Highways Maintenance Efficiency Programme

HMEP Survey – February 2012

Workstream Group 1: Operational Service Delivery

Report on the Survey findings for

Brief 9: Management of Highway Drainage Assets

Stage 1 Final Report

February 2012

Prepared for: -

Department for Transport

Revision Schedule

Stage 1 Final Report

February 2012

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Table of Contents

1 Executive Summary

The purpose of this report is to allow the HMEP Project Board to comment on the findings of the review of Element 2 funded work relating to the management of drainage assets, report on consultations with selected local highway authorities and to approve progress to Stage 2.

One of the first actions of the project was to identify the various stakeholders in order to understand their approach to asset management best practice. Most of those approached for this initial consultation were organisations that had made some progress towards developing drainage asset management systems following a successful bid for Element 2 funding; however the views of those who had developed asset management systems independently were also sought. Specific emphasis was placed on understanding drivers, data requirements, implementation and resourcing. Workshops were held to share experiences of asset surveys, compiling databases and the use of technology and to learn what delegates would want to see in the proposed new guidance.

Contemporary drainage asset management is primarily maintenance driven, with a risk-based focus on surface assets. Emphasis is shifting to an asset management approach driven by a requirement for proactive flood risk management and for efficiency gains in a challenging economic climate. Despite differences in maturity and system complexity, similar approaches are developing and respondents at all levels report that adopting an asset management approach encourages a proactive system in which asset value may vary depending on liabilities arising from failure and costs to maintain. Asset data is available from multiple sources and many Local Highway Authorities (LHAs) advocate the use of GIS based systems for recording and sharing data. While these are useful they are very expensive to develop and not essential; simple tabular systems are a good point of departure. Main relationships are with the EA and Water companies where the focus is on a common understanding of risks and responsibilities as well as asset knowledge sharing. Relationships with other bodies are managed through flood management fora and act as useful points of contact for data collection and dissemination. In many cases the ideas of asset management and maintenance planning appear to have become conflated resulting in very little attention being paid to whole life costing.

Despite their common ground, this research demonstrates that various LHAs differ quite strongly in the maturity of their system and focus of activities and budgets applied at the organisational level. Any guidance will need to be flexible enough to appeal equally to LHAs who occupy the same stage of maturity for all categories of asset management practice, are transiting between stages or who occupy different stages of maturity for each category. The notes for guidance will be offered as a report covering the three main categories identified in section 3.10 and examples of best practice in section 4.1.1 that could be included in drainage asset management planning undertaken by LHA's and further guidance offered by the project board.

2 Introduction

2.1.1 This is a report on the review of Element 2 funded work relating to the management of drainage assets and on consultations with selected local highway authorities. It includes information obtained at two workshops held in November 2011 to enable managers from those authorities benefiting from funding to explain their findings, including early identified efficiencies, and to share these with other delegates. It concludes Stage 1 of this package.

2.1.2 The purpose of this report is to allow the HMEP Project Board to comment on the findings and to approve progress to Stage 2.

2.1.3 The report proposes how the guidance document could be developed to maximise the benefits to users, identifies the key areas to be explored and outlines the possible benefits that may result.

2.1.4 One of the first actions of the project was to identify the various stakeholders and asset owners, their respective duties and responsibilities in order to develop an understanding of their approach to asset management best practice. To do this a review of the Element 2 DfT funded drainage strategy development projects was carried out as well as an investigation into strategies adopted by utility service providers and highway authorities. Two groups of authorities were consulted in some detail. Those authorities who are focussing on flood risk as a driver for their projects would form one group: these are Oxfordshire, Dorset and three authorities working together: Swindon, Wiltshire and Gloucestershire. The second group are authorities which are focussing on drainage asset management efficiencies: these are Warwickshire, Nottinghamshire and the three city unitary authorities working together, Nottingham, Leicester and Derby ("Three cities Asset Management Plan").

2.1.5 Specific emphasis was placed on understanding:

- Drivers for selection of the approach;
- Data requirements;
- Use in asset management activities and provision of data for lifecycle planning;
- Resource requirements: discipline and grade of personnel; and costs.

