result in tripping hazards.

6.4.5 Upgrading

Major schemes will sometimes involve upgrading, for example the addition of a bus lane on A630 Doncaster Road, Thrybergh which also included improvement to traffic signals and junction improvements. For this type of upgrading, capacity requirements will be identified, usually with traffic modelling having been undertaken.

6.4.6 Disposal

Materials are recycled where possible for reconstruction schemes. This is usually unbound sub-base material. In addition to the environmental benefits, recycling materials on site can reduce disposal costs and drive down new material costs.

Some older roads in Rotherham that are resurfaced have tar which is hazardous and is taken by a local company for recycling by using specialist techniques.

6.5 Resilience to Climate Change

Recent winters have been harsh with very low temperatures and long spells of snow and ice. This freeze/thaw cycle can cause the rapid deterioration of the surface layers and it is thought that Climate Change will increase the severity of winters into the future. Resilience to extreme winters includes winter maintenance services such as gritting, to maintain a safe and accessible highway network during harsh conditions.

In 2010, a salt barn was constructed for the protection of winter salt stocks. This enables RMBC to maximise gritting potential. The salt is now stored to ensure it is at its optimum condition, which reduces spread rates such that smaller quantities of salt are required. With the introduction of a weighbridge RMBC can now manage the salt stock effectively. A Multi-hog device is used for salt spreading on footways and minor side roads. These implementations make for a more flexible winter maintenance provision.

Climate Change is also thought to increase the propensity for extreme temperatures and increased rainfall intensities. Materials therefore need to be resilient to these weather extremes including temperature ranges reaching both extraordinarily high and low temperatures.

Carriageways in poor condition are susceptible to further deterioration through water damage. Vehicle loadings have an increased effect on water saturated materials. When surface layers are damaged, water ingress can degrade underlying bound materials in lower layers impacting on the structural integrity of the carriageway. Surfacing is therefore important to deter water ingress, especially with increased intensity rainfall resulting from Climate Change.

6.5.1 Resilient Network of Roads

In response to the extreme weather experienced during the winter of 2013 and 2014 the Secretary of State for Transport commissioned a review of the resilience of the transport network in the event of extreme weather.

As part of the recommendations Local Authorities should develop asset management plans with Drainage assets being an integral component. Also to identify a 'resilient network' to give priority, in order to maintain economic activity and access to key services during extreme weather.

In 2010 the South Yorkshire LTP Partnership's "Congestion and Network Management Implementation Group" (CNMIG), led on defining the Strategic Network for the County. The CNMIG comprises of nominated Traffic / Network Managers from the four South Yorkshire Local Highway Authorities and a representative from South Yorkshire Passenger Transport Executive (SYPTTE).

The South Yorkshire Strategic Network illustrated in Appendix C has been defined in recognition of those routes which:-

- Reflect discrete travel corridors between main urban areas and / or the National Network.
- Provide the main links between key settlements (within and outside South Yorkshire).
- Are traffic sensitive / critical in terms of network resilience (i.e. those which are particularly managed to ensure disruption is minimised).
- Take account of 'Emergency Diversion Routes' as agreed with the Highways Agency (i.e. in respect of alternative routes which motorists are encouraged to use when motorways are closed).
- Include bus "key routes" (as identified by SYPTTE).
- Are important for Freight.

As part of the Council's highways winter maintenance duties salting routes have been developed to support the identified strategic network in Rotherham. In the event of a forecast for significant snowfall or prolonged sub-zero conditions a senior management team meets daily to provide clear leadership and take a strategic view of action. If necessary, salting may be restricted to these roads to provide resilience to the strategic network. Further details are contained within the Highways Winter Service Manual, which is reviewed annually and available on the Council website.

The Council has also recorded all strategic highways which are at risk of flooding. This information has been taken from actual records of flooding, historical flood events and predicted flooding in an extreme flood event. The strategic highways at risk of flooding are identified in the Council's, Environment and Development Services, Emergency Plan, which is regularly updated and all key officers have access to the Plan. In addition, the Plan provides information relating to the Council's resources available and includes details of external resources that the Council can utilise when dealing with a flood event. The Plan provides a clear indication of where all resources should be deployed before and during a flood event such that all preventative measures can be in place to mitigate the risk of flooding to the highways, where possible.

The aim of Plan is to maintain the safety of the highway at all times and the procedure includes working closely with the Council's partners such as the Environment Agency and

Met Office, in a flood event. The Council has dedicated contact details with its partners to plan and predict the likelihood of a flood event, including the possible effect of a storm event and rising river levels etc. The Council provides continual training for all key officers identified in the Plan and all key officers would be expected to deal with a major flood event.

6.6 Reclassification

Regeneration across Rotherham in recent years has altered the nature and characteristics of some roads and in some cases ultimately changed the function of the road. A reclassification review was undertaken in 2012 as part of the Yorkshire Permit Scheme, to assess the appropriateness of roads to their current highway classifications which is to be updated and reviewed on a regular basis. Recent central government changes mean that reclassification can now be undertaken by local authorities without approval from DfT, which was previously required. Improving classifications would enable road users to select the most appropriate routes through the Borough and therefore contribute to the effective delivery of business provision.

The Maintenance Block formula for central government allocations includes lengths of each road type, so changing classifications is likely to have some impact on future central government contributions and should be taken into consideration when reviewing road classification.

6.7 Additional Highway Assets

6.7.1 Road Markings and Signage

Road markings and signage are created and acquired regularly for highway schemes. Markings and signage such as parking restrictions and one way systems are supported by Traffic Regulation Orders (TRO). Disposal of such markings and signage requires alterations to the TRO. Many of the RMBC TRO records need to be scanned for robust data management. The Parkmap GIS system was used to hold data of all parking restrictions in Rotherham, but has become out of date and is not useable in its present state. A comprehensive updating of this system is intended as it would provide a useful tool for managing data. Once completed there would be a requirement to keep this information up to date.

A policy review entitled Signing the Way was published by DfT in October 2011. This advocates reduced signage to address street clutter and simplification of design guidelines. The Traffic Signs Regulations and General Directions (TSRGD) which provides guidance for signage and road markings is to be reviewed as a result of the Signing the Way review.

6.7.2 Roundabouts and Mini-roundabouts

Maintenance of roundabouts will commonly have traffic management requirements. For example gully cleansing or verge maintenance can require the innermost lane to be closed, impacting on congestion and traffic management costs. Mini roundabout carriageway surfaces and markings can be vulnerable to fast deterioration through vehicle braking and turning movements. These have usually been introduced as traffic calming features and frequent maintenance is commonly required to maintain them.

6.7.3 Anti-Skid Surfaces

The introduction of any anti-skid surfacing as part of highway schemes is recommended to include Buff coloured anti-skid surfacing only. High PSV (Polished Stone Value) aggregate is favoured over anti-skid surfacing where higher friction surfacing is deemed necessary. This is both to minimise additional over confidence of drivers on anti-skid surfacing and because of the unsightly nature of the uneven deterioration of buff surfacing. Maintenance costs are high as anti-skid surfacing can start to deteriorate within 2-3 years or even within 12 months if it's laid down on poor quality carriageways. Coloured anti-skid surfacing may be used for road safety reasons if a robust case can be argued, but having this at many locations can reduce the effect of the colour as drivers become used to seeing it. Locations of anti-skid surfacing across the Borough are not currently held. A handover process for new assets is to be developed.

6.7.4 Traffic Calming Assets

Speed humps, cushions and tables have been introduced at many locations across Rotherham that required speed reduction measures. These assets can cause deterioration of carriageways and require frequent maintenance to the surrounding carriageway surface. However, lessons have been learned and associated carriageway strengthening and resurfacing works are now carried out in conjunction with traffic calming measures. Locations of road safety engineering measures are recorded on a MapInfo layer.

7 ASSET INVENTORY AND LIFECYCLE PLANNING – DRAINAGE

7.1 Drainage Asset Inventory Information

Table 7.1.1 Highway Drainage Asset Inventory

Asset Type	Number of Assets	Length of Assets (km)
Road Gullies	45,500	
Highway Drains, including connections (estimated)		25
Subway Gullies/Grids	78	
Roadside Linear Drainage Channels		7.5
Storage Pipes		2.5
Soakaways/Silt Traps/Petrol Interceptors	300	
Flow Controls	2	
Total	45,880	35

In accordance with the Floods and Water Management Act 2010 the Council has a duty as the Lead Local Flood Authority (LLFA) to ensure adequate surface water management and to manage flood risk within the Borough. The Council completed Rotherham's Local Flood Risk Management Strategy (Strategy) was approved by Council Members in 2014 and was later published on the Council's web site early in 2015 for public viewing. The Strategy identifies the need to monitor and record all assets within the highway infrastructure and has various Action Plans to ensure adequate asset management is in place given that the Strategy is a 'living document' and will require regular updates.

The Strategy identifies fifteen objectives to ensure a comprehensive approach. Some of the significant objectives are:

- Improve the level of understanding of local flood risk
- Create an Asset Record and Register to record drainage infrastructure and assets
- Improve management of Council owned drainage and flood management assets.
- Encourage proactive, responsible maintenance of privately-owned flood defence and drainage assets
- Identify and promote viable schemes to reduce flood risk
- Promote buy-in by stakeholders and identify potential sources of funding

Customers are kept informed about highway drainage maintenance on the Council's web site, which includes:

- Local Flood Risk Management Strategy.
- Surface Water Management Plans.
- Section 19 Investigation Works (Floods and Water Management Act 2010).
- Services and Duties that the Council's Drainage Service provides.

7.2 Drainage Lifecycle Planning

The following objectives are specific to the drainage asset are as follows:

- Identify long term investment infrastructure assets in accordance with Rotherham's Local Flood Risk Management Strategy, Action Plans and Asset Register
- Explore the possibility of combining Flood Defence works through Defra Grant in Aid funding with future Local Highway Authority funding arrangements.
- Being responsive to stakeholders concerns with regard to flooding or other drainage problems.
- Carry out routine inspections in accordance with the Council Annual Gully Cleansing Schedule and Programme for highway infrastructure assets to determine future performances. Comprehensive assessments are carried out through CCTV surveys, hydraulic modelling (use of Micro Drainage), frequent blockages reports whereby the maintenance strategies are determined, schemes are prioritise using Council scoring matrix. Based on this information the works and programme of investment is determined.
- Continue to promote safety and accessibility for vehicles, motorcycles, bicycles and pedestrians.
- Carry out additional inspections to ensure the structural and functional integrity of the drainage system.
- Being able to protect and ensure environmental sustainability by avoiding entry of pollutants into drainage systems.

Presently the highway drainage networks are being surveyed in accordance with the requirements of the Floods and Water Management Act 2010. The information or data is being recorded on the Council's Map Info software which is continually being updated. Some highway drainage systems are over 100 years old and some are in a poor condition and require replacing.

Estimations have been made based on highway drain replacements where it is estimated that the costs could be in the region of £1.5 to 2 million. However, more detailed assessment of total costs for repairing highway drains is required and this will be produced through the development of the flood risk Asset Register and Record. These costs refer to scheduled capital works and would be likely to be much higher in an emergency collapse situation. Presently in some areas there is a high risk of flooding.

Maintenance and conditions of gullies are identified in the Council's Local Flood Risk Strategy, and various Action Plans have been established to ensure that the works and actions are completed within a reasonable timescale. The Council maintains the road gullies in accordance with its Annual Gully Cleansing Schedule. The Schedule is based on CIRIA recommended requirements for Gully Cleansing Operations, which provides a level of consistency and accountability in the maintenance of the highway drainage systems.

The condition of highway assets are inspected and recorded in various ways which include:

- Damaged gullies or kerb off-lets are recorded during safety inspections, other surveys and from public reports.
- Blocked ditches or roadside grips are seldom noticed during safety inspections and problems are frequently discovered during the course of other work and/or reports received from the public when flooding occurs.
- Piped systems, manholes, outfalls, catchpits, soakaways and SuDS (sustainable drainage systems) do not have a regular inspection regime. Faults are only discovered

following detailed inspections of the highway, reports by the public or when the system is in need of clearance or repair.

The current condition of the visible, regularly visited sections of the network (e.g. gullies) is generally known and in reasonable order. However, the condition of the remainder of the network, which is largely underground, is less well known. During rainy periods, increased flooding has been one of the issues to be managed. This management process has taken place reactively in providing continuing road accessibility, safety to road users and prevention of flooding of private properties.

The particular demands on the Council's drainage system are set out below:

- To manage and provide protection against the risk of flooding due to silting and blockage
- To avoid damage from third parties
- To ensure that the drainage system allows provision of safe and inviting routes for all traffic, pedestrians and cyclists by avoiding accumulation of water on carriageways, footways and cycle routes
- To ensure that polluted effluent from the clearing of highway drainage is not directed into the watercourses
- To ensure that capacity is maintained in relation to ongoing growth of the drainage asset through the adoption of new roads/footways or carriageway improvement schemes.
- To investigate and, where necessary, put measures into place in order to deal with climatic changes which are increasingly leading to changing weather patterns, resulting in more frequent but shorter periods of heavier rainfall. Such measures will include storage tanks, SUDS and 'on-line' attenuation looked at in the context of the overall capacity of the network.

Drainage lifecycle planning also considers routine maintenance and planned renewal/replacement of drainage asset.

Table 7.2.1 Routine maintenance for drainage activities

Description of Maintenance	Current Regime	Works History	Lifecycle Impacts
Cyclic Maintenance			
Gully Cleaning	At least once per year in all locations but more frequently for those sites identified as being problem areas or prone to flooding.	All works are recorded on worksheets and entered onto database. introduction of Track You tracking device for monitoring gully cleansing operations.	Regular gully cleaning helps to alleviate flooding problems and reduces the rate of degradation of the drainage asset. Tracking device identifies potential drainage problems and safeguards against future claims.
Cleaning of brooks and screens	Carried out in accordance with annual maintenance programme.	All works are recorded on worksheets and entered onto database	Regular cleaning of brooks and screens helps to alleviate flooding problems and reduces the rate of degradation of the drainage asset.
Reactive Maintenance			

Gully Repair	Isolated gully repairs are identified from safety inspections, or from reports received from team following gully cleaning	A list of damaged gullies is recorded. All works are recorded on worksheets and entered onto database	Repairs to gullies are reactive can have the effect of reducing the need for greater drainage maintenance at a later time.
Cleaning of drainage kerb, drainage channel pipes, manholes, soakaways etc.	The need to clean safety kerb, pipes, manholes etc. are identified from safety inspections or when flooding problems is reported.	All works are recorded on worksheets and entered onto database	Regular cleaning of these assets would help to alleviate flooding problems and reduce the rate of degradation of the drainage asset.
Piped Drainage Repair	Isolated pipe repairs are identified from safety inspections, or from reports received from the team following gully cleaning	All works are recorded on worksheets and entered onto database	Repairs to pipes although being reactive can have the effect of reducing the need for greater drainage maintenance at a later time.
Clearing of Ditches, Swales, Ponds etc.	The need for clearing of ditches etc. are identified from safety inspections, or from flooding reports received from the public	All works are recorded on worksheets and entered onto database	Introducing a regular cleaning regime could have an effect of reducing the number of flooding incidents reported.

Table 7.2.2 Planned renewal/replacement maintenance for drainage activities

Description of Maintenance Activity or Treatment Type	Current Regime (Expected Life or treatment frequency)	Works History (How much is achieved per annum)	Lifecycle Impacts (The asset's whole life cycle and or other maintenance activities)
Culverts and Piped Drainage System: Replacing badly damaged culverts and piped systems	A list of known drainage problems is maintained, with each site being subject to investigation using CCTV; funds are then allocated to undertake repairs based on a priority rating up to the available funding limit.	All works are recorded on worksheets and entered onto the database	Repairs to the drainage system are reactive and only if they are noticed at an early stage can they have the effect of reducing the need for greater drainage maintenance at a later time.
Bulk Gully Repair	Gully repairs are identified from safety inspections, or from reports received from the team following the gully cleaning	A list of damaged gullies is Included on the works programme. All works are recorded on worksheets and entered onto the database	Repairs to gullies although being reactive can have the effect of reducing the need for greater drainage maintenance at a later time.

7.2.3 Watercourse Lengths

	Watercourse Length (km)
Main Rivers	44
Total for Main Rivers	44
Ordinary Culverted Watercourses - Private Responsibility	16.9
Ordinary Culverted Watercourses under Public Highways	13.8
Ordinary Culverted Watercourses in Council Owned Land	5.8
Sub Total for Ordinary Culverted Watercourses	36.5
Ordinary Open Watercourses - Private Responsibility	366.7
Ordinary Open Watercourses under Public Highways	0
Ordinary Open Watercourses in Council Owned Land	48.3
Sub Total for Ordinary Open Watercourses	415
Total of Ordinary Watercourses	451.5
Grand Total of Main Rivers and Ordinary Watercourses	495.5

Watercourses are a form of flood risk in some areas and are often in need of constant maintenance works and/or require regular repair or upgrades to mitigate the risk of flooding. The landowner(s) or riparian owner(s) has the responsibility for the maintenance of flows within a watercourse located in their land.

The Council shares best practice regarding the maintenance and management of watercourses, with other Local Authorities in South Yorkshire such as Barnsley, Doncaster and Sheffield including NE Derbyshire. Lead Local Flood Authority (LLFA) meetings are arranged on a quarterly basis and are as follows:-

- South Yorkshire Land Drainage Group (SYLDG) - Mainly Land Drainage Engineers regarding technical matters.
- South Yorkshire Flood Risk Partnership – Senior Management, Members and Engineers regarding Strategic matters.

In addition representatives from the SYLDG attend meeting with the West Yorkshire LLFA to share best practice on all land drainage matters.

Ordinary watercourse network are being surveyed in accordance with the requirements of the Floods and Water Management Act 2010. The information and data is being recorded on the Council's Map Info software which is continually being updated. Further information and data are required to identify in detail the defective or problematic culverts throughout the Borough of Rotherham. Additional works such as hydraulic analysis, CCTV surveys, manhole and outfall surveys and structural condition surveys are required to provide the relevant information to mitigate any risk of future flooding.

There is a combined total of 495.5km of watercourses throughout the Borough which comprises of 44km of Main Rivers and 451.5km of both culverted and open watercourse sections. Some of the culverted sections are over 100 years old and some have not been

maintained or replaced due to funding constraints. Subsequently, some of these culverts are in very poor condition and in need of replacement.

It is estimated that approximately 20% of ordinary watercourses are in need of attention and approximate estimations have been made of the lengths likely to require replacement or repair work. Cost estimations have been made using similar cost assumptions for a culvert replacement scheme. More detailed assessment of total costs for repairing culverts under public highways, Council land and private land are currently being produced through the development of the Flood Risk Asset Register and Record.

Table 7.2.4 Estimated costs to treat poor condition culvert sections

Defective Culverts	Length	Unit cost (£)	Estimated cost to treat (£m)
Under adopted highway	600	£2,250	1.35m
Under Council owned land	350	£2,250	0.788m
Under private land	350	£2,250	0.788m
Total estimated length	1,300	£6,750	2.925m

These costs refer to scheduled capital works and would be likely to be much higher in an emergency collapse situation. Presently in some areas there is a risk of flooding, a priority programme will be prepared for renewal or replacement capital works that are required for the ordinary watercourse network. In addition to this, bids to the Environment Agency for Flood Defence Grant in Aid (FDGiA) funding and Local Levy funding are to be submitted by the Council. The EA has indicatively allocated a total £50k in 2015-16 for feasibility studies in the Whiston and Herringthorpe areas of Rotherham. The outcome of these studies is likely to identify various flood risk and condition problems to several culverts which later may require further funding to repair or replace the defective culverts.

The Environment Agency funding is based on flood risk and in particular the number of properties with reduced flood risk. For schemes to be identified and funding bids successful it is necessary to reconcile this with the Council's Highways & Transportation priorities.

7.2.2 Obsolete Gullies

There are a large number of older type road gullies (e.g. brick built, arterial etc.), which should be replaced by modern gullies that can be rodded and cleaned more easily. It is estimated that approximately 15% of Rotherham's 45,500 road gullies could be considered as the obsolete type. In some cases the gully connections are difficult to cleanse causing further maintenance implications. It is estimated that to replace all of these obsolete gullies with effective trapped gullies with rodding access would cost in the region of £3.5 million, therefore it could be considered as not being cost effective or a priority. There is a limited on-

going replacement programme based on flood risk, which is on a small scale and managed from existing maintenance budgets. Drainage is reviewed as part of highway schemes so that any obsolete gullies can be replaced as part of the scheme. Ineffective gullies lead to water holding on the carriageway, which can accelerate carriageway deterioration.

7.3 Drainage Asset Lifecycle

7.3.1 Creation and Acquisition – Linear Drainage

Approximately 7km of linear drainage is used on public highways. Maintenance of linear drainage can be problematic on site therefore such assets are usually specified if no other maintainable solution can be identified. It is estimated that approximately 10% of Rotherham's linear drainage could be considered for repair or replacement. For example where slot drainage channels have been used these are difficult to maintain because the slots become full blocked and can no longer be repaired. Some linear drainage systems are located within densely populated areas such as shopping areas (e.g. Wales, Rotherham), where it is difficult to cleanse the drainage channel when people are present.

Table 7.3.1 Estimated costs to replace defective linear drainage

Total Length of Linear Drainage (m)	10% of Total Length of Linear Drainage	Unit cost (£ per linear m)	Total cost for estimated requirements (£m)
7,000	700	360	0.252

All future sections introduced in Rotherham will be designed and installed strictly in accordance with manufacturer's recommendations and industry best practice to optimise performance.

7.3.2 Creation and Acquisition – Ordinary Watercourses

For the culverts that have been identified as being in poor condition, there are options to replace culvert sections or to repair or reline existing sections. Cost benefit analysis is undertaken for proposed schemes and the replacement schemes usually provide better benefit cost ratios when taking into account whole life costing.

Replacement of culvert sections will provide far greater design lives for assets than relining schemes. New culvert sections usually offer a 120 year design life, whereas a relining treatment will usually provide a lifespan of approximately 50 years. However, it is more costly to replace culverts compared to relining.

There is also a possibility that the existing cross sectional area may be reduced when a culvert is relined, however in some cases it may be consider better to reline a culvert where culvert sections run underneath buildings or sections of the strategic highway network.

Open sections of watercourse and proposed trash screens are sometimes carried out as part of capital schemes and are designed to have features required for safe maintenance access. Unknown culvert sections are sometimes found during highway schemes or statutory undertaker works. Culvert sections under the adopted highway are Local Highway assets.

Maintenance and conditions of ordinary watercourses are identified in the Council's Local Flood Risk Strategy and Action Plans have been established to ensure that the works and actions are completed within a reasonable timescale.

7.3.3 Creation and Acquisition - SuDS

The Flood and Water Management Act 2010 necessitates Sustainable Drainage System (SuDS) infrastructure for new developments, which will form part of the Local Authority Planning Application process. Defra has determined that after the 15th April 2015 the Local Lead Flood Authority will now become a statutory consultee for a major planning applications (e.g. 10 or more properties, greater than 1Ha etc.).

All SuDS applications are likely to have a major impact on Local Authorities with potential resource and financial implications. The final impact will be monitored and only fully understood after the first year of its introduction to the existing Planning Process.

The Local Authorities in the South Yorkshire region including Rotherham have produced a Interim Local Guidance for SuDS which aims to provide guidance to Planners, Applicants and Members of the Public. The SuDS guidance was approved by the South Yorkshire Flood Risk Partnership for public viewing on the 2nd June 2015.

7.3.4 Routine Maintenance and Prioritisation

Maintenance of highway drainage is undertaken in-house and maintenance levels are determined such that they are in line with the Well Maintained Highways code of practice.

The Council carries out its inspections and cleansings of the gullies and culverts in accordance with the Council's Annual Gully Cleansing Schedule. All reports of problem gullies are recorded on the Council's Drainage Section database for further action where necessary.

The Drainage Service operates a prioritisation and scoring matrix (Table 11.3.1) database which prioritises the highway drainage work required into High, Medium and Low priorities, for example the higher priority the more urgent/necessary the work. All assessments are rated on the severity of the flooding problems, safety of the public highway properties and lives, frequency of the flooding problems and repeat reports. It has been estimated that within the existing Council's Works Programme for the repair or replacement of defective highway drainage systems, the costs are estimated at approximately £3.5m.

Customer, Quality, Cost (CQC) is used as part of seeking improvements drainage assets. Satisfied Customers, Technical Quality and Cost Effective Delivery are generally considered to be the three key components of all round excellent performance.

For each drainage scheme or major drainage maintenance works which is likely to have a direct impact on the customer, the Council representatives meets and consults with the customer e.g. via Engineer on Street Corners, letters etc., prior to works commencing on site. In addition the customer is provided with contact details to discuss or forward any comments they may have regarding the works to be carried or works that have been completed. All reports or information provided by the customer is recorded on the Council's Drainage

database and the information is used to ensure that the right level of service is provided within the budget provided.

An example of this methodology is the service that the Council provides for the emptying of cesspools and septic tanks where the Council has over 700 customers and provides the service to the customer's year on year and within the agreed disposal costs. A comparison of the Council maintenance costs are reviewed annually against private external contractors.

Much of the ordinary watercourse network has not previously been included in inspection and maintenance programming, which has led to much of the network being in poor condition. Culverts under the adopted highway with diameter 0.9m and above are now classed as structures and incorporated into the Bridges and Structures asset group. Highway culverts that are smaller than this are managed as part of the highway drainage network.

For ordinary watercourse sections in the ownership of private riparian owners, there can be risks to potential non-maintenance. Riparian owners are to be notified of their responsibility by the Lead Local Flood Authority (LLFA). A management strategy for the LLFA owned culverts is being prepared, which will include highway and non-highway watercourse assets as well as third party owned assets. Policy for routine maintenance of watercourse assets is to be included in this management strategy and associated action plans.

7.3.5 Renewal or Replacement

Replacements must be ensured to not decrease the capacity of drainage available, unless the size of the existing culvert is demonstrated to be significantly over capacity. Whilst renewal/ replacement usually refers to steady state replacement with like for like capacity, in most culvert replacement situations an increase in capacity is desirable due to the impacts of climate change. Renewals or replacement must not result in increased flooding or flood risk elsewhere to adjacent land or properties or locations downstream.

The Council has produced two long term forward programme of capital drainage maintenance works.

7.3.6 Upgrading

As a result of Climate Change, rainfall events are increasing in duration and intensity and the risk of flooding events are high resulting in the required capacity of the drainage system will need to be increased in some locations.

Surface water flood modelling must be undertaken and should take into account all Surface Water Management Plan, Flood Hazard Maps produced by Environment Agency and the Rotherham's Local Flood Risk Management Strategy to be published on the Council's web site in February 2015.

7.3.7 Disposal

Capital drainage schemes, especially open watercourse schemes will sometimes require disposal of fly-tipped material. This requires special disposal requirements due to potential contamination. Culvert sections can also sometimes be contaminated by hydrocarbons from the highway and unauthorised discharges. This disposal element can be costly and must be factored into renewal costs.

Existing materials such as gully arising are recycled where possible rather than going to land fill where high land fill costs are likely. For re-grading of open watercourses, existing material is to be conserved to protect invertebrates and other biodiversity elements.

7.4 Resilience to Climate Change

Experts have estimated that the affect Climate Change could impact and increase the intensity and frequency of extreme rainfall events. The drainage network is therefore required to cope with increased rainfall in order to prevent flooding to highway and properties and maintain levels of service. It has been recognised that to minimise the risk of flooding to roads and properties there is a need to be more efficient and possibility of an increase in the maintenance of the drainage network. In other areas where drainage systems require replacement then the design of the drainage network must take into account climate change. The Council recognised as part of the Rotherham's Local Flood Risk Management Strategy which is published on the Council's web site in February 2015.

8 ASSET INVENTORY AND LIFECYCLE PLANNING – STREET LIGHTING

8.1 Street Lighting Asset Inventory Information

Table 8.1.1 Street Lighting Inventory

Street Lighting Asset	Number of Units
Up to 5m	14579
Up to 6m	10202
Up to 8m	3986
Up to 10m	5402
Up to 12m	862
High mast	25
Wall Mount / Pole Bracket	160
Total	35216

Table 8.1.2 Concrete Columns

	Number of Units
Concrete Columns	15381

Table 8.1.3 Valuation of street lighting Assets 2013-14 (WGA)

	Value £m
Gross Replacement Cost	47,621
Depreciated replacement Cost	42,621

Table 8.1.4 Age Profile of columns

Age	Up to 5m	Up to 6m	Up to 8m	Up to 10m	Up to 12m	High Mast	Wall mount / Pole Bracket	Total
0-20	4539	8044	1362	2498	104			16547
21-30	131	125	355	723	461			1795
31-40	3571	1275	1748	1594	194		160	8542
40+	6338	758	521	587	103	25		8332
Total	14579	10202	3986	5402	862	25	160	35216

8.2 Street lighting Lifecycle Planning

Lifecycle planning considers the overall asset and to plan and implement key replacement initiatives to mitigate identified risks. The major risk with the street lighting asset is safety, both in regard of structural condition of the asset and the planned and reactive maintenance element of street lighting.

The following objectives are specific to the street lighting asset:-

- Being responsive to stakeholders concerns with regard to street lighting issues and include this in the decision making process
- Carry out mandatory testing and routine inspections in line with industry standards
- Continue to promote safety and accessibility for all road users in the Borough
- Follow a sustainable action plan in relation to reducing energy consumption and carbon emissions

8.2.1 Street Lighting Asset Data

The UK lighting board published the code of practice 'Well-lit Highways' in 2004 and the principles within the document were used as a basis for the initial collection of asset data. This street lighting asset information was first collected some 7 years ago and is maintained on a regular basis. In accordance with the recommendations in the HMEP guidance, as and when changes are made to the asset infrastructure, the data is updated to provide an accurate profile of the asset. The asset information is held on a central database 'Deadsure' which stores, manages and reports all relevant data. There are 3 basic components within each street lighting asset, these being the column, lantern and power supply.

8.2.3 Column condition

The main consideration over the past few years for maintenance of the asset has been the column type. As this is the structural part of the asset it was imperative to assess and consider capital investment for replacement. An age profile was drawn up when the data was first collected and this profile of the asset was used to form the basis of a 2009 Council Report to change over 10,000 ageing, potentially failing concrete columns to steel replacement columns with a 50 year life. The report considered a number of options to consider the asset replacement strategy, namely:-

- A 'do minimum option' of reactive replacement of failing columns, but this would mean that the backlog of replacement would grow year on year and the risk of damage and injury to persons and property would increase.
- Pursuing a fast track solution using an outside service provider (PFI) to replace all columns with potential defects and manage the total street lighting function for the life of the contract which would be 25 years. This option was considered by an independent financial consultant and was not deemed viable for the Authority.
- The preferred option of a planned 10 year programme of replacement using high specification columns with a design life of 50 years. The lighting function has remained in house and has allowed new technology to be applied with associated benefits.

Within the preferred option, replacement works have been prioritised in line with ILE technical report 22 (managing lighting columns) and a visual inspection was carried out of all the lighting columns within in the borough to give a '1' to '5' rating of column condition. This information was logged against the types of column with known inherent defects along with column ages to give list of the 'action age' of the columns to enable prioritisation for

replacement. Within the priority programme consideration was also given to the type of lantern and light source and low pressure sodium units (due to their age) have been prioritised before high pressure sodium units. By using these set criteria, a clear prioritisation of the 10 year column replacement programme has been developed.

This £6 million prudential borrowing project was supported by the Council and has been a programme that has been ongoing for 5 years with another 5 years of installation works remaining. This has also been supported by recent Local Transport Plan funding which again considered the age profile of the asset as a priority consideration and has allowed replacement of columns on main routes and Quality bus corridors, which although primarily steel were again an ageing asset.

As the replacement of the columns continues there is still a need for continual assessment, both visually and structurally of the street lighting asset. As the current replacement programme comes to an end in 5 years' time, a further report on the action age will be carried out with recommendations to ensure continual further lifecycle planning.

8.2.4 Lantern replacement

Around 6 years ago the authority looked at the lighting stock and in particular the lanterns and light source makeup of the asset. It was deemed prudent at the time to undertake bulk replacement of low pressure sodium (SOX) and high pressure sodium (SON) lighting units with compact fluorescent lighting sources on residential routes. This type of lighting offers a 'white light' for better colour rendition and recognition along with reducing the energy consumption significantly. Around 15,000 of the 28,000 residential units have been replaced with this type of lighting, but technological changes and the advent of LED light sources has changes both the Councils and industry priorities. The lifecycle plan for lanterns and light sources has been considered going forward and the use of LED programmes have been implemented as outlined below.

8.2.5 LED "Invest to Save" – Lantern Replacement Main Routes

As the use of LED lighting has become widespread in street lighting, Rotherham MBC has taken the opportunity to invest in this technology. A programmed investment of £2.6million over 3 years, financed by unsupported and capital receipts commenced in August 2013. Around 6,000 main route lighting units were identified as being fitted with SOX and SON units and with the potential for significant energy and routine maintenance savings, this 3 year programme has been developed for their replacement with LED fittings. The supplier was sourced through the OJEU tender process to provide a competitive pricing structure for the units and offer guarantees and whole life costing to give the best payback period to the Authority.

The estimated energy savings at 2014 energy prices is around £250,000 / annum upon full installation of this programme, and with a 20 year guarantee on the LED units there will also be significant revenue savings as reactive maintenance will be potentially reduced. This has

strengthened the case of the asset management framework by explaining the funding required and what benefits are to be achieved in line with recommendations.

8.2.6 LED “Invest to Save” – Lantern Replacement Residential Routes(Sox/Son)

Following the success of the initial installations of main route LED units, a separate programme for the lower wattage residential routes has been introduced. Of the 28,000 units identified on residential and secondary distributor roads, around 13,000 are SOX and SON units and replacement of these will again deliver significant savings on both energy and required reactive maintenance. The procurement of the units has been sourced through a rigorous and robust tender process to identify the most cost effective units taking into consideration whole life costs. The £2million programme to replace the 13,000 units commenced in August 2014 and is likely to save around £270,000 / annum in energy costs (at 2014 prices). Although some of the LED units will be replaced on concrete columns, the life expectancy of the lanterns is over 20 years, so as the columns are replaced going forward, lanterns will be re-sited on any replacement columns.

8.2.7 LED “Invest to Save” – Lantern Replacement Residential Routes(Compact Fluorescent)

Initial testing is being carried out for the remaining street lighting stock. Trails have commenced to consider LED lamp and driver replacement only as opposed to full lantern replacements. If successful, significant energy savings could be achieved.

8.3 Street Lighting Asset Lifecycle

8.3.1 Creation and Acquisition

It is recommended that bespoke street lighting assets are not introduced in Rotherham, since these increase maintenance costs throughout their lifecycle. Approved lighting design standards for RMBC are held and new assets acquired should ideally be to these specifications.

Ornamental lighting such as up-lighting under benches is not recommended to be introduced as service level priority is in favour of lighting required for practicality over ornamental and aesthetic reasons.

New street lighting columns may also require banner arms, Wi-Fi transmitters or the potential to have CCTV or bus lane enforcement cameras attached.

8.3.2 Routine Maintenance

Reactive maintenance for street lighting assets is undertaken by RMBC direct services street lighting team. Faults can be reported by members of the public or identified by highway inspectors and are attended within a target of 3 days for resident reports and 5 days for inspectors report. Customer, Quality, Cost (CQC) is used as part of seeking Improvements to street lighting assets. Using APSE benchmarking data, the authority can make a direct comparison with similar authorities to ensure delivering a cost effective service within the parameters of customer expectations. Staff are available to provide in depth technical information to customers and with the recent introduction of LED technology, a number of

night time customer engagement sessions have been carried out.

A cyclical maintenance programme is in place with regard to mandatory electrical testing and this is carried out every 6 years. A visual inspection is also undertaken when the electrical testing takes place to identify any failing or damaged units, these are then programmed for replacement using the capital works funding or a small fund within the revenue allocation.

There is no bulk replacement programme in Rotherham; this was abandoned some years ago in favour of “burning to extinction”. Although a bulk change programme requires fewer maintenance visits it doesn’t utilise the full life of the bulbs, therefore burn to extinction has been assessed as more cost effective, this is further supported and will be superseded by the LED invest to save programmes of work.

Going forward, the installation of LED units with 20 year guarantees should reduce the number of faults and make the street lighting service far more cost effective. Revenue works are prioritised to include mandatory works such as electrical and structural testing, reactive works such as random repairs taking into consideration customer reports, and asset replacement / upgrading works and budgets availability.

8.3.3 Other energy saving measures

In addition to the use of low energy usage LED other energy saving measures are employed. These are:-

- Trimming – the lighting levels of switching on and off the street lighting units has been reduced saving around 200 hours / annum/ street lighting unit.
- Dimming – as the amount of traffic on roads reduces significantly at certain times, the lighting levels can be reduced saving energy by reducing consumption.
- Part night lighting – certain roads have been assessed and the lighting is switched off from midnight – 5am. This is following safety audits and risk assessments taking into account crime, anti-social behaviour and traffic accidents.

8.3.4 Disposal

Waste products are recycled where practicable. Concrete is recycled by crushing and grading for highway usage. Steel also has a scrap value and many of the bulbs used in street lighting are recycled. Where products are disposed of, they are disposed of in a manner compliant with current legislation.

9 ASSET INVENTORY AND LIFECYCLE PLANNING – HIGHWAY STRUCTURES

9.1 Bridges and Structures Asset Inventory Information

Table 9.1.1 Structures inventory

Structure Type	Number
Bridge: Pedestrian/Cycle (multi-span)	3
Bridge: Pedestrian/Cycle (single span)	8
Bridge: Vehicular (2 or 3 spans)	15
Bridge: Vehicular (4 or more spans)	3
Bridge: Vehicular (single span)	121
Culvert (single cell)	3
Sign/Signal Gantry [spanning]	0
Tunnel (bored)	0
Underpass (or Subway): Pedestrian	32
Underpass: Vehicular	0
Total	185
Retaining Wall	TBD

Table 9.1.2 Gross Replacement Cost (GRC) for 2013-14 WGA submission

Highway Structures	Value (£m)
Gross Replacement Cost (GRC)	£164
Depreciated Replacement Cost (DRC)	£157

9.2 Bridges and Structures Assets

The Gross Replacement Cost (GRC) of RMBC owned structures is approximately £164m, which represents the value of replacing all structures as new. The GRC is calculated by considering each structure individually with indicative costs based on the size of the deck area, calculated using the CIPFA structures toolkit. Table 9.1.1 above shows how many of each asset type are listed in the structures inventory.