3 Stakeholder consultation –interviews and workshops

3.1 Introduction

3.1.1 Investigations were carried out through desk studies and consultation with stakeholders either by direct interview or by telephone. Most of those approached for this initial consultation were organisations that had made some progress towards developing drainage asset management systems following a successful bid for Element 2 funding; however consultation was not restricted to these organisations and the views of those who had developed asset management systems independently were also sought. Table 3.1.1 below provides a list of consultees and the organisations represented:

Organisation Name	Contact	Date	Type
Cornwall Council (non Element 2)	Andy Stevenson	26/1/2012	Interview
Derby City Council	Dave Kinsey	13/10/2011	Telephone
Dorset County Council	John Munslow	11/10/2011	Telephone
Gloucestershire County Council	Scott Tompkins	19/10/2011	Interview
Nottingham City Council	Mike Barnett	13/10/2011	Telephone
Nottinghamshire County Council	Andy Wallace	12/10/2011	Interview
Oxfordshire County Council	Kevin Haines / Andy Pym	25/1/2012	Interview
Swindon Borough Council	Gwillam Lloyd	20/10/2011	Telephone
Three Cities Asset Management Plan	Peter Wells	12/10/2011	Interview
Wiltshire County Council	Peter Binley	11/10/2011	Telephone

Table 3.1.1 Consultees list

3.1.2 Workshops were held in Loughborough and Swindon on the 3rd and 8th of November 2011 respectively to facilitate a discussion between those local authorities who have DfT funded Element 2 projects, those that were independently engaged in developing asset management strategies for drainage, and organisations such as the Environment Agency (EA), Highways Agency (HA) and Water Utilities who may be involved with similar systems. The workshops enabled the delegates to share their experiences of asset surveys, compiling databases and the use of technology. It is considered that the benefit of this type of engagement was that it usually produces more information that simply one to one discussions or meetings, though it was intended the workshops would not replace but complement such meetings. The HMEP project team members wanted to learn from the Local

Highway Authority representatives what they would want to see in the proposed new guidance. Table 3.1.2 below provides a list of delegates to the workshops

Organisation Name	Contact	Workshop
Cambridgeshire County Council	Austine Nwankwo	Loughborough
CIRIA	Chris Chiverell	Swindon
Cornwall Council	Andy Stevenson	Swindon
Derby City Council	Kevin Tozer	Loughborough
Dorset County Council	John Munslow	Swindon
Durham Council	Simon Longstaff	[Invited to Loughborough]
EA	Leonard Simms	Swindon
Gloucestershire County Council	Scott Tompkins	Swindon
Hertfordshire County Council	Adrian Redrup	Swindon
Highways Agency	Michael Whitehead	[Apologies sent]
Leeds City Council	Andrew Molyneux	Loughborough
Leicester City Council / HMEP	Tom Vestry	Loughborough
Leicestershire County Council	Gary Thompson	Swindon
London TAG	David Yeoell	[Invited to Swindon (8/11/11)]
Newcastle City Council	John Robinson	Loughborough
Nottinghamshire County Council	Andy Wallace	Loughborough
Oxfordshire County Council	Kevin Haines / Andy Pym	Swindon
Swindon Borough Council	Gwillam Lloyd	[Invited to Swindon (8/11/11)]
Nottingham City Council	Peter Wells / Paul Daniels	Loughborough
Warwickshire County Council	Nigel Chetwynd	Loughborough
Wessex Water	Peter Weston	Swindon

Table 3.1.2 Delegates list

3.2 Findings - Approaches to drainage asset management

Drivers

3.2.1 At the moment drainage asset management is primarily maintenance driven with a risk based focus on surface assets – typically gullies. This approach facilitates prioritisation of maintenance activities and provides a coherent defensible approach to a data led response to maintenance planning needs. However a more strategic approach is emerging that will eventually lead to an asset management approach to drainage. Stakeholders report two main drivers for the development of drainage

asset management planning strategies: (a) Flood Risk Management (b) Efficiency gains in the face of a challenging economic climate.