A toolkit has been created by CIPFA to calculate the Depreciated Replacement Cost for the WGA returns. This utilises condition information from structure inspections. The information gained is useful to provide an overview of the condition of the structures asset base. The expected design life of highway structures is 120 years although many have been built in the past that may not have been designed to this standard.

9.3 Asset Description and Data

Rotherham has a highway structures stock consisting of 185 Bridges and Culverts (1.0m diameter or greater) and 177 Public Rights of Way Footbridges and approximately 60km of highway retaining walls. An extensive electronic inventory is maintained for each structure consisting of construction details, inspections and repairs. This system is networked and accessible by all relevant staff.

Data collection is carried out as recommended in the Code of Practice for the Management

of Highway Structures and this process is controlled / monitored by a database. This process is funded by a dedicated highway structures revenue budget.

9.4 Bridges and Structures Asset Lifecycle

9.4.1 Asset Collection

Recent years has seen a significant improvement with the effective storage and handling of data for asset management and asset valuation. Condition inspections and assessment now has good data held for the previous four years. New methods of data capture are to be trialled in the coming years allowing electronic recording of information on site. This will make the inspection process more efficient and speed the input process to the asset management system.

There is still a considerable amount of condition data needed for retaining walls and it is hoped that there will be significant progress during this asset management plan.

An effective asset management system is a key factor. Work will continue with Symology (Insight Asset Management System) to continually develop the software necessary to produce an effective management system encompassing all the requirements outlined above.

9.4.2 Life-cycle Planning

A key element of lifecycle planning is to determine the level of service required and what investments are required to achieve that performance. The level of the service set by corporate priorities is to ensure highway structures are maintained to a safe and consistent standard.

To ascertain this, a programme of general and principal Inspections are carried out as recommended in the Code of Practice for the Management of Highway Structures. The inspections report on each element of a bridge giving it a condition score weighted according to its structural importance. From this data an individual Bridge Condition Score can be calculated and this is used to determine a Bridge Stock Condition Indicator. The results indicate that 27% of the structures are in the category Good or better, 40% Fair and 33% Poor or worse. The overall current level of performance is classed as fair but this would indicate that there is a significant backlog in the work necessary to bring the stock up to good condition.

Over recent years a programme of works has been developed supporting value for money principles and is prioritised based on a manual assessment of the condition reports and other factors such as risk, customer reports, Network Rail reports and the impact on the highway. This does not follow 'worst first' prioritisation planning, it aims to improve the assets in better condition whilst maintaining those in the poorest condition by timely intervention. Table 9.4.1 - Bridge Condition Indices illustrates a 'steady state' of condition has been maintained.

The CIPFA structures toolkit has been developed to aid this function. We are presently working with our asset management system supplier to incorporate the toolkit within the system. This work and population of all the necessary data is expected to be complete by the end of 2015 when it should be possible to develop more advanced life-cycle plans for this asset group.

The management of highway structures has been going through considerable changes in recent years supported by government who have produced a Code of Practice for the Management of Highway Structures and a 'toolkit' to aid lifecycle planning. This has allowed

bridges to be assessed for their average condition and critical element condition together with an overall Bridge Stock Condition.

Table 9.4.1 Bridge Condition Indices

Year	BCi average	BCi critical
2011/12	81	75
2012/13	81	75
2013/14	82	75
2014/15	82	75
Bridge Stock Condition - Fair		

The above table does give an indication of a very slight improvement and demonstrates that the current funding is achieving the level of required level of service.

ADEPT have been looking at these indicators as a method of measuring performance and have collated data nationally. Their conclusion at present is that the data is not sufficient to enable comparisons to be made. Work is continuing on this.

10 ASSET INVENTORY AND LIFECYCLE PLANNING – TRAFFIC SYSTEMS

10.1 Traffic Systems – Asset Inventory Information.

Table 10.1.1 Traffic Signals Inventory

Type of Installation	Number
Junction	52 (207 approaches)
Dual Pelican	3
Single Pelican	4
Dual Puffin	7
Single Puffin	23
Dual Toucan	9
Single Toucan	8
Wig Wag	1
Total	107

30 sites are Remote Monitoring Sites (not connected to UTMC)

Table 10.1.2 Urban Traffic Management Control (UTMC) installations

Asset Type	Number
SCOOT Loops (figure includes some cameras)	370
Variable Message Signs (VMS) (160mm)	8
VMS signs (100mm)	1
VMS Signs (240mm)	3
Automatic Number Plate Recognition (ANPR) Cameras	34
CCTV Cameras	89
Bluetooth Journey Time Monitoring Unit	50

Table 10.1.3 Urban Traffic Management Control (UTMC) central systems

System	Assets
Imtech Scoot UTC	Central system
Imtech 'Imcity' Common Data Base	Central system
Imtrac Fault Management System	Central system
Journey Time Monitoring System (JTMS)	Central System
CCTV – Syntetics Synergy Pro	Central system

Table 10.1.4 Age profile of traffic signals

Assets	Average age (yrs)	Average remaining life (yrs)
Junction	9	11
Puffin	6	14
Dual Puffin	10	10
Pelican	18	2
Dual Pelican	19	1
Toucan	10	10
Dual Toucan	6	14
Wig Wag	4	16

Table 10.1.5 Valuation of Traffic Systems Assets for WGA

	Value (£000's)
Gross Replacement Cost	£13,600
Depreciated Replacement Cost	£7,157

10.2 Traffic Systems Asset Lifecycle and Lifecycle Plans

Information for Traffic Signals assets is collected by inspections and surveys by both RMBC staff and the term maintenance contractor. This information is held centrally in electronic format and also on the cloud based Fault Management System (FMS).

The number of traffic signals and control information systems assets are shown in the tables above. The Gross Replacement Cost (GRC) of all these assets, calculated for the Whole of Government Accounts submission for 2013-14 is £13.6m which represents the estimated value to replace all the assets. The Depreciated Replacement Cost (DRC) is calculated to be £7.2m. This represents the value of the assets, taking into account their current age and condition.

Traffic signals on street assets have a design life of 20 years. The average ages of the current traffic signal assets in Rotherham can be seen in Table 10.1.4 above. Historically traffic signal installations have been replaced on the basis of age and condition. However, some of these assets will have many faults before they reach this age and others will still be in working condition as they reach this age, but at risk of requiring complete refurbishment in the event of failure, due to the obsolete nature of the infrastructure. Funding streams have been identified that will enable a programme of traffic signal refurbishment schemes.

The annual depreciation for traffic systems is up to £0.70m per year, based on a 20 year design life. This gives an indication of the annual expenditure required to keep the condition of on-street traffic systems assets at current levels.

Life cycle planning aims to minimise whole life costs for all assets through short term maintenance cycles and longer term interventions centred on replacement and refurbishment investments. Key stake holders will be able to contribute to this process through various forums and methods, particularly disabled users and representatives, cycling, walking and horse riding groups, South Yorkshire Police, and passenger transport groups including the local bus companies. Close working with the Integrated Transport team will ensure a co-ordinated programme of replacement and investment that minimises whole life costs and maximises value for money.

10.2.1 Creation and Acquisition

The majority of new assets are due to new infrastructure requests from the Integrated Transport team utilising the associated South Yorkshire / Sheffield City Region Local Transport Plan (Integrated Transport) budget (see 10.2.6 below).

New signalised junctions and/or crossings are sometimes installed as part of Highways Act Section 278 agreements between the Council and a developer. Within such agreements, future maintenance for 20 years and replacement at year 20 is taken into account. In some circumstances new crossings are installed utilising in part 'Section 106' contributions provided by developers as part of the planning process

10.2.2 Reactive and Routine Maintenance – Revenue Funding Needs

Revenue funding needs are based on comprehensive lifecycle planning through a term maintenance contract incorporating the known asset register and pre-determined cyclic maintenance regimes and associated response specifications for reactive maintenance. The overall performance target is to ensure the network is safe and fit for purpose. The routine maintenance fund has remained static for many years at approximately £106,000 despite inflation, the externalisation of the reactive and routine maintenance function, increasing numbers of traffic signal related assets and recent new additions such as Variable Message Signage or Urban Traffic Control systems. Reactive and routine maintenance will in future be provided through a term maintenance contract in partnership with Doncaster Borough Council, commencing late in 2015. The new contract will allow a re-evaluation of revenue needs when new schedules of rates are received.

Routine preventative maintenance consists of interim inspections and yearly electrical tests. All signals assets are attended on an annual basis for inspection, bulk lamp change and lens cleaning.

Responsive maintenance consists of attending faults within target times. There are different priority levels for performance targets ranging from 1 hour to 15 days depending on the urgency of the safety implications of the fault. These performance target requirements are currently being reviewed.

A new Code of Practice for Traffic Systems was introduced in 2011 entitled Management of Electronic Traffic Equipment. This has the same status as the three other highways codes of

practice; Well Maintained Highways, Well Lit Highways and Management of Highway Structures.

10.2.3 Renewal and Replacement

Asset inventory information is held centrally and is readily available. The quality of data available for traffic signal assets has recently been improved and updated with a full and accurate inventory of all traffic signal and control equipment.

The asset inventory information allows detailed lifecycle planning. Whilst the overall performance criteria is one of safety and fit for purpose, the key determination factor of lifecycle planning will be the age and condition of equipment. Equipment of more than 20 years old will be difficult or impossible to repair and maintain, and not benefit from low energy costs or new technology. Long term investment plans aim to ensure that equipment is replaced at or before reaching this age. Whilst this does mean a significant annual investment, interaction and alignment with the Integrated Transport Programme of improvements means that lifecycle planning of the traffic systems infrastructure produces one coherent programme of works. The estimated need for long term investment in renewal or replacement infrastructure resting with the Traffic Systems service is therefore estimated at £200k per year in future years as the Integrated Transport fund will assist with the overall funding need.

A funding scenario that relies solely on Integrated Transport funding would skew the long term investment plans to those aligned solely to Integrated Transport initiatives.

10.2.4 Upgrading

Pelican crossings are upgraded to puffin or toucan crossings when they require replacement and when funding is available and there are now just 7 pelican crossings left in the borough.

New installations and replacement crossings are upgraded with LED light aspects, which is more cost effective than the traditional tungsten halogen bulbs through energy and maintenance savings. LED lights also reduce carbon emissions and have improved safety for traffic signals since red light failure is less likely to occur than with a single bulb. This decreases the occurrence of emergency responsive maintenance fault attendances required. Upgrading has incorporated the use of Extra Low Voltage supply to maximise energy savings.

Upgrading also occurs through Urban Traffic Management Control (UTMC) optimisation of systems and software. This enables improved availability of the highway network and increase's the level of service in terms of junction operation and optimising journey times. Recent funding for improvements has come through the South Yorkshire Intelligent Transport System – part of the South Yorkshire / Sheffield City Region Integrated Transport initiative. This in turn has utilised funding made available through the Local Sustainable Transport fund.

10.2.5 Disposal

Specialist disposal is undertaken for hazardous materials or components used in older traffic systems assets. There are cost implications to this as well as the environmental implications of the fluorescent materials. Assets with fluorescent tubes are no longer introduced, so the specialist disposal for this will no longer be required once all assets that include the tubes have been replaced.

When traffic signal sites are upgraded, if there are already LED lamps there will be an opportunity to re-use the LED lamps rather than install new ones.

10.2.6 Local Transport Plan – ‘Integrated Transport’

The Integrated Transport team and associated capital budget will affect asset stock through the removal of existing crossings and signal controlled junctions, through the implementation of new signals at existing junctions, through new crossings and through the refurbishment of existing crossings or junctions. In the latter case this is due to the need to improve pedestrian and/or cycling provision or due to the need to add or remove turning manoeuvres. In respect of removal, signals could have been introduced for one or more of the following reasons:

- To improve capacity
- Deal with congestion and delays
- Provide pedestrian facilities
- Address a road safety problem
- To introduce bus priority

Several signal installations have been removed in recent years where the reason(s) for implementation no longer apply. A borough wide junction review is planned for 2015/16 to document the original reasons for implementation at each installation to aid future decisions on removal.

In respect of new crossing, the requirements for new crossings are determined using a pv^2 calculation, which considers;

- The number of pedestrians crossing at the desire line
- The traffic flow for the road.
- The number of accidents that have occurred at the location

This process is undertaken following requests for controlled crossings by service users. Any locations that show a likely requirement for a controlled crossing are prioritised within available Integrated Transport (IT) capital budgets.

The likely impact on congestion of a crossing is also assessed for potential new locations. In some locations a controlled crossing may be a more suitable and potentially more cost effective alternative to a school crossing patrol.

10.3 Renewal / Refurbishment / Upgraded Infrastructure

Traffic signal upgrades and new signals use LED lighting and Extra Low Voltage (ELV) systems. This has safety benefits, reduced energy and maintenance costs and reduced carbon output. Carbon taxes are to be introduced shortly with a £12 per tonne tax for emissions, meaning carbon reduction also provides financial benefits in addition to its non-monetary environmental benefits. Energy saving benefits are likely to increase in the future as energy costs rise.

The viability of an “invest to save” programme of retrofitting existing signals with LED lanterns will be considered in 2015/16. Any LED investment could also consider controller upgrades. Variables within any such programme include a rolling programme over a number of years, economies of scale with a larger programme and/or joint procurement with other local highway authorities.

Funding is available for the renewal, refurbishment or upgrading of infrastructure where there is a benefit to integrated transport that will yield from an improvement to existing facilities. As indicated earlier, annual depreciation of traffic system control assets is £0.7m per year based on a 20 year life span.

Current assessments of asset condition indicate, of the 107 existing traffic signal locations 26% are in a red (poor) category, 34% are amber (fair) and 40% are green (good). The overall level of performance is fair.

10.4 Urban Traffic Management Control (UTMC) Software and Systems Management

10.4.1 UTMC/SCOOT in-station by Imtech

The present UTMC system consists of two central systems. The first is the UTC/Scoot system which is used for the town centre traffic signals for co-ordination between junctions and to optimise and change signal timings. This was purchased during 2013 with a 5 year maintenance plan included in the installation. The second system is a hosted Common Data Base (CDB) which again is an Imtech system (Imcity). This is used to populate VMS signs, ANPR and Bluetooth Journey Time Monitoring systems.

A tender has recently been awarded to Imtech for a new South Yorkshire hosted CDB which will bring benefits to the wider network and costs savings for the 3 authorities involved at this stage.

10.4.2 Communications Infrastructure and Technology

Rotherham town centre traffic signals are connected to the UTC system and communication links are provided by a combination of a wireless ‘imesh’ system, fibre optic cables and some rented ADSL circuits. If funding can be identified there would be an opportunity to expand the fibre network in the town centre over the next few years and so facilitate the disconnection of the rented circuits meaning all communications in the town centre area will be rent free.

There are some important sites in the borough that do not have communications links and there may be opportunities for future investment by providing communication links via mobile 4G technology. These sites are:

- A57 Anston Crossroads
- Walesbar Crossroads
- Ravenfield Crossroad

This will result in safety benefits by improved fault reporting and response times.

10.4.3 Journey Time Monitoring using Bluetooth and ANPR

Rotherham currently has 34 ANPR cameras and 50 Bluetooth detectors, mapping vehicle movements. This data in turn yields:

- Origin/destination data between any site combination
- Journey time data between any site combination or across corridors
- Identification of areas of significant speeding

10.4.4 MOVA Locations

Microprocessor Optimised Vehicle Actuation (MOVA) is installed at several major junctions and these sites benefit from improved efficiency and reduced queue lengths.

- Whiston Crossroads A631 / A618
- Doncaster Road A630 / Oldgate Lane
- Walesbar Crossroads
- Ravenfield Crossroads
- A633 corridor (3 sites)
- A57 Anston Crossroads

If funds can be identified there are opportunities for improvements at other sites by upgrading the operating system by the installation of MOVA.

10.4.5 Operation of Remote Monitoring Sites

Remote Monitoring System (RMS) traffic signals are not linked to UTMC. RMS works via dial up telephone lines (PSTN) from a central instation to each set of traffic signals on the system. Already in place is the conversion of some BT phone line's to mobile phone connection for fault reporting. Savings a r e likely through reduced call and line rental costs.

10.4.6 Variable Message Signs (VMS)

Twelve sites have benefitted from the installation of VMS signs to reduce congestion and hence improve levels of service by providing up-to-date driver information for traffic, events and roadworks.

Table 10.4.1 Sites with variable message signs

VMS Location	Reason
Rotherway	For A630/A631/town centre
Centenary Way, Canklow	For A630/A629/town centre
New Wortley Road	For A629/A630/town centre
Doncaster Road, Dalton	For A630/A6123
Herringthorpe Valley Road	For A6123/A630
East Bawry Road	For A631 and M1 motorway
West Bawry Road	For A630/A631 and M1 / M18 motorways
Centenary Way (northbound)	For all major routes
Centenary Way (southbound)	For all major routes
Greasborough Road, Northfield	For A6123, A630, B6089
Broad Street, Parkgate	For A633, A6123 and congestion (Retail Parks)
Great Eastern Way	For A633, A6123 and congestion (Retail Parks)

10.4.7 CCTV systems

The Borough operates a system of 89 CCTV cameras in partnership with the South Yorkshire Police Service. Forty six traffic signal installations can be viewed from CCTV cameras, seventeen of these are key junctions/roundabouts which can be observed for traffic conditions and are monitored from the UTC control room.

The cameras utilise BT or Virgin Media communication networks except where equipment to communicate wirelessly direct to the Council offices has been installed.

Invest to save opportunities are considered to exist particularly in the Rotherham town centre area where the Council owns short lengths of fibre cable network; modest investment to connect these together will yield significant rental savings from the town centre provider. It is anticipated that a submission will be made for an 'invest to save' proposal in 2015/16.

Table 10.4.2 CCTV Sites (for UTMC purposes only)

CCTV Location	Reason
Doncaster Gate/Wellgate	Town centre problems
Whiston Crossroads	For A631/A618
Alma Road/Hollowgate	For Southern Orbital Route
Broad Street/Greasborough Road	For A633 and Parkgate
Maltby Crossroads	For A631 and Maltby
Hollowgate/Wellgate	For Southern Orbital Route
Corporation Street	Bus Station West
Effingham Square	Inner Ring Road

Main Street	For town centre
Canklow Road	For Southern Orbital Route
Drummond Street	For Southern Orbital/town centre
College Road Roundabout	All major routes
St Anns Roundabout	All major routes
Centenary Way	For A630/ Inner Ring Road
Rotherham Road, Parkgate	For A633 & Retail Parks
Mushroom Roundabout	For A630 and A6123
Dalton	For A630 linked signals

11 WORKS DECISION MAKING PROCESS

11.1 Decision making

Improvements in the asset information enable processes for decision making to be improved to take different elements into account. Scheme prioritisation decisions will commonly depend on a number of parameters including whole-life costing, risk management and traffic impacts. For example, decisions about carriageway resurfacing prioritisation may take into account the following issues:

- Condition
- Treatment recommended (timing of intervention)
- Funding options
- Whole life costs
- Traffic impacts of works
- Strategic and operational risk
- Amenity Impact Assessment
- Strategies and initiatives
- Reactive maintenance expenditure
- Service requests or complaints
- Safety
- Strategic and key routes network
- Impact of road failure
- Engineering judgement
- Coordination with statutory undertakers programmes

Robust and transparent processes are required for confidence that optimum decisions can be made. Such processes are part of the structured asset management approach to decision making. This is illustrated in the assessment criteria for carriageways/footway works Table 11.2.1

11.2 Highway Network

11.2.1 Highway Network Decision Making Process

Traditionally, the capital maintenance programme has been determined on condition indicators from UKPMS Scanner surveys, CVI's, along with an element of engineering judgement. Roads with the highest percentages of amber sections are considered for the programme and external factors are considered in a qualitative approach. These factors have been quantified below in Table 11.2.1

The aim of this process is to prioritise sections of highway for inclusion in the works programme that will provide value for money and improve levels of service whilst limiting the impacts of the works. This aligns with the RMBC aim of provision of the best possible services for its residents.

The 2011 Audit Commission *Going the Distance* report recommended a move away from 'worst first' planning to using resources to stem the decline of assets in better condition whilst maintaining the condition of the poorest condition assets. Network level analysis to

investigate has shown how treating longer sections with resurfacing treatments could protect the network and improving condition indicators over a lifecycle. The Highways team has worked closely with our highway asset management system provider (Symology Ltd) to produce treatment options and lengths. By considering the treatment required and using this information as a major factor in the prioritisation process, more cost effective treatments can be undertaken. This avoids the potential position where only costly full depth reconstruction is undertaken for the works maintenance programme and more and more of the network continues to deteriorate to red. This treatment priority factor would mean that sometimes roads for which the majority of the condition is designated as amber would be prioritised above others with high percentages of red condition.

A treatment identification method uses failure mechanism information from Scanner and Course Visual Inspections (CVI) surveys of each road section to identify the likely required treatment. This method will give an idea of treatments for the prioritisation process. However, trained officers will still determine actual treatments to be undertaken for schemes using detailed individual assessments.

UKPMS Scanner surveys are undertaken on 50% of A, B and C classified roads in both directions each year. This means that for classified roads, each carriageway section will be surveyed once every 2 years. For Unclassified roads and all classes of footways a CVI is carried out on 25% of this network. This means that the unclassified roads and all footways are surveyed in a four year period. Engineering judgement is still required in the prioritisation method. One reason for this is to take into account the potential that the condition of some roads that were not included in the most recent surveys could be known to have deteriorated significantly.

Another factor that has been included in the prioritisation method is the reactive maintenance expenditure. If a section of road is receiving regular reactive maintenance then it is likely that it would be more cost effective for the road to be treated as part of the works maintenance programme. However, this too will be subject to engineering judgement. For example the reactive maintenance costs may relate to work that has now prevented the requirement for further treatment for a number of years.

11.2.2 Highway Network Prioritisation Method

The impact on traffic is considered as part of the scheme prioritisation process, however it should be noted that this element may outweigh all others factors as a scheme that is in close geographical proximity to another scheme may cause severe traffic problems. This would reduce the level of service and undermine RMBC's responsibility for roadwork's coordination under the Traffic Management Act 2004 network management duty, and so is to be avoided.

Table 11.2.1 shows the prioritisation method for highway schemes; this is to be refined as the process is introduced. The aim is to include a range of key elements into the decision making process.

Table 11.2.1 Highway Works Prioritisation Criteria

Points Criteria	Factor	Description	Source
Amber - 100 Red - 25 Green - 0	Condition Treatment Recommendation	Focus on AMBER, especially High AMBER. Will the works address any RED.	Condition data from Insight.
Yes – 50 No - 0	Ward Member and Parish/Town Council Suggestions	Annual Ward Member review.	Ward Members and Parish/Town Councils
Yes – 50 No - 0	(High) Highway Inspector Input	Input from the experienced and trained highway inspectors	Highway Inspectors
Yes – 50 No - 0	Strategic Network	Works are on our main routes	Street Gazetteer
Yes – 50 No - 0	Coordination with other programmed works	Is the site affected by other RMBC or Statutory Undertakers works	Insight and internal works meetings
Yes – 50 No - 0	Customer Reports	Is the suggested site the subject of reports	Connect and Insight.
Yes – 50 No - 0	Risk Mgt/Safety	Third party claims information/pothole data	Insight
Yes – 0 No - 25	Level of funding Required	Excessive cost of works - do the works need phasing	Desk top design.
Below – 0 Above – 25	Overall Ward condition	Is the Ward above or below the national average condition	Ward condition data.

11.3 Drainage Decision Making Process

Land drainage investigation surveys of the watercourse network have identified many locations where capital works and maintenance are required. Funding for flood alleviation schemes and maintenance schemes are applied for by Lead Local Flood Authorities under Flood Defence Grant in Aid, Local Levy and various Partnership funding.

The Environment Agency has provided an Excel spreadsheet calculator which they use to prioritise schemes for their Flood Defence Grant in Aid and Local Levy funding. This takes into account the number of properties at high, medium and low risk of flooding and whether they are in Areas of Social Deprivation and provides a monetary figure representing this risk. This spreadsheet calculator is therefore to be used in this RMBC prioritisation process for the properties at risk of flooding factor.

If scheme costs are estimated for each location, then the calculator can also be used to provide a benefit cost ratio for each scheme. Whilst including both of these elements in the prioritisation process does use the same information twice, it is worthwhile to take into account both the raw level of risk in terms of the benefits of a flood prevention scheme and also the benefits in comparison with the costs of implementation and maintenance of the scheme.

11.3.1 Drainage – Environment Agency Flood Defence Grant in Aid Funding (FDGiA) and Local Levy

A medium term plan submitted to the Environment Agency has resulted in RMBC applying for indicative funding allocations for capital works over the next 6 years.

Bids for individual schemes has resulted in a bid for approximately £1million over 6 years, submitted to the Environment Agency but subject to match funding contributions.

The bid process for this requires a comprehensive business case in the form of a Project Appraisal Report (PAR) and presentation to the Environment Agency. This involves detailed work that requires an element of flood risk modelling to forecast the risk and potential impact of flooding if the scheme were not undertaken.

The Drainage Section has a prioritisation and scoring matrix database which prioritises the highway drainage work required into High, Medium and Low priorities, for example the higher the priority the more urgent the work.

Table 11.3.1 Highway Drainage Works Prioritisation – Scoring Matrix

High Priority – e.g. where flooding to public highway or properties are imminent	Medium Priority – e.g. where flooding to public highway or properties are at risk	Low Priority – e.g. where flooding to public highway or properties are occasionally at risk
Scoring Matrix 100 + Work required to be carried out within a short timescale subject to funding	Scoring Matrix between 35 to 99 Work required to be carried out within a reasonable timescale subject to funding	Scoring Matrix between 0 to 34 Work required to be carried out within the Council's Programme of Works and subject to funding

NB - All assessments are rated on the severity of the flooding problems regarding the safety of the public highway, properties and lives and includes the frequency of the flooding problems and repeat reports.

11.4 Street Lighting Decision Making Process

Prioritisation of asset replacement works is determined by a number of factors attributed to the asset.

- **Safety** - The position and condition of the asset needs to take into consideration both the safety of vehicles and members of the public.
- **Asset condition** – dependent on condition data identified by mandatory and reactive works. Columns in poor condition can be replaced or if localised damage has occurred, can be subject to maintenance options such as fitting of steel sleeves.
- **Asset type** – certain columns have known inherent structural problems and should be replaced as part of a priority programme. This has been identified as part of the capital borrowing strategy in 2009 when 10,000 columns were identified as having structural issues.
- **Customer reports** - Assessed in line with the technical detail regarding safety and condition and are then prioritised within the programme.

Replacement works are prioritised in line with ILE technical report 22 (managing lighting columns) with a visual inspection carried out of all the lighting columns within in the borough to give a '1' to '5' rating of column condition. This information has been logged against column types with known inherent defects along with column ages to give a list of the 'action age' of the columns to give a priority for replacement.

Within the works prioritisation programme consideration was also given to the type of lantern and light source and low pressure sodium units (due to their age) were prioritised before high pressure sodium units. By using this set criteria, a clear prioritisation of the 10 year column replacement programme was developed.

11.5 Structures Decision Making Process

At present a programme of works is prioritised based on a manual assessment of the condition reports and other factors such as risk, customer reports, Network Rail reports and the impact on the highway, businesses etc. The aim of this process is to prioritise the works programme to give value for money and does not follow 'worst first' planning, it aims to improve the assets in better condition whilst maintaining the condition of the poorest condition assets thereby achieving the performance targets of Safe and Fit for Purpose. The table of Bridge Condition Indices shows that this 'steady state' condition is being achieved. The future development of life cycle plans will help to validate these decisions making the process more cost effective.

At present the assets are assessed according to their condition and put through a ranking process taking account of risk, available funding and other local factors. A programme of works is then produced.

The CIPFA structures toolkit has been developed to aid this function. We are presently working with our asset management system supplier to incorporate the toolkit within the system. This work and population of all the necessary data is expected to be complete by the end of 2015 when it should be possible to develop more advanced life-cycle plans for this asset group.

11.6 Traffic Systems Decision Making Process

The major considerations for asset replacement and upgrading are:

- Age of equipment
- Condition of equipment
- Frequency and type of fault occurrence
- Data from regular periodic inspections
- Data from electrical testing

A comprehensive asset list is held centrally and sites have been assessed using a red, amber, green system for replacement and upgrade based on age and condition. A draft programme of work is then prioritised using all available data from inspections and fault reports which is held on the Fault Management System (FMS). As data in the FMS is expanded, it will make future decision making easier, quicker and more accurate.

Draft programmes are amended to reflect Integrated Transport objectives and funding in order to produce one single programme of replacement or upgrading.

All new traffic signal equipment in Rotherham is installed in accordance with The Code of Practice for Traffic Control and Information Systems, Local Transport Note 1/98 The Installation of Traffic Signals and Associated Equipment and DfT Advisory Leaflets as appropriate. All equipment uses of the latest technology available to make our systems safer, energy efficient by the use of LED lamps and utilises intelligent detection where appropriate. Where groups of signals are located close together refurbishment schemes will try to link these signals to give a smoother and faster journey time and less delays to the all road users.

12 RISK MANAGEMENT

12.1 Effective Risk Management

Effective Risk Management is essential for any organisation and its partners to achieve strategic objectives and improve outcomes for local people. Good Risk Management looks at and manages both positive and negative aspects of risk. It is not about being risk averse, but is the process whereby the Council methodically addresses the risks attaching to its activities with the aim of achieving sustained benefit within each activity and across the portfolio of all activities.

In response to the Corporate Governance Report published in February 2015 and the resultant Improvement Plan, the Rotherham Risk Management framework and responsibilities was completely renewed.

As part of the work required to meet these objectives a revised Risk Management Policy and Strategy was drafted, reflecting sector good practice and including the roles and responsibilities of members and employees.

Allied to this is a rigorous, ongoing development and training programme of middle to senior managers in risk approaches to management and decision-making. It is now also a corporate requirement that risk is discussed in PDR's and 1:1 meetings, to ensure that every employee is aware of risk and has input to the risk identification process, with the aim being to fully integrate Risk Management into our culture, our everyday business operations and those of our contractors and partners.

By managing threats effectively we are in a stronger position to deliver the Council's objectives. It is acknowledged that risk is a feature of all business activity, including highway asset management, and is a particular attribute of the more creative of its strategic developments. The Council accepts the need to take proportionate risk to achieve its strategic obligations, but expects that these are appropriately identified and managed. By managing these opportunities in a structured process the Council is in a better position to provide improved services and better value for money.

In keeping with the Council's approach and to ensure good management and maintenance of the council's highway network, we aim to:-

1. Identify, manage and act on opportunities as well as risks to enable the Council to achieve its objectives and include Risk Management into our culture and day to day working practices.
2. Manage risks in accordance with best practices and comply with statutory requirements.
3. Anticipate and respond to changing social, environmental and legislative requirements.
4. Maintain awareness of the need for Risk Management to those involved in developing highway asset management policies and service plans and in delivering those services.
5. Demonstrate the benefits of effective Risk Management by:
 - Cohesive leadership and improved management controls;
 - Improved resource management – people, time, and assets;
 - Improved efficiency and effectiveness in service and project delivery;

- Better protection of employees, residents and others from harm;
- Reduction in likelihood/impact of losses; and lower insurance premiums;
- Improved reputation for the Council.

12.2 Types of Risks

There are principally two types of risk that the Council faces, Strategic and Operational.

Strategic Risks may be potentially damaging to the achievement of the Council's objectives, for example risks relating to the environmental impact of the Council's service delivery, for example energy efficiency, pollution or recycling and significant flood risks.

Operational Risks are faced in the day to day delivery of services, for example physical risks relating to physical damage such as fire, security and accident prevention.

In order to capture these risks, and to ensure compliance with corporate procedure, the Managers of Highways, Roads & Carriageways; Street Lighting; Drainage; Bridges/Structures and Traffic Systems are required to identify risks, at least quarterly, in respect of their individual services which are then scored accordingly to achieve an appropriate RAG rating and culminate in an overarching Service Risk Register - Appendix D

Any red or amber risks that are subsequently deemed worthy of possible inclusion in the Council's Strategic Risk Register are referred on to the Insurance & Risk Manager for consideration. The remaining risks stay on the Operational Service Risk Register for ongoing management and assessment.

Highway-related operational risks vary in nature. Highways, Roads & Carriageways include the potential for tripping claim liability through defects on the highway. The Council's success in complying with the requirements set out in Section 58 of the Highways Act means that we currently repudiate 94% of all Highways insurance claims. We have achieved similar results over the past several years and are recognised within the insurance industry as one of the best performing authorities in the country in this regard.

Street Lighting is associated with increased personal security, so any potential service level changes to lighting levels will require consideration of risk impact.

Flood risks associated with drainage assets pose operational risk through potential flooding to highway and properties. Regular maintenance of existing highway drainage assets is a priority of the Council in maintaining the safety of the public highway.

An important element to be considered in the analysis of highway structures lifecycles is the high level of risk associated with structures being under-maintained as the risk to public safety is higher than for other asset groups.

By building risk awareness into our business cases and proposals to Cabinet and SLT, driving Risk Management through a 'top down and bottom up' approach and maintaining and regularly reviewing the relevant risk registers (Strategic and Operational) we are putting ourselves in a better position to highlight unacceptable risks (individually or collectively) and take appropriate action where necessary to minimise the risk of potential losses (including financial).

13 FUNDING

13.1 Highway Asset Funding Streams

Identified below are the funding streams available to the major asset groups. The Government has made a commitment to a long term funding strategy to support works planning over a minimum of three years. These will be utilised to best effect reflective of a strategic and prioritised approach to service delivery. Although the Council revenue funding for future years is only indicative, it is used to develop long term maintenance works programmes.

- LTP annual capital budget allocations
- DfT Grants, Challenge Funding, Incentive Funding
- Rotherham Council annual revenue funding
- Rotherham Council Capital investment
- Defra/Local Levy

Table 13.1 Highways Funding

Year	DfT LTP Allocation	RMBC Capital Bids	RMBC Capital	RMBC Revenue
2015/2016	£3,068,000		£3,000,000	£1,486,443
2016/2017	£2,809,000		£2,000,000	£1,486,443
2017/2018	£2,723,000	£3,333,334*		£1,486,443

* Part of a proposed £10m investment bid.

Table 13.2 Drainage Funding

Year	Defra/Local Levy Bids	RMBC Capital Bids	RMBC Maintenance Bids	RMBC Revenue
2015/2016	£80,000	Nil	Nil	£396,000
2016/2017	£300,000	£5,000	£200,000	£396,000
2017/2018	£520,000	£15,000	£100,000	£396,000

Table 13.3 Street Lighting Funding

Year	DfT LTP Allocation	RMBC Capital	RMBC Revenue (Including Energy)
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2015/2016	£215,000	£2,194,000	£1,964,249
2016/2017	£194,000	£1,304,000	£1,964,249
2017/2018	£188,000	£708,000	£1,964,249

Table 13.4 Structures Funding

Year	DfT LTP Allocation	RMBC Capital	RMBC Revenue
2015/2016	£391,000	0	184,000
2016/2017	£359,000	0	184,000
2017/2018	£348,000	0	184,000

Table 13.5 Traffic Systems Funding

Year	DfT LTP or RMBC Capital or Other Capital Allocation*	RMBC Revenue**
2015/2016	£233,000	£106,000
2016/2017	£273,000	£106,000
2017/2018	£245,000	£106,000

*The figures include £150,000 per annum of Council capital funding in 2016/17 and 2017/18. This is still at the bid stage.

**Excluding staff time spent on traffic system revenue activities and excluding the costs associated with CCTV.

13.6 Collaboration to Maximise Funding

To maximise the above funding streams and generate savings collaborative procurement and working with other local authorities has been undertaken. Listed below are examples where this has been put into practice;

- RMBC have taken the lead for procuring Winter Forecasting Services, which has been contracted jointly with Doncaster MBC for 2014/2015 to 2016/2017.
- RMBC has also taken the lead on procuring a contract (three year period) for carriageway/footway condition surveys for seven Yorkshire Authorities.
- Procurement of a surface dressing programme has been conducted through the West Yorkshire Highway Alliance.
- The Yorkshire Purchasing Organisation (YPO) is utilised for Salt requirements.
- RMBC highways officers working for other South Yorkshire Authorities.

- RMBC conducted a procurement of a multi-million pound contract for LED lighting units on behalf of Rotherham and Barnsley Councils.
- RMBC are the lead authority for the procurement of a new Traffic Control Systems contract with Doncaster MBC. This includes maintenance and supply/install of new traffic signals equipment.

In 2014/15 as part of a benchmarking exercise to ascertain best value for the delivery of Highway Maintenance works in Rotherham, a contract to the value of £362,000 was advertised through the Midland Highway Alliance Framework. The objective of the framework is to match the best private sector provider to the work who is then invited tender for the contract.

Prior to costs being received from the private sector organisation the in-house highway delivery team (HDT) also provided costs to carry out the works, which were 34% cheaper. The works were subsequently issued to the HDT which were delivered on time and within the target price.

RMBC is also a member of the South Yorkshire Asset Management and Maintenance Group (AMMG), which is formed of South Yorkshire Authorities and SYPT. Highway asset managers meet to discuss works programme, innovations and share best practice.

RMBC are already members of the Midlands Highway Alliance and have utilised the Medium Schemes Framework for the delivery of two major pinch point schemes completed in 2015. Discussions are currently underway to consider becoming formal members of the Yorkshire and Humber Highways Alliance, RMBC hope to benefit from sharing procurement activities with the Alliance to achieve efficiency savings, more competitive prices and sharing of knowledge and expertise with other authorities and the supply chain.

RMBC Corporate Procurement Service currently attend regular meetings with the YORprocure Strategic Procurement Group where opportunities for collaboration and knowledge sharing are regular discussed.

Wherever possible the RMBC Corporate Procurement Service will work with other authorities to join procurement at the early stages to encourage combined buying power, a specific paragraph of wording is also included in the contract notices to encourage other authorities to access the frameworks that RMBC have establish reducing duplicate work for other authorities and creating opportunities to negotiate cost reductions with suppliers. Barnsley MBC has recently accessed the RMBC framework for Road markings.

14 FORWARD PROGRAMMES

14.1 Shared Works Priorities

In year works programmes for each asset group are brought together in identifying potential schemes. Firstly, this enables identification of opportunities for co-ordinating works budgets. Secondly, it allows identification of schemes that cannot feasibly be undertaken concurrently which would cause adverse traffic impacts if both were to be undertaken at once. Geographically close schemes and those on parallel strategic routes will not be undertaken concurrently due to the major traffic disruption that can occur.