3.2.2 Flood risk management is currently the main stimulus of the two and is driven and supported by the following factors:

- Specific events such as the flooding of 2007 - The flooding in 2007 raised the public/political profile of flood prevention, particularly in areas worst affected. This has facilitated political buy in to measures that ordinarily would have been difficult to "sell" e.g. Gloucestershire's Flood Levy[i].

- The Flood & Water Management Act 2010 - This Act placed new responsibilities on LHAs necessitating the mobilisation of formal structures to assess, understand and address areas of risk. Compliance with evolving obligations and delivery against new responsibilities such as the Lead Local Flood Authority role has resulted in an expanded understanding of data sources, their usefulness to delivery and deployment of sufficient resources in support of acquiring useful asset knowledge

- Liability - This driver raises the importance of accurate drainage asset information and is increasingly relied upon to defend against claims or litigation arising from flooding to third parties. Investigations are needed to address three main issues which can cause liability:

    - Lack of maintenance
    - Under designed assets
    - Third party damage

Management and delivery of drainage asset management systems

3.2.3 LHAs vary greatly in respect to the maturity of their approaches to drainage asset management. Some have existing systems that they wish to develop further while others have yet to embark on development of any kind. There may also be different levels of complexity in the systems being investigated; for example predominantly rural or predominantly urban. A common theme is the lack of asset knowledge having a significant impact on highway management, leading to an inability to identify quick wins. Highway management departments are often completely separate from surface water management teams within LHAs and this needs to be addressed through closer relationships in knowledge sharing and service delivery. It is equally important to determine opportunities for and definition of partnership with external stakeholders to increase understanding of assets and how they relate to each other (assets and owners) which facilitates understanding boundaries and responsibilities.

3.2.4 Despite these differences in maturity and system complexity, similar approaches are developing and respondents at all levels report that adopting an asset management approach encourages the move from a reactive to a proactive system in which asset value may vary depending on liabilities arising from failure and costs of maintenance. All of the approaches recognise five key questions:

[i] Interview with Scott Tomkins, Highway Asset Manager Gloucester county Council 19/10/2011

- What is it?
- Where is it?
- What is its condition?
- What happens if it fails?
- How much will it cost to address?

3.3 Data management

Collection

3.3.2 For LHAs where the baseline level of data is reasonably good a linear approach has been adopted. Surveys are programmed for specific areas on an annual basis and as much data is collected for the area as possible. These areas are somewhat prioritised though road refurbishment and maintenance activities and contribute to a centralised asset database. For LHAs where the asset knowledge is quite poor or where flooding is a particular problem, data collection radiates out from known flood hotspots.

3.3.3 Drainage data is available from multiple sources. These can be passive systems such as existing records or third party reporting of incidents. More active approaches include low impact surveys that focus on collecting data on surface assets as part of their maintenance regime. The most detailed surveys (CCTV) provide high quality comprehensive data. The more complex the data the greater the cost, so all respondents report operating a risk based prioritisation system in order to select sites and the method of data collection to be employed at them.

3.3.4 The data collection process usually starts with a review of the existing state of data held that is then consolidated into a baseline which informs further collection. Stakeholders stress the importance of identifying gaps in knowledge and ranking them according to importance.

3.3.5 There is a common issue of unknown assets which may be addressed by supplementing data from other undertakers' information and by reference to data held by other departments e.g. planning office/ development control personnel before embarking on costly field work to collect data.

3.3.6 Methods of data collection in the field vary in complexity. Many LHA's use gully cleansing records supplemented by hand annotated drawings. Others use more advanced field GIS systems for data collection or use a combination of approaches based on risk or engineering need.

Storage

3.3.7 Most LHAs use drainage database systems that are integrated into existing asset management database systems such as EXOR, Symology, Oracle (proprietary) or MS Access. Respondents report the importance of ensuring that data storage systems are designed to complement existing Information Technology infrastructure to avoid major delays in delivery and their consequent escalation of costs.

3.3.8 Very few LHAs have adopted an integrated systems approach; most focus on individual components or known points of failure. Data may be exported to GIS systems and while this is desirable it is not fundamental to effective asset management and many authorities use simple spreadsheet based gazetteers to store data. Most LHAs focus on specific asset groups which are ranked in terms of interest (typically gullies and culverts rank highest with ditches next) and there is little active focus on subterranean assets due to the costs involved in surveying them. Data for these assets is usually derived from major maintenance schemes on roads and results in nodes of high density data providing a great deal of system information surrounded by relatively low density data providing little or no information.