The Highways Streetworks Team coordinate both internal and external works. This is done by the use of formal regular meetings with both internal and external stakeholders and individual works meetings.

Three year detailed works programmes for capital maintenance works have also been produced to support the Council's asset management Policy and Strategy - Appendix E. These will also be communicated to stakeholders and members of the public. By having longer term information on when works will be carried out will help avoid some of the dissatisfaction of residents when they are unclear when or if works will be carried out.

14.2 Forward Programmes

To provide an overview of the primary works type requirements for each of the asset groups a Forward Works Programme has been developed including an indication of funding streams and who will be responsible for their delivery – Appendix F.

The Forward Works Programme includes works type that do have funding allocations and those, those that are self-financing, and also works that have no financing identified at present but would be beneficial for the service.

14.3 Forward Works Data Requirements

A number of data requirements have been identified for improvement of the management and efficiency of each asset group. Appendix - G

A key data requirement will be the purpose for which the asset is being introduced such that rationalisation can be undertaken if circumstances change. For example, if a pedestrian crossing is installed for a nearby school, it would no longer be required if the school were to move site.

Some of the data requirements will be straightforward desktop exercises that will not be prohibitively time consuming and may potentially be undertaken by existing staff over periods of time. Other data requirements have an available funding source such as DEFRA 'new duties' funding for developing the flood risk asset register.

14.4 Forward Works Aspirations, Innovation and Adopting New Technologies Plan.

Highway Services look to identify ways in which the service can move forward to face future maintenance challenges and use innovation for improving asset management. Whilst the economic outlook places restrictions on some aspirations, there is potential for innovations and new technologies to support cost reductions at the same time as improving the service - Appendix H.

This may be an 'invest to save' project where an initial funding expenditure for technology will reduce costs in the long term. Other innovations may be required to deal with changing circumstances such as improving resilience to Climate Change.

Innovations and new technologies for assets may emerge over the coming years and as part of asset management principles, innovations will be continually reviewed.

15 HIGHWAY ASSET MANAGEMENT IMPROVEMENT PLAN

Asset management techniques are being integrated into highway working practices Therefore the HAMP will be an evolving document which will be annually reviewed and updated. Key to this is to ensure that the Highway Asset Management Policy, Strategy and Plan reflect the Council's Corporate Priorities.

The actions within the Improvement Plan are based on the development of the HAMP and provide the basis for implementing good asset management principles in Rotherham - Appendix I.

16 GLOSSARY OF TERMS

AMMG	Asset Management and Maintenance Group
ANPR	Automatic Number Plate Recognition
APSE	Association of Public Sector Excellence
CCTV	Closed-Circuit Television
CDB	Common Data Base
CIL	Community Infrastructure Levy
CIPFA	Chartered Institute of Public Financing and Accounting
CIPFA Code	Code of Practice on Transportation Infrastructure Assets
CP	Corporate Plan
CSS	County Surveys Society
CVI	Coarse Visual Inspection
DCLG	Department for Communities and Local Government
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DRC	Depreciated Replacement Cost
EA	Environment Agency
EDS	Environment and Development Services
EU	European Union
FDGiA	Flood Defence Grant in Aid
FRM	Flood Risk Management
FWMA	Flood and Water Management Act (2010)
GIS	Graphical Information System
GRC	Gross Replacement Cost
HAMP	Highway Asset Management Plan
HDT	Highway Delivery Team
HM	Her Majesty
HMEP	Highway Maintenance Efficiency Programme
HMT	Her Majesty's Treasury
LA	Local Authority
LED	Light Emitting Diode
LHA	Local Highway Authority
LLFA	Lead Local Flood Authorities
LTP	Local Transport Plan for the Sheffield City Region
MOVA	Microprocessor Optimised Vehicle Actuation
NHT	National Highways and Transportation
OS	Ordinance Survey
P5	Priority 5
PAR	Project Appraisal Report
PSTN	Public Switched Telephone Network
PSV	Polished Stone Value
PROW	Public Rights of Way
PX	Priority X
RAG	Red, Amber and Green
RMBC	Rotherham Borough Council
RMS	Remote Monitoring System
SCANNER	Surface Condition Assessment of the National Network of Roads
SCOOT	Split Cycle Offset Optimisation Technique
SON	High Pressure Sodium
SOX	Low Pressure Sodium

SUDS	Sustainable Urban Drainage Systems
SYPT	South Yorkshire Passenger Transport Executive
SYLDG	South Yorkshire Land Drainage Group
TAG	Local Authority Technical Advisors Group
TMA	Traffic Management Act (2004)
TRO	Traffic Regulation Order
TSRGD	Traffic Signs Regulation and General Directions
UKPMS	United Kingdom Pavement Management System
UTMC	Urban Traffic Management Control
VMS	Variable Message Signs
WGA	Whole Government Accounts
YPO	Yorkshire Purchasing Organisation

17 Tables and Charts

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Table 13.3	Street Lighting Funding
Table 13.4	Structures Funding
Table 13.5	Traffic Systems Funding

18 Acknowledgements

David Burton – Director, Streetpride
Colin Knight – Group Manager, Network Management Group
Highway Network and HAMP Coordinator – Stephen D Finley
Drainage – Graham Kaye
Street Lighting – Allan Lewis
Structures – Peter Dixon and David Phillips
Traffic Systems – Mick Powell and David Phillips

19 Supporting Documents

Rotherham MBC Code of Practice for Highway Inspection and Assessment (CoPHI&A)
Rotherham Rights of Way Improvement Plan (RWIP)
Rotherham Winter Service Manual (WSM)
Traffic Signs and General Directions (1994)
Well Lit Highways (2004), Code of Practice for Street Lighting
Well Maintained Highways (2005), Code of Practice for Highway Maintenance Management
Management of Highway Structures (2005), Code of Practice for Structures
Management of Electronic Traffic Equipment (2011), Code of Practice for Traffic Systems

17 APPENDICES

Appendix A - Single Data List central government data requirements relevant to the Network Management Group

Ref	Data Collection Name	Data Topic	Government Department	Frequency
251-00	Winter Salt Stock Holdings			
251-01		LA winter service salt stock holdings	DfT	As required
129-00	Highway Inventory Data			
129-01		Numbers and characteristics of bridges and lighting	DfT	Ad hoc approx. every 3 years
130-00	Road Condition Data			
130-01		Principal roads where maintenance should be considered	DfT	annual
130-02		Non-Principal roads where maintenance should be considered	DfT	annual
130-03		Skidding resistance surveys	DfT	annual
130-04		Carriageway work done survey	DfT	Annual
132-00	Road Lengths Survey			
132-01		LA estimated road lengths	DfT	annual
158-00	Public Rights of Way			
158-01		Changes to the Definitive Map	DCLG/OS	As required
080-00	Flood and coastal erosion risk management and sustainable drainage systems			
080-08		Reporting in relation to implementing the Flood and Water Management Act (FWMA)	DEFRA	annual
080-01		Number of local authority investigations carried out and published under S19	DEFRA	annual
080-03		Number of applications made to the LLFA and number of approved applications	DEFRA	annual
080-04		The number of properties for each approved SuDS application	DEFRA	annual
080-05		The number of SuDS approved, which have been designated under Schedule 1 but are not adopted, by property type	DEFRA	annual

080-06		The number of SuDS adopted by the LLFA, which have been designated under Schedule 1, by property type	DEFRA	annual
080-07		The number of SuDS adopted by the LLFA, which are located on public land (and therefore not designated under Schedule 1), for each type	DEFRA	annual
243-00	Developments in flood risk areas			
243-01		Number of developments in flood risk areas against Environment Agency advice (number of units)	DEFRA	annual
244-00	Flood risk management capacity			
244-01		Number of staff employed on FRM activity (by number and role) - e.g. capacity	DEFRA / EA	annual
245-00	Strategic Overview of Flood and Coastal Erosion risk			
245-01		Number of properties estimated to be at risk from local flooding sources	DEFRA / EA	annual
245-02		Number of properties where flood risk has been reduced/managed	DEFRA / EA	annual
246-00	Reporting on EU flood risk regulations			
246-01		Preliminary Flood Risk Assessment	DEFRA / EA	every 6 years
247-00	Reporting on EU Flood Risk Regulations			
247-01		Flood Risk and Hazard Maps for their "Flood Risk Areas"	DEFRA / EA	every 6 years
248-00	Reporting on EU Flood Risk Regulations			
248-01		Flood Risk Management Plans for their "Flood Risk Areas"	DEFRA / EA	every 6 years

Appendix B - Corporate and Local Indicators

Corporate Indicators

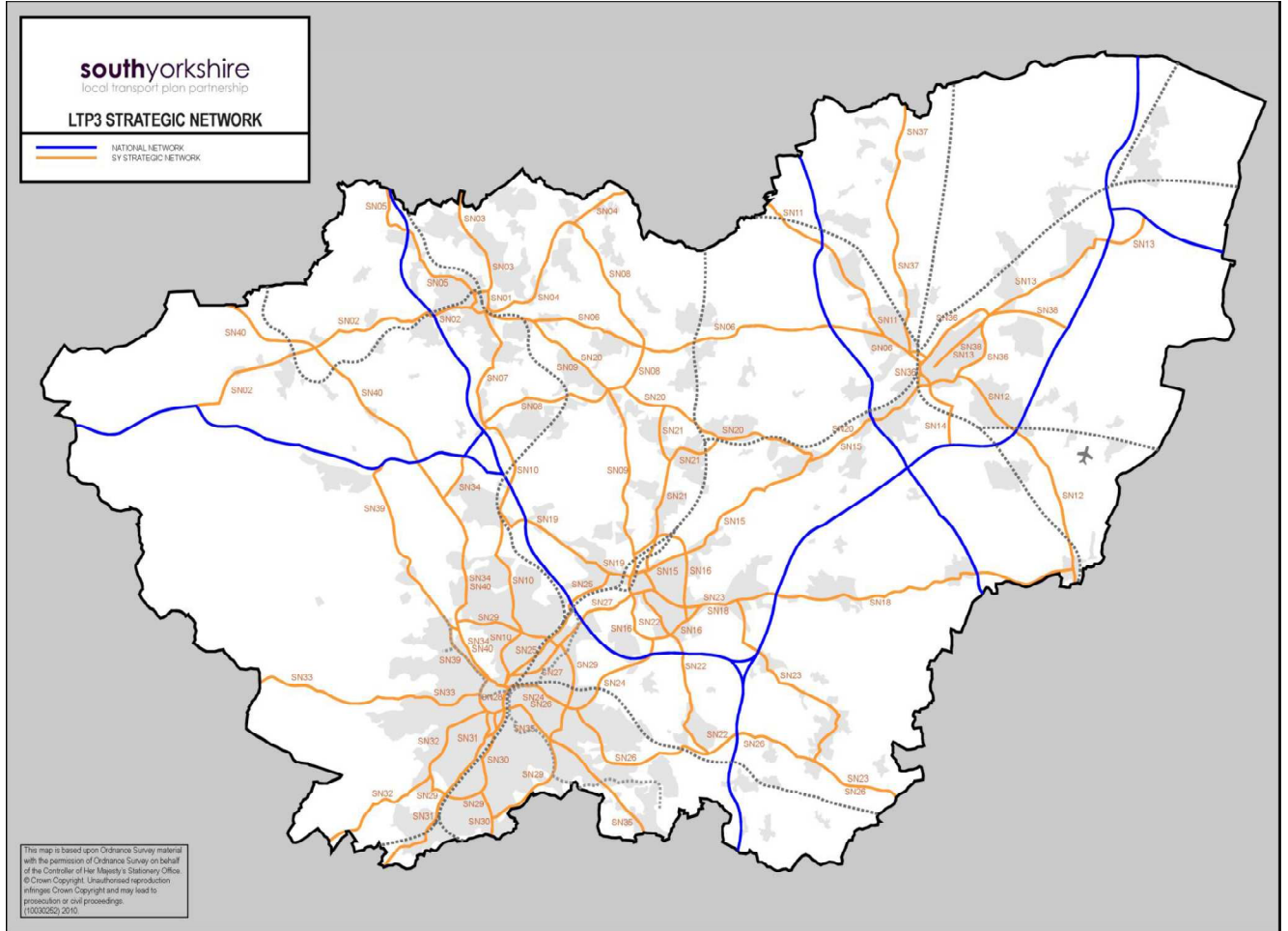
KPI 1	Former NI 168 % of principal roads network in need of repair
Purpose	To measure the condition of the Principal (A) carriageway network.
Definitions	The percentage of the Principal (A) carriageway network that is at or above 100 condition index (RED) using the SCANNER vehicle.
Accountable Lead	Colin Knight
Target	To achieve National Average (Latest DfT information available is 2013/14 - 4%)
Frequency	Annual
Reporting	Stephen Finley
KPI 2	Former NI 193 -% of non principal road network in need of repair
Purpose	To measure the condition of the Non-Principal (B/C) carriageway network.
Definitions	The percentage of the Non-Principal (B/C) carriageway network that is at or above 100 condition index (RED) using the SCANNER vehicle.
Accountable Lead	Colin Knight
Target	To achieve National Average (Latest DfT information available is (2013/14 - 9%)
Frequency	Annual
Reporting	Stephen Finley
KPI 3	Former BV 224b % of unclassified roads in need of repair
Purpose	To measure the condition of the Unclassified (U) carriageway network.
Definitions	The percentage of the Unclassified (U) carriageway network that is at or above 85 condition index (RED) using the CVI survey.
Accountable Lead	Colin Knight
Target	To achieve a local target of 28% by end 2015/16. The National Average (Latest DfT information available is (2013/14 - 18%)
Frequency	Annual
Reporting	Stephen Finley

Local Indicators

KPI 4	Streetpride LPI's making highways safe within timescales
Purpose	To ensure any actionable (safety) defects are repaired within the appropriate timescales.
Definitions	Priority A actionable defects completed within 4 hours, Priority 1 actionable defects completed within 24 hours and Priority X actionable defects completed within 48 hours.
Accountable Lead	Colin Knight
Target	90%
Frequency	Quarterly
Reporting	Stephen Finley
KPI 5	Response times for blocked road gullies causing flooding
Purpose	To respond to blocked road gullies to prevent flooding problems to properties and public highways.
Definitions	The percentage of response times in responding to blocked gullies causing flooding within 4 hours for properties and severely flooded public highways; 1 working day for flooded highways or at risk of flooding.
Accountable Lead	Colin Knight

Target	90%
Frequency	Quarterly
Reporting	Graham Kaye
KPI 6	Town centre standards for blocked road gullies causing flooding
Purpose	To respond to blocked road gullies to prevent flooding problems to properties and public highways within the Town Centre.
Definitions	The percentage of response times in responding to blocked gullies causing flooding within 4 hours within the Gold and Silver areas and 1 working day within the Bronze area of the Town Centre.
Accountable Lead	Colin Knight
Target	90%
Frequency	Quarterly
Reporting	Graham Kaye
KPI 7	SHI's completed on time (claim defence)
Purpose	To inspect the highway network (Carriageways, Footways and Footpaths) for safety.
Definitions	To inspect the highway network (Carriageways, Footways and Footpaths) for safety on a cyclic basis and on or before the inspection due date.
Accountable Lead	Colin Knight
Target	95%
Frequency	Quarterly
Reporting	Stephen Finley
KPI 8	Streetpride response times
Purpose	Response to resident reports of street lighting not working
Definitions	Attendance at street lighting faults within 3 days of the report logged on the system by Rotherham Connect
Accountable Lead	Colin Knight
Target	Above 90% attendance within 3 days
Frequency	Quarterly
Reporting	Allan Lewis

Appendix C - Strategic Road Network



Appendix D

Network Management Risk Register

Business Objective <i>What is it you would like to achieve/need to deliver</i>	Risk <i>What is the problem/hazard? What is it that will prevent you from meeting your objectives?</i>	Consequence <i>Effect: what would actually happen as a result? How much of a problem would it be? To whom and why?</i>	Existing actions/controls <i>(What are you doing to manage this now?)</i>	Risk Score with existing measures <i>(See Scoring Table)</i>			Further management actions/controls required. <i>(What would you like to do in addition to your existing controls?)</i>	Target Score with further management actions/controls required <i>(See Scoring Table)</i>			Cost (of Impact; of current controls; of further controls)	Risk Owner <i>(Officer responsible for managing risk and controls)</i>	Risk Review Date
				Impact	Probability	Risk Rating (I x P)		Impact	Probability	Risk Rating (I x P)			
To ensure that Rotherham's highway network is at are better than national average, using DfT data.	The unclassified road network has deteriorated to a state that is worse than the national average condition.	Injury to the user of the highway. Closure of the highway	The entire highway network is surveyed for condition on a regular basis using both mechanical and visual surveys. The Principal (A) and Non-Principal (B/C) roads are at or better than national average.	2	5	10	To improve the condition of the Unclassified (U) roads network and improve the footway condition.	2	2	4	£10m Capital over three years with an additional £2m Revenue annually	Stephen Finley & Dave Hepworth	Annually
Safe Highway Network - Safety of highway structures users.	Accident caused by asset defect and/or weight restriction/road closure due to structural failure.	Death, serious injury or injury to the user of the highway and/or weight restriction/road closure. Poor corporate reputation.	Inspections and monitoring of Bridge condition indices. Management of the asset to the Code of Practice. Annual funding allocated to highway structures.	5	2	10	Seek additional assured funding from Government/Council for capital funding for major refurbishments at the appropriate time.	5	1	5	£4m for the refurbishment of Crinoline Bridge	Peter Dixon	Annually

<p>Safe Highway Network - Maintain the average age and condition for traffic system infrastructure.</p>	<p>Deterioration of the condition of traffic system infrastructure assets. Assets become obsolete due to their age and changes in technology.</p>	<p>Reduction in asset value and increased maintenance costs due to lack of timely repairs. No benefits from reduced energy costs.</p>	<p>Planned Inspections and maintenance to traffic system infrastructure. Reactive maintenance including response times for emergency faults and/or accident damage. Annual funding allocated to traffic systems.</p>	<p>3</p>	<p>3</p>	<p>9</p>	<p>Seek additional capital from Council.</p>	<p>3</p>	<p>1</p>	<p>3</p>	<p>£150k per annum</p>	<p>Peter Dixon</p>	<p>Annually</p>
<p>Safe Highway Network - Drainage and Other Drainage Systems in an Extreme Flood Event</p>	<p>Maintain the a safe highway network against flooding problems such as overtopping of watercourses, surcharging drainage systems, surface water overland flows and where the design if the drainage systems are exceeded in an extreme flood event.</p>	<p>Death, serious injury or injury to the user of the highway. Internal flooding to properties and businesses. Closures of the highways, public transport systems and businesses.</p>	<p>Inspections and cleansing works carried out by trained in-house Drainage Team before and after the extreme event. Possible implementation of Council's Emergency Plan and resources employed at major flooded areas. Working closely with residents, stakeholders, riparian owners, businesses, Environment Agency and Water Companies before and after an extreme event.</p>	<p>4</p>	<p>2</p>	<p>8</p>	<p>Very difficult to mitigate against flooding in an extreme event. The capacity and capability of most drainage systems flood in an extreme storm event because the normal design of the drainage systems are exceeded. Additional maintenance works carried out before and after a storm.</p>	<p>4</p>	<p>2</p>	<p>8</p>	<p>It is not possible to provide a costs or mitigate the risk of flooding in an extreme event.</p>	<p>Graham Kaye</p>	<p>Annually</p>