3.3.9 Respondents report three types of data are stored. These data types are arranged in the following hierarchy:

Basic	Advanced	Peripheral
Type	Recency of maintenance	Water company and EA systems
Location	Recency of failure	Land drains
Condition	Allocated risk factors	Unclassified flooding incidents
	Maintenance requirements	Flood management fora
	Engineering specific data	

Table 3.3.9: Data hierarchy reported by respondents

Quality Assurance

3.3.10 Data is validated through field inspections and audits of contractors. The data to be collected is determined by database architecture with limitations placed on the type of data that may be entered onto data fields. Specifications for contracted work are carefully drafted providing specific deliverables and mechanisms for reporting. Data collection contractors are carefully vetted against past performance.

Dissemination

3.3.11 This aspect may be divided into three main groups;

- Open – All data is available to stakeholders on a shared open forum. Stakeholders may apply for data to be added and may read off data. Usually map based interface. This system may also make provision for automatic notifications to certain stakeholders (Flood Risk Management teams or maintenance managers) of changes to the Central database (e.g. Nottingham City[ii]).

- Closed – data is held centrally on closed databases which may or may not be map based interfaces. Data requests are processed and disseminated to stakeholders by the Asset Management (AM) team. Similarly, data that is collected by survey or maintenance teams is checked and 'uploaded' by the AM team.

- Variably open - Some stakeholders have direct access to data held by the LHA. External stakeholders will have diminishing levels of access based on their assessed needs and in some cases their contribution to the database.

3.3.12 Data must be transferable between owners and collaborators who understand its value and make use of it. Stakeholders warn against letting the tool become more important than the job and recommend simple solutions that do not require a great deal of maintenance or administration.

3.3.13 Systems should be linked to maintenance activities that are used to focus future activities and map 'hotspots'. This will encourage the causes of problems to be addressed as opposed to symptoms.

3.3.14 A focussed data based maintenance regime linked to overall objectives for asset management delivers long term savings.

[ii] Interview with Mike Barnett, Highways Asset Manager Nottingham City Council 13/10/2011

3.4 Relationships / Stakeholder engagements

3.4.1 Main relationships are with the EA and Water Companies where the focus is on a common understanding of risks and responsibilities as well as asset knowledge sharing. Relationships can be variably productive especially with the water companies where a commercial bias can influence the degree of openness to data sharing and their willingness to undertake works; however they are a good source of high quality data.

3.4.2 Other relationships with local bodies, Internal Drainage Boards (IDBs), interest groups, Parish councils, etc are managed through flood management fora and act as useful points of contact for data collection and dissemination. These are more prevalent in rural areas where these fora allow for localism to be put into effect with stakeholders directly involved in decision making, implementation and remediation.

3.5 Resourcing and whole life cost

3.5.1 In many cases during the process of implementation the ideas of asset management and maintenance planning appear to have become conflated. Data is mostly used to record and plan risk based maintenance of culverts, gulleys and some ditches. This has led to very little attention being paid to whole life costing or long term investment planning. When put to the stakeholders, the idea of whole life costing and deterioration modelling was seen as being, at best, premature given the state of existing asset knowledge and at worst unobtainable given the diversity of drivers and pressures on similar assets under various conditions.

3.5.2 Where systems are kept in-house they have been designed to be implemented by existing staff members with necessary training provided at the supervisory level and disseminated as required. In some instances the services are either wholly or partially bought in therefore resourcing is minimal. The main issue with resourcing is funding and to a greater degree an incompatibility with existing IT infrastructure. Stakeholders report the importance of confirming compatibility before embarking on detailed acquisitions

3.5.3 It is important that the distinction between efficiency and effectiveness is clearly understood and implemented in the asset management planning process. This distinction between the two is illustrated in the box below:

Efficiency and Effectiveness

The efficiency of a gully cleaning operation can be measured by the number of gullies it takes a gang to clean in a day. The effectiveness of the work can be measured by how many of those gullies needed cleaning, and how much cleaner they were after the work. Both the efficiency and effectiveness will influence the overall cost effectiveness of the work.

Box 1: Illustration of the distinction between efficiency and effectiveness

3.6 Progress

Reported by LHAs

3.6.1 The LHAs consulted report progress towards an improved asset knowledge which has facilitated a risk based approach to flood risk management and maintenance planning. There are still large gaps in knowledge, particularly in respect to underground assets, as information collection appears to focus on surface assets such as gullies, ditches and culverts where flooding is an issue. There is little evidence of a 'total asset' approach at the moment. The reported reasons for which are:

- Immaturities of system and asset database - Informed Asset Management decisions are not possible at this time. Many LHAs express the aspiration that this will be realised at some (undetermined) future point;
- Insufficient funding to collect asset data - A sufficiently high level of detail across a large enough proportion of the network is required to understand the "total asset";
- Flood risk management and maintenance pressures determining the location chosen for data collection - The type of information collected leads to a fragmented and highly localised dataset i.e. a lot of information about relatively few assets;
- Decrease in funding and implementation of major road maintenance schemes that would have offered 'quick win' data caches;
- Patchy reporting by developers leads to scepticism as to the reliability of data from that source

3.6.2 These difficulties notwithstanding, many LHAs express an aspiration to whole life costing and predictive management of their assets in the future.

3.6.3 Many LHAs report good progress being made in developing relationships and delivery partnerships with outside agencies such as the EA and HA as well as with water companies and IDBs. Recent changes to planning and water management legislation mean that LHAs are able to oblige external bodies to share information however, it is reported that this type of coercion is often unnecessary due to the growing appreciation in all organisations involved in water management of the value of cooperation and shared responsibility. There are a number of issues still to be resolved regarding the delineation of responsibilities between organisations, lines of communication and common standards of collection, storage and delivery of data.

Self Assessment Exercise

3.6.4 During the workshops delegates were asked to evaluate their progress using the matrix included in Appendix A**.** Delegates were asked to assess their own present level of expertise and where they expected to be in two years. The findings from this self assessment are summarised in Figure 3.6.4 below and the results suggest that local expertise in drainage management should increase significantly in the next few years.

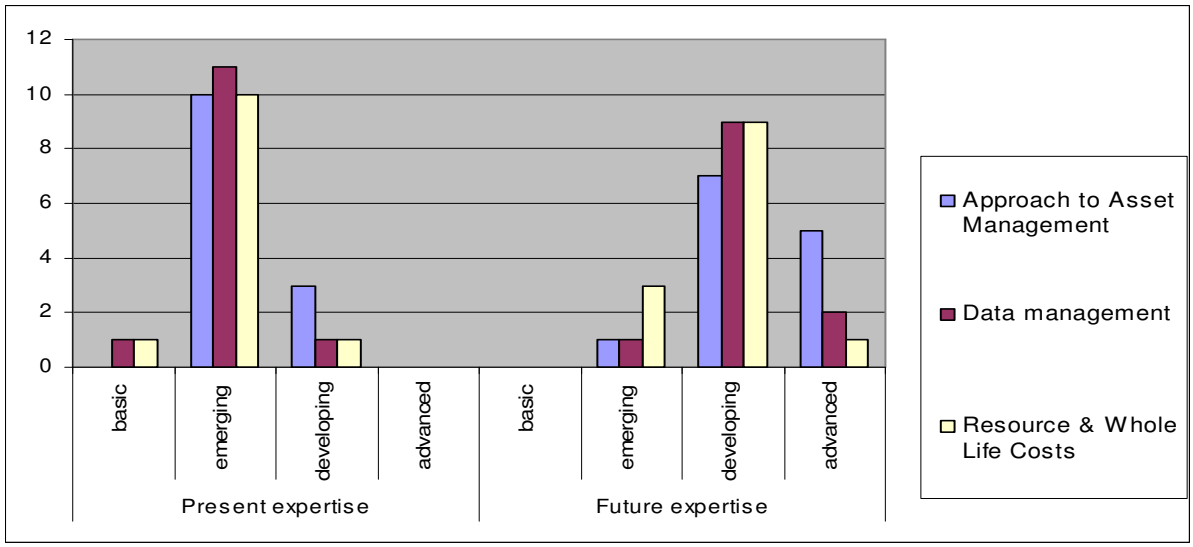

Figure 3.6.4: Results of delegate self assessment

3.7 Delegate views on future guidance

3.7.1 Throughout the interviews and during the workshops stakeholders indicated topics that they felt would be important in any notes for guidance. These are:

- Guidance should build on existing experience and information that is already available - should not seek to reinvent the wheel;
- Guidance should provide an outline of systems that cater for a range of capabilities and deliverables from spreadsheets to full GIS;
- Guidance should provide an understanding on the key areas where information is most useful and provide minimum levels of focus or system requirement;
- Guidance should emphasise approach over technology;
- Guidance should provide minimum common standards for performance criteria and elements such as asset identification;
- Guidance should provide multiple approaches that may be chosen depending on what type of data is required and what it will be used for; and
- Guidance should establish a framework for the achievement of the following goals:
    - Wider collaboration between internal and external stakeholders;
    - Defence and liability management;
    - Strong evidence base for seeking funding;
    - Manage risk and promote projects;
    - Prioritised future works, using a risk assessment approach; and

- Development of delivery teams trained and equipped to deliver effective asset management for drainage.

3.8 Opportunities and challenges

3.8.1 The following opportunities and challenges to the successful rollout of an effective approach to drainage asset management were identified:

Opportunities	Challenges
Greater documentation of activities	Diminishing resources as a result of cutbacks
Provision of a good service = improvements to peoples lives	Overloaded staff “fire fighting” issues
Raise awareness to address the lack of knowledge and culture of neglect towards drainage assets	Effective placement of resources to ensure good quality data is collected
Elimination of duplication of effort	Culture of neglect of drainage – “out of sight – out of mind” until it is too late
Savings through effective management	Collecting and storing data in a useful way. Data only available in formats that require reprocessing or conversion
Potential for peripheral benefits – environmental and social	Unreasonable political expectation driven by public pressures
Education of stakeholders and clarification of roles and responsibilities	Lack of understanding of the interaction between assets and the organisations responsible for them
Managed public expectations	Cross boundary issues
Community infrastructure levy to support activities – self funded AM programmes	Lack of commonality between systems on the national level leading to a fragmented approach
Minimise whole life cost through focussed spending – “more now might mean less later"	Lack of control or involvement in “partner” activities
	Variable standards leading to inconsistencies.
	Understanding the right level of maintenance for each asset

Table 3.8.1: Opportunities and Challenges

3.9 Current State of expertise in LHAs

3.9.1 Figure 3.9.1 was presented at the workshops and describes an overview of current practice within LHAs who have developed asset management systems for drainage. It is not specific to any one organisation but offers a view of the common ground between all stakeholders.