Keep the network safe by updating / replacing street lighting assets.	Replace street lighting columns that are at risk as part of the lifecycle planning and condition survey data	Death, serious injury or injury to the user of the highway. Major impact if street lighting columns fail. Risk of injury / death.	Programme of replacing the 'at risk' columns commenced in 2009. Using TR22 guidance (condition and action age) priority given to highest risk columns.	4	2	8	Undertake constant monitoring to continually assess the condition of the asset to identify further replacement requirements as part of the existing programme.	4	1	4	No further costs are expected	Allan Lewis	Constantly
Keep the network safe by maintaining the lighting with reactive maintenance	Street lighting assets damaged exposing live electrical equipment and units being unlit.	Death, serious injury or injury to the user of the highway. Safety issue for highway users	Reactive maintenance - response times for emergency situations (accident damaged) and for street lighting faults (lamps out)	4	2	8	The current replacement of lanterns with LED will minimise the amount and frequency of lighting failures and keep the roads well lit.	4	1	4	Programmes of replacement are already underway	Allan Lewis	01/09/2015
Maintain the street lighting asset as cost effectively as possible.	Increasing Energy Costs	Increased energy costs would have a significant financial impact.	Fitting low energy LED units, trimming, some dimming and part night switch off	2	4	8	Replacement of lanterns on the remaining asset stock with LED to minimise the amount of energy consumed	2	2	4	To be determined	Allan Lewis	Quarterly
Highway Winter Service	Prevent the formation of ice and remove snow on the precautionary network.	Death, serious injury or injury to the user of the highway. Closure of the highway	The Council has a Winter Service Manual, which is reviewed annually. Dedicated and trained in-house teams. Up to date salting and ploughing equipment. A competent weather forecaster. Communications for both internal	3	2	6	We are currently using cutting edge technology and equipment to carry out this function.	3	2	6	No further controls required	Stephen Finley, Dave Hepworth & Steve Hallsworth	Annually

			and external stakeholders.										
Safe Highway Network - Roads and footways	Failure to maintain a safe highway network	Death, serious injury or injury to the user of the highway. Closure of the highway	We have a robust cyclic inspection system in place based on a complete inventory of highway assets. Inspections undertaken by a dedicated and trained in-house team. Defects identified are repaired, within prescribed deadlines, by dedicated and training in-house teams.	3	2	6	Improved condition of the highway network, especially the Unclassified network would reduce the risk of potential accidents.	2	2	4	See condition of the highway network	Stephen Finley, Andy Rowley & Dave Hepworth	Annually

Safe Highway Network - Drainage and Other Drainage Systems	Maintain the a safe highway network against flooding problems, and surface water management requirement to resolve flooding problems caused by watercourses and public sewerage systems.	Injury to the user of the highway. Closure of the highway. Flooding of properties and gardens and flooding problems from adjacent land.	Annual Gully Cleansing Schedule and Programme of Works in the maintenance of highway assets. Inspections and cleansing works carried out by trained in-house Drainage Team. Tracking devices are installed on Gully Flushers to record all relevant data relating to road gullies. Further action plans are in place to maintain and to improve highway assets in accordance with the Council's Flood Risk Management Strategy and Drainage Asset Register.	2	3	6	Improve the condition of the highway drainage network and to work closely with residents, stakeholders, riparian owners and Water Companies to mitigate the risk of future surface water flooding.	2	2	4	£4 million	Graham Kaye	Annually
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Condition of the highway drainage and other drainage systems	The Council as Lead Local Flood Authority is required to ensure that Rotherham's highway drainage systems are adequate and that watercourses and other surface water drainage system are suitably maintained.	Injury to the user of the highway. Closure of the highway. Flooding of properties and gardens, and flooding problems from adjacent land.	Inspections, condition of assets and cleansing works carried out by trained in-house Drainage Team. Further action plans are in place to maintain and to improve highway assets in accordance with the Council's Flood Risk Management Strategy and Drainage Asset Register.	2	3	6	To repair or replace drainage assets to reduce the risk of future flooding and to replace drainage systems which are hydraulically inadequate and potentially beyond the life cycle. To provide additional storage capacity to prevent drainage systems from being overloaded.	2	2	4	£3 million	Graham Kaye	Annually
Safe Highway Network - Maintain the steady state of condition for highway structure	Deterioration of the condition of highway structure assets.	Reduction in asset value and increased maintenance costs due to lack of timely repairs.	Inspections and monitoring of Bridge condition indices. Management of the asset to the Code of Practice. Annual funding allocated to highway structures.	2	3	6	Seek additional revenue from Council to make up for reductions in Government support.	2	1	2	£200k per annum	Peter Dixon	Annually

Appendix E – Three to Five Year Works Programmes

Highways - Detailed 3 Year Works Programme

Project	Treatment/Type of Work	Year & Costs (£000's)			
		2015/16	2016/17	2017/18	2018/19
Falcon Way, Dinnington	Carriageway Surfacing	25			
Borrowdale Crescent, North Anston	Carriageway Surfacing	50			
Borrowdale Crescent, North Anston	Footway Blister Crossings	6.7			
Caldbeck Place, North Anston	Carriageway Surfacing	25.7			
Derwent Close, North Anston	Footway Blister Crossings	3			
Dukeries Drive, North Anston	Footway Blister Crossings	8			
Mulberry Road, North Anston	Carriageway Surfacing	78.5			
Windmill Road, North Anston	Carriageway Surfacing	25			
Woodland Drive, North Anston	Carriageway Surfacing	118.2			
Woodsetts Road, North Anston	Footway Resurfacing	40.7			
Woodsetts Road, North Anston	Footway Resurfacing	40.4			
Woodsetts Road, North Anston	Carriageway Thin	49			
Crowgate, South Anston	Carriageway Surfacing	101.3			
High Street, South Anston	Carriageway Surfacing	7.5			
Lockwood Avenue, South Anston	Carriageway Surfacing	95			
West Bank Drive, South Anston	Traffic Island Works	5			
West Street, South Anston	Carriageway Surfacing	51.9			
Kenneth Street, Northfield	Carriageway Surfacing	21.1			
Catherine Street, Rotherham Town	Carriageway Surfacing	0.5			
Centenary Way, Rotherham Town Centre	Carriageway Surfacing	16.9			
Henry Street, Rotherham Town Centre	Carriageway Surfacing	19.2			
Percy Street, Rotherham Town Centre	Carriageway Surfacing	3.8			
Douglas Street, Wellgate	Carriageway Surfacing	7.8			
Atlas Street, Brinsworth	Footway Blister Crossings	3			
Croft Road, Brinsworth	Carriageway Surfacing	49.8			
Godric Green, Brinsworth	Footway Blister Crossings	3			
Manor Road, Brinsworth	Footway Resurfacing	1.5			
Manor Road, Brinsworth	Carriageway Surfacing	65			
Station Road, Catcliffe	Carriageway Surfacing	25.3			
Burns Road, Dinnington	Carriageway Surfacing	61.6			
Byron Road, Dinnington	Carriageway Surfacing	21			
Gleneagles Road, Dinnington	Footway Blister Crossings	3			
High Nook Road, Dinnington	Carriageway Surfacing	80			
Rydal Close, Dinnington	Carriageway Surfacing	12			
Rydal Road, Dinnington	Carriageway Surfacing	10			
Shelley Drive, Dinnington	Footway Resurfacing	40.2			
Lamb Lane, Firbeck	Carriageway Thin	55			
Rotherham Lane, Laughton-En-Le-	Carriageway Surface Dressing	16.6			
Appleby Walk, North Anston	Carriageway Surfacing	12.4			
Lakeland Drive, North Anston	Carriageway Surfacing	4			
Lakeland Drive, North Anston	Carriageway Surfacing	96.5			
Langdale Way, North Anston	Footway Blister Crossings	3			
Bawtry Road, Bramley	Carriageway Surfacing	250			
Byford Road, Maltby	Drainage Works	3			
Hazel Road, Maltby	Footway Blister Crossings	2.2			
Maple Avenue, Maltby	Footway Blister Crossings	2.2			
Bawtry Road, Wickersley	Footway Blister Crossings	6			
Churchfield Drive, Wickersley	Carriageway Surfacing	81.8			
Goose Lane, Wickersley	Carriageway Surfacing	102.5			
Elsecar Road, Brampton Bierlow	Carriageway Surface Dressing	7.5			
Smithy Bridge Lane, Brampton Bierlow	Carriageway Surface Dressing	23.7			
Occupation Road, Harley	Footway Blister Crossings	3			
Angel Lane, Hooper	Carriageway Surface Dressing	10.8			
Hooper Lane, Hooper	Carriageway Surface Dressing	29.2			
Hart Hill, Rawmarsh	Footway Blister Crossings	3			

Hollis Close, Rawmarsh	Footway Blister Crossings	3		
Hooper View, Rawmarsh	Footway Blister Crossings	3		
Barnsley Road, Thorpe Hesley	Carriageway Surfacing	1.3		
Barnsley Road, Thorpe Hesley	Carriageway Surface Dressing	15.8		
Coaley Lane, Wentworth	Carriageway Surface Dressing	64.6		
Cortworth Lane, Wentworth	Carriageway Surface Dressing	80.9		
Kirby Lane, Wentworth	Carriageway Surface Dressing	19.7		
Main Street, Wentworth	Footway Blister Crossings	3		
Main Street, Wentworth	Footway Blister Crossings	3		
Oaklea Avenue, West Melton	Carriageway Surfacing	60.9		
Manor Fields, Kimberworth	Footway Resurfacing	4.1		
Old Wortley Road, Kimberworth	Carriageway Surfacing	134.2		
Hungerhill Close, Kimberworth Park	Carriageway Surfacing	24.8		
Hungerhill Road, Kimberworth Park	Carriageway Surfacing	83.3		
Eldertree Road, Thorpe Hesley	Carriageway Surfacing	111.2		
Hesley Lane, Thorpe Hesley	Carriageway Surfacing	0.1		
Glencairn Close, Maltby	Carriageway Surfacing	20		
Grange Lane, Maltby	Carriageway Surfacing	300		
Lime Grove, Maltby	Footway Blister Crossings	2.2		
Millindale, Maltby	Carriageway Surfacing	43.5		
Tickhill Road, Maltby	Carriageway Surfacing	310.5		
Tickhill Road, Maltby	Footway Resurfacing	1.2		
Woodland Gardens, Maltby	Footway Blister Crossings	5.6		
Taylors Lane, Parkgate	Carriageway Surfacing	17.3		
Westfield Road, Parkgate	Drainage Works	2		
Bellows Road, Rawmarsh	Carriageway Surfacing	57.4		
Birchwood Avenue, Rawmarsh	Footway Microasphalt	4.6		
Blyth Avenue, Rawmarsh	Carriageway Surfacing	20		
Chapel Walk, Rawmarsh	Carriageway Surfacing	31.8		
Fielding Grove, Rawmarsh	Footway Microasphalt	1.3		
Greasbrough Lane, Rawmarsh	Carriageway Surfacing	122.6		
Hague Avenue, Rawmarsh	Drainage Works	3.8		
Hardie Place, Rawmarsh	Footway Blister Crossings	3		
Haugh Road Service Road, Rawmarsh	Carriageway Surfacing	12.4		
High Street, Rawmarsh	Carriageway Surfacing	230		
Kent Avenue, Rawmarsh	Footway Microasphalt	6.8		
Meadow Avenue, Rawmarsh	Carriageway Surfacing	38.9		
Middle Avenue, Rawmarsh	Footway Microasphalt	10.7		
Northfield Avenue, Rawmarsh	Footway Microasphalt	3.1		
Old Warren Vale, Rawmarsh	Carriageway Surfacing	46.1		
Payne Crescent, Rawmarsh	Footway Microasphalt	1.6		
Redmarsh Avenue, Rawmarsh	Footway Microasphalt	1.6		
Tinker Road, Rawmarsh	Footway Microasphalt	1.5		
Warren Avenue, Rawmarsh	Footway Microasphalt	2.1		
Central Drive, Thurcroft	Carriageway Surfacing	48		
Green Arbour Road, Thurcroft	Carriageway Surfacing	200		
Locksley Drive, Thurcroft	Carriageway Surfacing	93.2		
Locksley Drive, Thurcroft	Footway Resurfacing	18.6		
Woodhouse Green, Thurcroft	Carriageway Surfacing	30		
Coalbrook Avenue, Woodhouse Mill	Footway Microasphalt	4.8		
Coalbrook Grove, Woodhouse Mill	Footway Microasphalt	3.6		
Coalbrook Road, Woodhouse Mill	Carriageway Surfacing	3.5		
Coalbrook Road, Woodhouse Mill	Footway Microasphalt	3.2		
Hail Mary Drive, Woodhouse Mill	Footway Microasphalt	4		
Hail Mary Drive, Woodhouse Mill	Carriageway Thin	12.6		
Orgreave Rise, Woodhouse Mill	Footway Microasphalt	2.3		
Retford Road, Woodhouse Mill	Carriageway Surfacing	45		
Rotherwood Avenue, Woodhouse Mill	Footway Microasphalt	2.6		
St James Walk, Woodhouse Mill	Footway Microasphalt	2.6		
Cambridge Street, Clifton	Carriageway Surfacing	74.8		
Eldon Road, Eastwood	Carriageway Surfacing	32.4		
Ridge Road, Eastwood	Footway Blister Crossings	3		

Badsley Moor Lane, Herringthorpe	Carriageway Surfacing	162.7		
Sheridan Drive, Herringthorpe	Carriageway Surfacing	23.2		
New Droppingwell Road, Blackburn	Carriageway Surfacing	35		
Benton Way, Bradgate	Drainage Works	5		
Kimberworth Road, Bradgate	Carriageway Surfacing	12		
Wilton Gardens, Bradgate	Carriageway Surfacing	60		
Wilton Lane, Bradgate	Carriageway Surfacing	55		
Meadow Street, Holmes	Carriageway Surfacing	26.9		
Sarah Street, Holmes	Carriageway Super Patching	2.1		
Deepdale Road, Kimberworth	Carriageway Surfacing	39		
Droppingwell Road, Kimberworth	Carriageway Surfacing	15		
Meadowhall Road, Kimberworth	Carriageway Super Patching	33.4		
Devonshire Street, Masbrough	Carriageway Super Patching	0.3		
Henley Grove Road, Masbrough	Carriageway Surfacing	2.4		
Henley Grove Road, Masbrough	Footway Microasphalt	0.1		
Henley Way, Masbrough	Footway Microasphalt	0.6		
James Street, Masbrough	Footway Microasphalt	0.2		
Mount Pleasant Road, Masbrough	Footway Microasphalt	0.1		
Meadow Bank Road, Meadowbank	Drainage Works	2		
Meadow Bank Road, Meadowbank	Carriageway Surfacing	50		
Henley Rise, Thornhill	Footway Microasphalt	2.5		
Mount Street, Thornhill	Footway Microasphalt	0.6		
New Wortley Road Footpath 16, Thornhill	Footway Microasphalt	0.7		
Oates Street, Thornhill	Footway Microasphalt	2.3		
Rodger Street, Thornhill	Footway Microasphalt	1.6		
Tenter Street, Thornhill	Carriageway Surfacing	56.2		
Walter Street, Thornhill	Footway Microasphalt	0.3		
Braithwell Road, Ravenfield	Footway Resurfacing	19		
Brunt Road, Rawmarsh	Footway Microasphalt	1.5		
Claypit Lane, Rawmarsh	Footway Microasphalt	5.4		
Claypit Lane, Rawmarsh	Footway Microasphalt	5		
Osberton Street, Rawmarsh	Footway Microasphalt	1.6		
Rose Crescent, Rawmarsh	Carriageway Microasphalt	3.3		
St Nicolas Road, Rawmarsh	Footway Microasphalt	6.6		
Stewarts Road, Rawmarsh	Footway Microasphalt	2.4		
Walker Street, Rawmarsh	Footway Microasphalt	1.8		
Walker View, Rawmarsh	Footway Microasphalt	0.4		
Doncaster Road, Thrybergh	Carriageway Surfacing	91.2		
Cow Rakes Lane, Whiston	Carriageway Surfacing	144.3		
East Bawtry Road, Whiston	Carriageway Surfacing	34.3		
Greystones Road, Whiston	Carriageway Surfacing	100		
Celandine Rise, Swinton	Carriageway Super Patching	6.8		
Piccadilly Road, Swinton	Footway Blister Crossings	1.5		
Thomas Street, Swinton	Carriageway Surfacing	52		
The Brow, Brecks	Footway Resurfacing	34.1		
Broom Avenue, Broom	Carriageway Surfacing	116.4		
Ledsham Road, Broom	Carriageway Surfacing	0.4		
Brierley Road, Dalton	Footway Resurfacing	2.9		
Foljambe Drive, Dalton	Carriageway Surfacing	120		
Ivy Farm Croft, Dalton	Carriageway Surfacing	25.5		
Magna Lane, Dalton	Footway Resurfacing	13.5		
Lady Oak Road Footpath 2, East	Footway Resurfacing	8		
Laudsdale Road, East Herringthorpe	Footway Resurfacing	4.2		
Laudsdale Road Service Road, East	Footway Resurfacing	13		
Shenstone Drive, Herringthorpe	Carriageway Surfacing	15		
Shenstone Road, Herringthorpe	Carriageway Surfacing	80		
Stevenson Drive, Herringthorpe	Carriageway Surfacing	45.6		
Hargrave Place, Thrybergh	Footway Blister Crossings	3.3		
Park Lane, Thrybergh	Footway Blister Crossings	3.3		
Glebe Avenue, Harthill	Footway Resurfacing	40		
Pryor Mede, Harthill	Carriageway Surfacing	82.5		
Serlby Drive, Harthill	Carriageway Surfacing	7.3		

Thorpe Road, Harthill	Carriageway Thin	39		
Goosecarr Lane, Todwick	Footway Microasphalt	7.6		
Kiveton Lane, Todwick	Footway Resurfacing	102		
Manor Road, Wales	Drainage Works	4		
Brameld Road, Swinton	Carriageway Microasphalt	8		
Rookery Road, Swinton	Carriageway Surfacing	83.1		
Burman Road, Wath-Upou-Dearne	Footway Resurfacing	4.3		
Church Street, Wath-Upou-Dearne	Carriageway Surfacing	135.9		
Fitzwilliam Street, Wath-Upou-Dearne	Carriageway Surfacing	78.8		
Wath Road, Wath-Upou-Dearne	Carriageway Surfacing	43.6		
Blackthorn Avenue, Bramley	Carriageway Surfacing	79.7		
Bramley Grange Crescent, Bramley	Footway Blister Crossings	3		
Bramley Grange Drive, Bramley	Footway Blister Crossings	3		
The Crescent East, Sunnyside	Carriageway Surfacing	70.1		
The Crescent West, Sunnyside	Carriageway Surfacing	75		
The Wellway, Sunnyside	Carriageway Microasphalt	3.7		
Greenwood Crescent, Wickersley	Carriageway Surfacing	52.5		
Cinder Bridge Road, Greasbrough	Carriageway Surfacing	0.3		
Wagon Road, Greasbrough	Carriageway Surfacing	26.5		
Roughwood Road, Kimberworth Park	Drainage Works	3		
Wood Croft, Kimberworth Park	Carriageway Surfacing	4.6		
Broom Riddings, Munsbrough	Carriageway Thin	36		
Grayson Road, Wingfield	Carriageway Surface Dressing	11.5		
Wensleydale Road, Wingfield	Carriageway Surfacing	60.6		
Wingfield Close, Wingfield	Carriageway Surfacing	22.1		
Plover Croft, Thorpe Hesley	Carriageway Surface Dressing		1	
Garden Street, West Melton	Carriageway Surface Dressing		1.3	
Catherine Street, Rotherham Town	Carriageway Surface Dressing		1.5	
Merlin Way, Thorpe Hesley	Carriageway Surface Dressing		1.6	
Frederick Street, West Melton	Carriageway Surface Dressing		1.7	
Elmdale Close, Swinton	Carriageway Surface Dressing		1.8	
Mallard Close, Thorpe Hesley	Carriageway Surface Dressing		1.8	
Kingfisher Rise, Thorpe Hesley	Carriageway Surface Dressing		2	
Pine Walk, Swinton	Carriageway Surface Dressing		2.1	
Melton Street, Brampton Bierlow	Carriageway Surface Dressing		2.2	
Shelley Way, West Melton	Carriageway Surface Dressing		2.2	
Sandalwood Rise, Swinton	Carriageway Surface Dressing		2.4	
Webster Close, Kimberworth	Carriageway Surface Dressing		2.5	
Avenue Road, Wath-Upou-Dearne	Carriageway Surface Dressing		2.8	
Linnnet Mount, Thorpe Hesley	Carriageway Surface Dressing		3	
Byron Crescent, West Melton	Carriageway Surface Dressing		3.4	
Co-Operative Street, West Melton	Carriageway Surface Dressing		3.4	
Melton Avenue, Brampton Bierlow	Carriageway Surface Dressing		3.4	
Highfield Grove, Brampton Bierlow	Carriageway Surface Dressing		3.5	
Springhill Avenue, Brampton Bierlow	Carriageway Surface Dressing		3.5	
Tennyson Rise, West Melton	Carriageway Surface Dressing		3.6	
Hill Top Close, Kimberworth	Carriageway Surface Dressing		3.9	
Hazelwood Drive, Swinton	Carriageway Surface Dressing		4.1	
Brampton Street, Brampton Bierlow	Carriageway Surface Dressing		4.2	
Aspen Way, Swinton	Carriageway Surface Dressing		4.4	
Shakespeare Road, West Melton	Carriageway Surface Dressing		4.5	
Buckthorn Close, Swinton	Carriageway Surface Dressing		4.6	
Goldcrest Walk, Thorpe Hesley	Carriageway Surface Dressing		4.8	
Farquhar Road Back Road,	Carriageway Surfacing		5	
Percy Street, Rotherham Town Centre	Carriageway Surface Dressing		5	
Aldervale Close, Swinton	Carriageway Surface Dressing		5.1	
Ellis Crescent, Brampton Bierlow	Carriageway Surface Dressing		5.1	
Becknoll Road, Brampton Bierlow	Carriageway Surface Dressing		5.2	
Rother Street, Brampton Bierlow	Carriageway Surface Dressing		5.3	
Mount Street, Thornhill	Carriageway Surfacing		5.5	
Chapelfield Way, Thorpe Hesley	Carriageway Surface Dressing		5.8	
Margaret Close, Aston	Carriageway Thin		6	

Albert Road, West Melton	Carriageway Surface Dressing	6.7		
Bower Road, Swinton	Carriageway Surface Dressing	6.7		
Chapelfield Crescent, Thorpe Hesley	Carriageway Surface Dressing	6.7		
Dryden Road, West Melton	Carriageway Surface Dressing	6.7		
Kestrel Avenue, Thorpe Hesley	Carriageway Surface Dressing	6.7		
Dearne Road, Brampton Bierlow	Carriageway Surface Dressing	7.1		
Holmoak Close, Swinton	Carriageway Surface Dressing	7.2		
Woodlands Crescent, Swinton	Carriageway Surface Dressing	7.5		
Chapel Avenue, Brampton Bierlow	Carriageway Surface Dressing	8		
Webster Crescent, Kimberworth	Carriageway Surface Dressing	8.4		
Burns Way, West Melton	Carriageway Surface Dressing	8.5		
Chapelfield Drive, Thorpe Hesley	Carriageway Surface Dressing	8.5		
Knollbeck Crescent, Brampton Bierlow	Carriageway Surface Dressing	8.7		
Woodland Avenue, North Anston	Carriageway Surfacing	9		
Beech Road, Wath-Upon-Dearne	Carriageway Surface Dressing	9.3		
Stokewell Road, West Melton	Carriageway Surface Dressing	9.6		
Caraway Grove, Swinton	Carriageway Surface Dressing	10		
Chestnut Avenue, Wath-Upon-Dearne	Carriageway Surface Dressing	10.1		
Recreation Road, Wath-Upon-Dearne	Carriageway Surface Dressing	10.1		
Cliffe Road, Brampton Bierlow	Carriageway Surface Dressing	10.4		
Peel Close, Maltby	Carriageway Surfacing	10.5		
Ferham Road, Holmes	Carriageway Surfacing	11		
Sandymount Road, Wath-Upon-Dearne	Carriageway Surface Dressing	11.1		
Westpit Hill, Brampton Bierlow	Carriageway Surface Dressing	11.1		
Elsecar Road, Brampton Bierlow	Carriageway Surface Dressing	11.5		
Garden Drive, Brampton Bierlow	Carriageway Surface Dressing	11.7		
Wynmoor Crescent, Brampton Bierlow	Carriageway Surface Dressing	11.7		
Greenhill Avenue, Hellaby	Carriageway Surfacing	12		
Melton Green, West Melton	Carriageway Surface Dressing	12.5		
Winterhill Road, Kimberworth	Carriageway Surface Dressing	13.8		
Mill Lane, Wath-Upon-Dearne	Carriageway Surface Dressing	13.9		
Henry Road, Wath-Upon-Dearne	Carriageway Surfacing	14		
Redland Way, Maltby	Carriageway Surfacing	14.5		
Little Lane, Thorpe Salvin	Carriageway Surfacing	15		
Hill Top Lane, Kimberworth	Carriageway Surface Dressing	15.5		
Selby Close, Swallownest	Carriageway Surfacing	15.5		
Wilton Court, Bradgate	Carriageway Surfacing	15.5		
Oak Road, Wath-Upon-Dearne	Carriageway Surface Dressing	15.9		
Reader Crescent, Swinton	Carriageway Surfacing	16		
Oaklands Place, Wath-Upon-Dearne	Carriageway Surfacing	17		
The Grove, East Dene	Carriageway Surfacing	18		
The Square East, Sunnyside	Carriageway Surfacing	18.4		
The Square West, Sunnyside	Carriageway Surfacing	18.4		
Celandine Rise, Swinton	Carriageway Surface Dressing	19.4		
Quarry Hill Road, Wath-Upon-Dearne	Carriageway Surface Dressing	19.4		
Claypit Lane, Rawmarsh	Carriageway Surfacing	20		
Patterdale Way, North Anston	Carriageway Thin	20		
Knollbeck Avenue, Brampton Bierlow	Carriageway Surface Dressing	20.3		
Keats Drive, Dinnington	Carriageway Surfacing	22		
Harthill Road, Thorpe Salvin	Carriageway Surface Dressing	22.2		
Roughwood Road, Kimberworth Park	Carriageway Surface Dressing	22.3		
Richmond Park Avenue, Kimberworth	Carriageway Surface Dressing	23		
Melton High Street, West Melton	Carriageway Surface Dressing	23.8		
Middle Lane, Clifton	Carriageway Surfacing	26		
Chapel Walk, Rawmarsh	Carriageway Surfacing	27		
Beech Grove, Dinnington	Carriageway Thin	28		
Shelley Drive, Dinnington	Carriageway Surfacing	28		
Manor Road, Brampton Bierlow	Carriageway Surface Dressing	28.2		
Farm View Road, Kimberworth	Carriageway Surface Dressing	30		
Middle Lane South, Herringthorpe	Carriageway Surfacing	30		
Thirlmere Drive, North Anston	Carriageway Thin	30		
Acer Close, South Anston	Carriageway Surfacing	31		

Curlw Rise, Thorpe Hesley	Carriageway Surfacing	31.2		
South Street, Dinnington	Carriageway Surfacing	32.5		
Judith Road, Aston	Carriageway Surfacing	33.6		
Vicar Road, Wath-Upon Dearne	Carriageway Surfacing	34		
Charles Street, Thurcroft	Carriageway Surfacing	35		
Church Lane, Aston	Carriageway Surfacing	35		
John Street, Thurcroft	Carriageway Surfacing	35		
All Saints Way, Aston	Carriageway Surfacing	36		
Wingfield Road, Wingfield	Carriageway Surface Dressing	36		
Thorpe Road, Harthill	Carriageway Surface Dressing	36.1		
Cemetery Road, Wath-Upon-Dearne	Carriageway Surface Dressing	36.7		
Queen Street, Swinton	Carriageway Surface Dressing	38.5		
Elizabeth Road, Aston	Carriageway Surfacing	39		
Ilkley Crescent, Swallownest	Carriageway Surfacing	40		
Shrogswood Road, Broom	Carriageway Surfacing	40		
Birch Crescent, Wickersley	Carriageway Surfacing	45		
Chestnut Avenue, East Dene	Carriageway Surfacing	45		
Byron Road, Dinnington	Carriageway Surfacing	46		
Barleycroft Lane, Dinnington	Carriageway Surfacing	48		
New Street, Dinnington	Carriageway Surfacing	48		
Narrow Lane, North Anston	Carriageway Surfacing	50		
Watson Road, Kimberworth Park	Carriageway Surfacing	50		
Central Avenue, East Dene	Carriageway Surfacing	55		
Hall Road, Moorgate	Carriageway Surfacing	55		
Kevin Grove, Hellaby	Carriageway Surfacing	55.7		
Abbey Lane, Slade Hooton	Carriageway Surfacing	60		
Mulberry Road, North Anston	Carriageway Surfacing	60		
Sopewell Road, Kimberworth	Carriageway Surfacing	66		
Wood Lane, Wickersley	Carriageway Surfacing	72		
Woodsetts Road, North Anston	Carriageway Thin	75		
Badsley Moor Lane, Clifton	Carriageway Surfacing	75		
Turnerwood, Thorpe Salvin	Carriageway Surfacing	76		
Silverdales, Dinnington	Carriageway Surfacing	80		
Sandpiper Road, Thorpe Hesley	Carriageway Surfacing	80.5		
Meadow View Road, Kilnhurst	Carriageway Surfacing	85		
Locksley Drive, Thurcroft	Carriageway Surfacing	90		
Old Wortley Road, Kimberworth	Carriageway Surfacing	90		
Common Road, North Anston	Carriageway Surfacing	96		
Oldcotes Road, Dinnington	Carriageway Thin	100		
Worksop Road, Lindrick	Carriageway Surfacing	100		
Green Arbour Road, Thurcroft	Carriageway Surfacing	100		
Lamb Lane, Firbeck	Carriageway Thin	100		
Raven Drive, Thorpe Hesley	Carriageway Surfacing	108		
Melciss Road, Wickersley	Carriageway Surfacing	116		
Tickhill Road, Maltby	Carriageway Surface Dressing	120		
Retford Road, Woodhouse Mill	Carriageway Surfacing	120		
Springfield Road, Wickersley	Carriageway Surfacing	120		
Micro Asphalt 2016/2017	Micro Asphalt	130		
Toll Bar Road, Brecks	Carriageway Surfacing	135		
Woodland Drive, North Anston	Carriageway Surfacing	140		
Fenton Fields, Kimberworth Park	Carriageway Surfacing	155		
Rawmarsh Road, Northfield	Carriageway Surfacing	160		
Thomas Street, Swinton	Carriageway Surfacing	160		
Dog Kennels Lane, Kiveton Park	Carriageway Surfacing	200		
Wortley Road, Kimberworth	Carriageway Reconstruction	750		
Footway Crossings	Footway Crossings	80		
Woodsetts Road, North Anston	Carriageway Thin		75	
Common Road, North Anston	Carriageway Surfacing		90	
Oldcotes Road, Dinnington	Carriageway Thin		100	
Worksop Road, Lindrick	Carriageway Surfacing		100	
Green Arbour Road, Thurcroft	Carriageway Surfacing		120	
Tickhill Road, Maltby	Carriageway Surface Dressing		100	

Retford Road, Woodhouse Mill	Carriageway Surfacing			120	
Rose Lane, Thurcroft	Carriageway Surface Dressing			12.2	
Haworth Bank, Moorgate	Carriageway Surfacing			15	
Main Street, Brookhouse	Carriageway Surface Dressing			17	
Common Lane, Laughton Common	Carriageway Surface Dressing			19.3	
Royds Lane, Brampton Bierlow	Carriageway Thin			45	
West Street, Wath-Upon-Dearne	Carriageway Surfacing			45	
Fenton Road, Kimberworth Park	Carriageway Surface Dressing			60	
Sheffield Road, South Anston	Carriageway Surfacing			65	
High Street, South Anston	Carriageway Surfacing			82.5	
Red Hill, Kiveton Park	Carriageway Surfacing			100	
Micro Asphalt 2017/2018	Micro Asphalt			130	
Wortley Road, Kimberworth	Carriageway Surfacing			200	
Fitzwilliam Road, Eastwood	Carriageway Surfacing			400	
Park Lane, Thrybergh	Carriageway Surfacing			210	
Parkstone Crescent, Hellaby	Carriageway Surfacing			270	
Deepdale Road, Kimberworth	Carriageway Thin			37.5	
Footway Crossings	Footway Crossings			80	
Unclassified sites - Locations to be determined with latest condition data	Carriageway Surfacing / Surface Dressing			1100	
Woodsetts Road, North Anston	Carriageway Thin				75
Common Road, North Anston	Carriageway Surfacing				96
Oldcotes Road, Dinnington	Carriageway Thin				100
Worksop Road, Lindrick	Carriageway Surfacing				100
Green Arbour Road, Thurcroft	Carriageway Surfacing				130
Retford Road, Woodhouse Mill	Carriageway Surfacing				120
Sheffield Road, South Anston	Carriageway Surfacing				300
Red Hill, Kiveton Park	Carriageway Surfacing				100
Wortley Road, Kimberworth	Carriageway Surfacing				200
Fitzwilliam Road, Eastwood	Carriageway Surfacing				400
Braithwell Road, Maltby	Carriageway Surfacing				29
Kent Avenue, Rawmarsh	Carriageway Thin				90
Montgomery Road, Wath-Upon-Dearne	Carriageway Surfacing				100
Haugh Road, Rawmarsh	Carriageway Surfacing				126.5
Micro Asphalt 2018/2019	Micro Asphalt				130
Church Street, Swinton	Carriageway Surfacing				160
Footway Crossings	Footway Crossings				80
Unclassified sites - Locations to be determined with latest condition data	Carriageway Surfacing / Surface Dressing				1100

Drainage - Detailed 5 Year Works Programme

Defra and Environment Agency Medium Term Plan– Flood Defence and Land Drainage

Project Title	Output/Outcomes	Year & Costs(£000's)				
		2016/17	2017/18	2018/19	2019/20	2020/21
Herringthorpe Valley Flood Alleviation Scheme	112 residential properties and 4,877m ² of non-residential property are at high risk of flooding.	275				
Parkgate Flood Alleviation Scheme	33 residential properties and 130,620m ² of non-residential property are at high risk of flooding.	30	275			
Rotherham to Kilnhurst Phase 2 Flood Alleviation Scheme	125 residential properties and several non-residential properties are at high risk of flooding.			150	500	190
Maltby Surface Water Flood Alleviation Scheme	48 residential properties are at high risk of flooding.					32

Anston Brook Catchment Flood Risk Reduction	6 residential properties are at high risk of flooding.			20	180	
Whiston Property Level Protection Pumps	51 residential properties are at high risk of flooding.			11		
Whiston Brook Flood Storage	88 residential properties are at high risk of flooding.		260			
Catcliffe Pumping Station	33 residential properties and 130,620m ² of non-residential property are at high risk of flooding.			110		

Highway Drainage Renewals

Project Title	Output/Outcomes	Year & Costs(£000's)				
		2016/17	2017/18	2018/19	2019/20	2020/21
Wales Rd, Kiveton Park I	4 residential properties and 2 businesses are at high risk of flooding.	200				
Chestnut Rd, Swallownest	2 residential properties and a garage are at high risk of flooding.		100			
Ladyfield Rd, Thorpe Salvin	3 residential properties are at high risk of flooding.			100		
Worksop Rd, Woodsetts	2 gardens and access problems are at high risk of flooding.				150	
Kevin Grove, Hellaby	1 residential property and garage are at high risk of flooding.					75
Saville Rd, Whiston	1 residential property and garden is at high risk of flooding.					75
Northlands, Harthill	2 Garages to residential properties are at high risk of flooding.			75		

Street Lighting - Detailed 3 Year Works Programme

Project Title	Year & Costs(£000's)			
	2015/16	2016/17	2017/18	2018/19
Thorpe Hesley – Elder Tree Road, Elm Tree Road, Birch Tree Road	60			
Wellgate Area Phase 1- Gerard Road, Godstone Road, Lilian Street, Tooker Road, Warwick Street	50			
Wellgate Area Phase 2 – Albion Road , Albany Street, Allan Street, Frances Street, Aldred Street.	60			
Moorgate – Queensway Area, Fairleigh Drive.	60			
Greasbrough Area – Booth Street, Highfield Road, Croft Street, Chapel Street, Mill Street.	80			
East Dene - Middle Lane South	35			
Kimberworth – Regent Street, Grattan Street	40			
Rawmarsh – Hague Avenue	40			
Thornhill – Avondale Road Area	50			
Kimberworth – South Street	20			
Munsbrough – Broom Riddings	30			
Scholes – Scholes Village	80			

Kiveton Park – Stoney Bank Drive Area	35		
Maltby – Highfield Park Area	45		
North Anston – Oakdale Road Area	35		
Rawmarsh – Kilnhurst Road Area	50		
Various - Zebra Crossing refurbishments	80		
Kiveton – Osborne Road Area	30		
Fence – Sheffield Road Area	40		
Main Route LED replacements	890		
Residential LED replacements	599		
Kimberworth – Roughwood Road		35	
Canklow – Old Sheffield Road		20	
Wingfield - Robinets Road		20	
Rawmarsh – Kilnhurst Road		50	
Treeton – Bradshaw Avenue, Washfield Lane, Mill Lane		50	
Aston – The Chase Area		50	
East Dene – Sycamore road, St Stephens Road, St Leonards Area		40	
Thrybergh – Fullerton Crescent, Back Lane, Staple Green		50	
Munsbrough Area – Ashleigh Gardens, Coppice Gardens, Wagon Road, St Marys View, Briery Walk		90	
Kimberworth Park – Warren Hill, Fenton Way, Fenton Fields		30	
Brampton – Knollbeck Avenue Area		50	
Wath – Fitzwilliam Avenue, Fitzwilliam Street, Recreation Road		50	
Rawmarsh – Ryecroft Road , Coronation Road		45	
Parkgate – Bear Tree Road, France Street, Craven Street, Naylor Street		40	
Catcliffe – Sheffield Lane, Orgreave Road, California Drive		45	
Brinsworth – Sunnybank Crescent, Manor Road		35	
Catcliffe Main Street, Whitehill Lane		40	
Brinsworth – Howarth Area		40	
Swinton – Wentworth Road, Fitzwilliam Road		60	
Zebra Crossing refurbishments		80	
Residential LED replacements		598	
Ravenfield – Barberry Way, Grayson Road, Hollings Lane, St James View			45
Aston – Thoresby Drive, All Saints Way			20
Maltby – Yarwell Drive , Davy Drive, Amorys Holt Way, Hazel Road, Larch road			50
North Anston – Quarry Lane, Penny Piece Lane, Main Street			30
Dinnington – New Street, Milton Close, Shelley Drive Area			40
Brinsworth – Fernleigh Drive Area Phase 2			15
Thurcroft – Sawnmoor Avenue, The Crescent, Arbour Drive, Arbour Crescent			35
Whiston – Moorhouse Lane, Chaff Close, High Street, School Hill			40
Swinton – Brookfield Avenue, Cliffe Bank			20
Herringthorpe – Lady Oak Road Area			15
Bramley – Howard Road , Oulton Road, Coltishall Road			30
Thrybergh – Arundel Avenue , Chesterhill Avenue, Pingles Crescent, Wilson Avenue, Foljambe Drive.			60
Kimberworth Park, Gloucester Road, Neville Road			40

Area				
Swinton – Glebe Road, Harrop Drive			50	
Rawmarsh – Burkinshaw avenue, Kempwell Drive, Sharpfield Avenue			45	
Wath – Quarry Hill Road Area			40	
Aston – Seymore Road, Nickerwood Drive			45	
Kimberworth – Kimberworth Park Road & Area			40	
Dinnington – Park Road Area			35	
Dinnington Lordens Hill Area			50	
Anston – Edinburgh Drive Area			40	
Swallownest – Wetherby Drive & footpaths			35	
Zebra Crossing refurbishments / signing			76	
Harthill – Union Street, Pryor Mede, Dowcarr Lane				40
Wales - Orchard Croft , Forge Road				20
Throapham – Hunters Drive and Area				40
Brinsworth – Broadway, Brinsworth Road				35
Swallownest - Chestnut Road Area				25
Rawmarsh – Middle Avenue, Ripon Court				25
Kilnhurst – Greenwood Road, Wharf Road				30
West Melton – Moorbridge Close, Winterwell Road				25
Maltby – Lilley Hall Road, Little Haynooking Lane, Rolleston Avenue				45
Thurcroft – Ivanhoe Road, Zamor Crescent Area				30
Brinsworth – Dunan / Ellis Street				60
Whiston – Hungerhill Road Area				35
Rawmarsh – Wilson Drive Area				25
Rawmarsh – Roundwood Grove Area				25

Structures - Detailed 3 Year Works Programme

Project Title	Treatment/T ype of Work	Year & Costs(£000's)			
		2015/16	2016/17	2017/18	2018/19
Principal Inspections		40	40	40	40
Rawmarsh Road Canal Bridge	Joint	50			
Clough Road Bridge Joints	Joint	40			
Eldon Road Footbridge	New Deck	20			
Manor Road	General	10			
National Grid Armco	Protective	10			
Red Hill Bridge	Refurbish	20			
Wood Lane Culvert	Clean	5			
Newhall Green	General	5			
Bridge Lane Culvert	Minor repairs	3			
Northfield Canal	Concrete	10			
Maltby Dike	Minor repairs	3			
Brookhouse	Miscellaneous	8			
Miscellaneous Minor Schemes		30	40	40	40
Brookhouse Bridge Joints	Joint		40		
Talbot Road Bridge	Joint		60		
Sheffield Road Culvert No 2	Protective		10		
Hooper Hall Lane	Miscellaneous		5		
Centenary Way Rail/Canal	CP system		50		

Great Bridge	Minor repairs		3		
Sheffield Road Culvert No 1	Protective			10	
James Street Footbridge	Partial clean			30	
Halmshaw Canal	Partial clean			20	
Parr Yard Culverts South	Repairs to			20	
Rother Sluice Bridge	Miscellaneous			20	
Bow Bridge	Miscellaneous			20	
Woodhouse Mill Rly North	Miscellaneous			15	
Long Road Drain	Miscellaneous			6	
Low Bridge Wentworth	Miscellaneous			8	
Fitzwilliam Road Subway	Misc			8	
Hooton Roberts	Miscellaneous			5	
Back Lane	New Culvert				80
Rawmarsh Road Rly	Joint				50
Brinsworth Street Culvert	Miscellaneous				10

Traffic Systems - Detailed 3 Year Works Programme

Project	Treatment/Type of Work	Year & Costs (£000's)			
		2015/16	2016/17	2017/18	2018/19
Canklow Road / Alma Road	Full Refurbishment	20			
Swallownest Crossroads	Full Refurbishment	45			
Doncaster Road / Clifton Lane*	Full Refurbishment	45			
Moorgate Road at Oakwood	Full Refurbishment	50			
New Wortley Road / Clough Street	Full Refurbishment	43			
New Wortley Road / Henley Grove	Full Refurbishment		86		
A57 Anston Crossroads	Full Refurbishment		25		
Rotherham Road / Elsecar Road	Full Refurbishment		20		
Corporation Street / Chantry Bridge	Full Refurbishment		35		
Brecks Island*	Full Refurbishment		15		
Bawtry Road / Morrisons*	Full Refurbishment		40		
Cramfit Road Railway Bridge	Full Refurbishment		15		
Corporation Street / Upper Millgate	Full Refurbishment		17		
Braithwell Road / High Street	Full Refurbishment		20		
High Street / Manor Road, Maltby	Full Refurbishment			20	
Rotherham Road / Byford Road	Full Refurbishment			17	
Rotherham Road / Milton Street	Full Refurbishment			17	
Alma Road / Hollowgate /	Full Refurbishment			25	
Bawtry Road / Brecks Crescent	Full Refurbishment			30	
East Bawtry Road / Worrygoose	Full Refurbishment			28	
Bawtry Road / Springfield	Full Refurbishment			28	
Bawtry Road / Northfield Lane*	Full Refurbishment			28	
Moorgate Road / Boston Castle	Full Refurbishment			17	
Doncaster Gate / Howard Street /	Full Refurbishment			35	
Malbty Crossroads	Full Refurbishment				40
Rotherham Road / Addison Road	Full Refurbishment				30
Bawtry Road / Morthen Road*	Full Refurbishment				35
Herringthorpe Valley Road /	Full Refurbishment				17

Herringthorpe Valley Road /	Full Refurbishment				17
Herringthorpe Valley Road /	Full Refurbishment				17
Herringthorpe Valley Road / Far	Full Refurbishment				17
Wickersley Road / Herringthorpe J	Full Refurbishment				17
Bawtry Road / Denby Way	Full Refurbishment				28
Kenneth Street	Removal	15			
St Ann's Roundabout (at St. Ann's	Removal	15			
TOTAL		233	273	245	218

Appendix F – Forward Works Programme

Asset Group	Short Term 2015-2016	Medium Term 2016-2020	Long Term 2020 and beyond	Financing	Responsible for Delivery
Highway Network	Revenue works, (small patching & potholing) full network. Capital Maintenance on Principal Roads. Capital Maintenance on Non-Principal Roads. Capital Maintenance on Unclassified Roads. Grants. Road classification dependent on conditions	Revenue works, full network. Capital Maintenance on Principal Roads. Including phasing schemes Capital Maintenance on Non-Principal Roads. Including phasing schemes Capital Maintenance on Unclassified Roads. Grants. Road classification dependent on conditions.	Revenue works, full network. Capital Maintenance on Principal Roads. Including phasing schemes Capital Maintenance on Non-Principal Roads. Including phasing schemes Capital Maintenance on Unclassified Roads. Grants. Road classification dependent on conditions.	RMBC Revenue Funding. LTP Funding. LTP Funding. RMBC Capital LTP Funding. DfT and other sources.	RMBC, EDS, Streetpride.
Drainage	Environment Agency Medium Term Programme of Capital Schemes and maintenance - Flood risk reduction schemes incl. watercourse/ culvert replacement and repair schemes.	Environment Agency Medium Term Programme of Capital Schemes and maintenance - Flood risk reduction schemes incl. watercourse/ culvert replacement and repair schemes.	Environment Agency Medium Term Programme of Capital Schemes and maintenance - Flood risk reduction schemes incl. watercourse/ culvert replacement and repair schemes.	Environment Agency FDGiA funding and Local Levy funding match funded by LTP Maintenance Block funding and Private Investment.	Streetpride, Drainage Section

Street Lighting	Capital street lighting replacements. Concrete columns and columns in poor condition Main Route Invest to save LED units Residential Invest to save LED units Routine maintenance and mandatory testing works	Capital street lighting replacements. Concrete columns and columns in poor condition Main Route Invest to save LED units Residential Invest to save LED units Routine maintenance and mandatory testing works	Capital street lighting replacements. Concrete columns and columns in poor condition Residential Invest to save LED units Replacement of PLL lighting with LED Routine maintenance and mandatory testing works	Prudential borrowing and current LTP (2014-15) Capital investment borrowing Capital investment borrowing To Be agreed Revenue	Street Lighting Delivery Team Street Lighting Delivery Team Street Lighting Delivery Team Street Lighting Delivery Team
Structures	Revenue works, (small schemes, reactive maintenance) Capital Maintenance Schemes. Grants	Revenue works, (small schemes) Capital Maintenance Schemes. Grants	Revenue works, (small schemes) Capital Maintenance Schemes. Grants	RMBC Revenue Funding. LTP/DfT Funding Grants or RMBC Capital DfT and other sources.	RMBC, EDS, Streetpride.
Traffic Systems	Revenue works (small Schemes, Reactive Maintenance) Capital Schemes	Revenue works (small Schemes, Reactive Maintenance) Capital Schemes	Revenue works (small Schemes, Reactive Maintenance) Capital Schemes	RMBC Revenue LTP Funding or RMBC Capital	RMBC Traffic Signal Contractor RMBC Traffic Systems Team

Appendix G - Forward Works Data Requirements Plan

Asset Group	Short Term 2015-2016	Medium Term 2016-2020	Long Term 2020 and beyond	Financing	Responsible for Delivery
Highway Network	Annual asset collection Condition Data	Annual asset collection Condition Data	Annual asset collection Condition Data	RMBC and LTP.	RMBC, EDS, Streetpride.
Drainage	Collect inventory	Highway	Targeted gully	Revenue	Streetpride,

	<p>and condition data for highway drainage including gullies and linear drainage and tracking devices for Gully Flushers for gully cleansing operations.</p>	<p>drainage- implement targeted gully cleansing programme and Local Flood Risk Management Strategy Action Plans.</p>	<p>cleansing programme.</p> <p>Ongoing updating of Local Flood Risk Management Strategy - Action Plans.</p>	<p>Maintenance Budget.</p>	<p>Drainage Section</p>
	<p>Replacement of obsolete gullies when undertaking carriageway maintenance schemes.</p>	<p>Replacement of obsolete gullies when undertaking carriageway maintenance schemes.</p>	<p>Replacement of obsolete gullies when undertaking carriageway maintenance schemes.</p>	<p>Revenue Maintenance Budget.</p> <p>LTP Maintenance Block funding.</p> <p>Council Capital Bid Funding</p>	<p>Streetpride, Drainage Section</p>
	<p>Collect inventory and condition data for highway drainage including gullies and linear drainage. Including identification of locations of obsolete gullies.</p>	<p>Record locations and inventory/ condition information on Confirm including GIS mapped locations.</p>	<p>Continue to record and changes to highway drainage assets. Ongoing updating of Local Flood Risk Management Strategy - Action Plans.</p>	<p>Revenue Maintenance Budget.</p> <p>LTP Maintenance Block funding.</p> <p>Council Capital Bid Funding</p>	<p>Streetpride, Drainage Section</p>
	<p>Complete Flood Risk Asset Register and Record. Make information available as required by Flood and Water Management Act 2010.</p>	<p>Link Asset Register to Map Info and GIS mapping available for use internally.</p>	<p>Continue to update Flood Risk Asset Register and Record with any changes or new flood risk asset information.</p>	<p>DEFRA funding and Council revenue grant funding</p>	<p>Streetpride, Drainage Section.</p>
	<p>Complete the identification of corporately</p>	<p>Identify private riparian owners and inform them of</p>	<p>Flood Risk Asset Register and Record and Local</p>	<p>DEFRA funding and Council</p>	<p>Streetpride, Drainage Section</p>

	owned watercourse sections, prepare recommended management strategy to be adopted and communicate corporately to divisional managers.	their responsibilities and inventory and condition information for their asset. Identify third party (privately owned) flood risk assets to be designated.	Flood Risk management Strategy – Action Plans to be continually updated with new assets, changes to existing assets.	revenue grant funding	
	Obtain complete reports for hydraulic model.	Utilise hydraulic modelling findings in scheme prioritisation and for informing the planning process.	Utilise hydraulic modelling findings in scheme prioritisation and for informing the planning process.	DEFRA funding and Council revenue grant funding	Streetpride, Drainage Section
Street Lighting	Condition data Asset collection data as part of mandatory testing and routine works.	Condition data Asset collection data as part of mandatory testing and routine works	Condition data Asset collection data as part of mandatory testing and routine works	Revenue Revenue	RMBC RMBC street lighting delivery team
Structures	Annual General Inspections (Condition data) Annual Principle Inspections (Condition data) Asset inventory data updates	Annual General Inspections (Condition data) Annual Principle Inspections (Condition data) Asset inventory data updates	Annual General Inspections (Condition data) Annual Principle Inspections (Condition data) Asset inventory data updates	RMBC and LTP RMBC and LTP RMBC and LTP	RMBC, EDS, Streetpride.
Traffic Systems	Annual Inspections (Condition data) Asset Inventory data updates	Annual Inspections (Condition data) Asset Inventory data updates	Annual Inspections (Condition data) Asset Inventory data updates	RMBC Revenue RMBC Revenue	RMBC Traffic Signal Contractor RMBC

Appendix H - Forward Works Aspirations, Innovation and Adopting New Technologies Plan

Asset Group	Short Term 2015-2016	Medium Term 2016-2020	Long Term 2020 and beyond	Financing	Responsible for Delivery
Highway Network	Continuing the use of surface treatments. Identification of	Continuing the use of surface treatments. Identification of new	Continuing the use of surface treatments. Identification of	RMBC and LTP.	RMBC, EDS, Streetpride.

	<p>new mobile devices.</p> <p>Development of "Find & Fix" teams for safety defects.</p> <p>Reduction in spend on reactive maintenance.</p> <p>To see the highway network at or above national average.</p>	<p>mobile devices.</p> <p>Introduction of "Find & Fix" teams for safety defects.</p> <p>Reduction in spend on reactive maintenance.</p> <p>To see the highway network at or above national average.</p>	<p>new mobile devices.</p> <p>Introduction of "Find & Fix" teams for safety defects.</p> <p>Reduction in spend on reactive maintenance.</p> <p>To see the highway network at or above national average.</p>	<p>RMBC.</p> <p>RMBC.</p> <p>RMBC.</p> <p>RMBC and LTP.</p>	
Drainage	Develop systems, Local Guidance and procedures for SuDS specification and approval.	Continue to assess and approve SuDS applications through existing Planning process for Major Developments.	Undertake SuDS systems and procedures.	DEFRA funding, Council revenue funding and Planning Application income.	Streetpride, Drainage Section working with Council Planning service.
Street Lighting	<p>Development of real time electronic fault clearance (handheld mobile)</p> <p>Reduction in reactive maintenance (LED)</p>	<p>Implementation of real time electronic fault clearance (handheld mobile)</p> <p>Reduction in reactive maintenance(LED)</p>	Reduction in reactive maintenance(LED)	<p>LTP</p> <p>Capital funding</p>	<p>RMBC / IT service provider</p> <p>RMBC</p>
Structures		<p>Development of Life-Cycle maintenance plans</p> <p>Electronic data capture</p> <p>Develop designed and costed schemes to enable cost benefit justification for funding bids</p>	Electronic data capture	<p>RMBC and LTP.</p> <p>RMBC.</p> <p>LTP</p>	RMBC, EDS, Streetpride.
Traffic Systems	Business case for fibre communications network	Expand fibre network in the central area	Invest to Save for remaining sites to fit LED signals	<p>RMBC Capital</p> <p>LTP</p>	RMBC

Highway Asset Management Improvement Plan 2015-21

Asset Managers: Highways – S Finley, Drainage – G Kaye, Street Lighting – A Lewis, Highway Structures – P Dixon, Traffic Systems – M Powell.

Outcome	Specific Improvement Action	Accountable Officer	Performance Measure	Completion Date	Commentary Including Corrective Actions	RAG
Highway Services Support the Council's Corporate Priorities	Review HAMP Policy and Strategy to reflects Corporate Priorities	S Finley	Annually reviewed Policy, Strategy and HAMP	Mar 2016 (Annually)		
Highway assets are effective asset data system is in place	<ul style="list-style-type: none"> i. Implementation of the Forward Works Data Requirements Plan and review/update data ii. Developed a process to ensure new highway assets are included in asset inventory. iii. Inventory for retaining walls collected 	<p>All Asset Managers</p> <p>S Finley</p> <p>P Dixon</p>	Asset Registers are reviewed and up to date	Mar 2016 (Annually)		
Highway Services are able meet future changes and demands	Implementation of the Forward Works Aspirations, Innovation and Adopting New Technologies Plan.	All Asset Managers	Plan annually reviewed	Mar 2016 (Annually)		
Long term planning and coordination of highway works	Implementation of the Forward Works Programme	All Asset Managers	3 year rolling programmes develop and assessed for co-ordination of schemes for different asset group	Oct 2016 (Annually)		
Ensure Highway Services maximum Gvt LTP funding allocations	Implement guidance to achieve level 3 of Gvt criteria for Dft LTP funding	S Finley	Review criteria and specific actions to	Nov 2015		

Outcome	Specific Improvement Action	Accountable Officer	Performance Measure	Completion Date	Commentary Including Corrective Actions	RAG
Stakeholders are kept informed of planned and emergency works affecting the highway	Develop a communication strategy for highway maintenance	C Knight	Communication strategy approved by Commissioners/SLT and implemented	Dec 2015		
Highway schemes are carried out at locations that get the most out of the network	Implement weighted prioritisation process for highway network. Using whole life costing for potential schemes over asset lifespans.	S Finley	Prioritisation process reviewed annually	March 2016		
Rotherham's Roads are at or above national average condition	Develop funding proposal to ensure all roads in Rotherham achieve national average or better condition.	S Finley	Report submitted to SLT	Nov 2016		
Competent staff to develop and manage highway asset systems	<ul style="list-style-type: none"> i. Asset management capability reviewed as part of annually PDR's. ii. Appropriate staff to attend CQC training. iii. Highways structures staff to complete 'Bridge Inspector Training' 	<p>All Asset managers</p> <p>All Asset managers P Dixon</p>	<p>Pdrs carried out</p> <p>CQC training carried out Bridge Inspector training completed</p>	<p>June 2016 (Annually)</p> <p>June 2016</p> <p>June 2016</p>		
Identify potential invest to save schemes to reduce energy consumption	Investigate feasibility of LED lamp and driver replacement only for remaining street lighting stock.	A Lewis	20% reduction in energy consumption	March 2016		

Outcome	Specific Improvement Action	Accountable Officer	Performance Measure	Completion Date	Commentary Including Corrective Actions	RAG
Highway Asset Management principles embedded and effective	Highway Asset Management Improvement Plan actions implemented	S Finley	Annual report submitted to Director of Streetpride	March 2016 (Annually)		

Version 1 July 2015

RAG Rating	
Green	Completed
Amber	On Track
Red	At Risk or Missing
Purple	Not Yet Started