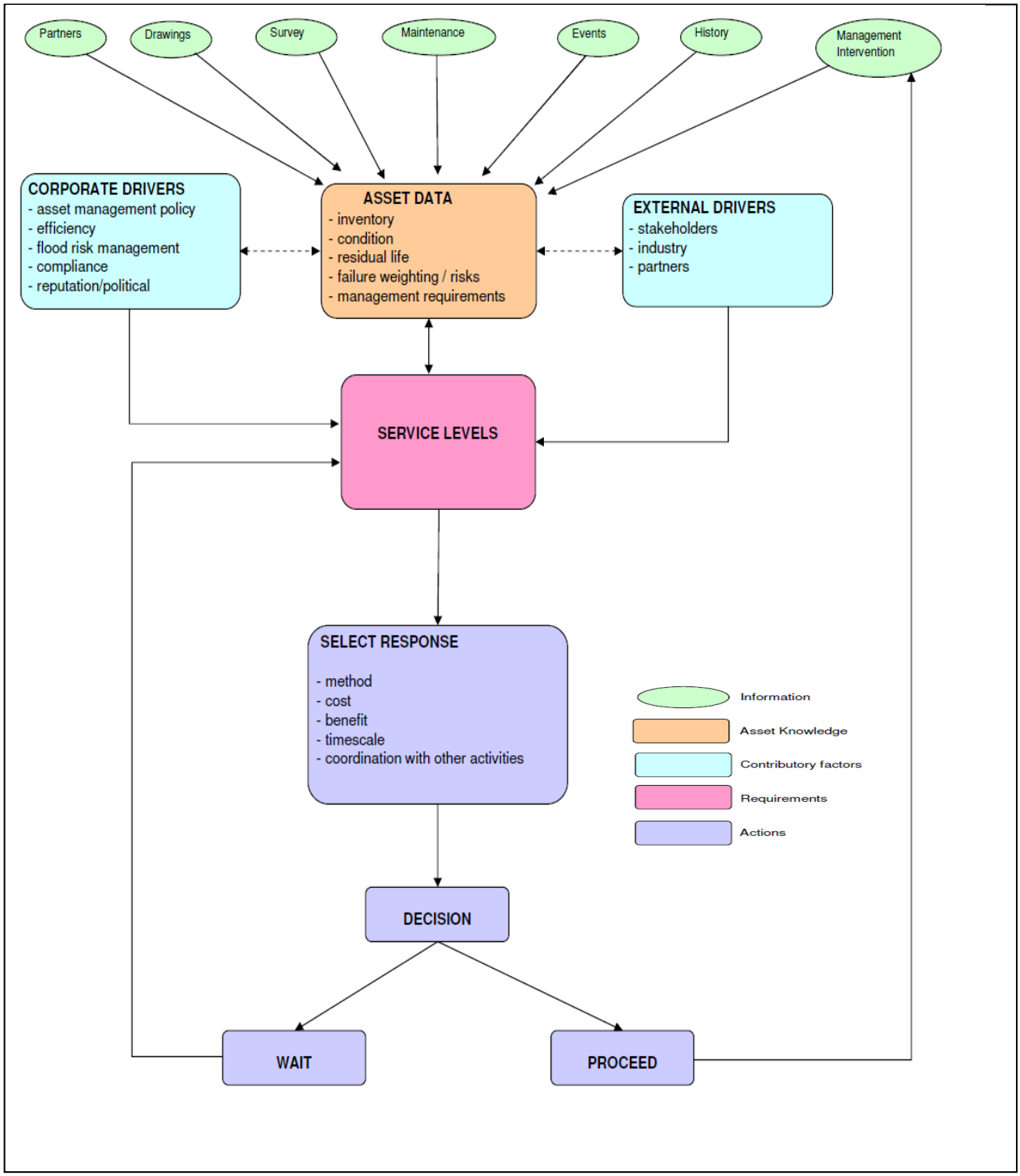

Figure 3.9.1: An approach to asset management for drainage

3.9.2 The approach to drainage asset management, as illustrated above, demonstrates an effective system where data is used to establish a baseline of information about assets, supplemented by other factors to establish service levels. Asset managers determine possible responses to these service levels. These are evaluated against wider organisational factors (timescales, budgets, resources etc) and are either carried out, following which the asset information is updated, or put on hold in which case the service level for that asset may need to be updated, as it ages.

3.10 Drainage Asset Management plan development maturity

3.10.1 It is important to note that despite the common ground in approach illustrated in Figure 3.9.1, this research and the self assessment exercise in Section 3.6.4 carried out at the workshops clearly demonstrates that various LHA's differ quite strongly in the maturity of their system and focus of activities and budgets applied at the organisational level. These differences fall across three main categories:

- Approach to Asset Management - The business goals that determine what is important, what drives the need for data collection and how that need is expressed and responded to.
- Data Management - The development of strategies for locating, collecting, storing and disseminating data.
- Resourcing and Whole Life Costs - The degree to which asset knowledge is used to support and inform asset lifecycle planning, the deployment of resources and the understanding of future needs.

3.10.2 LHAs performance in these categories may be used to define their drainage asset management maturity as follows:

- Foundation
- Emerging
- Developing
- Advanced

3.10.3 Table 3.10.3 below illustrates the organisations' level of maturity against the three main drainage asset management categories.

	FOUNDATION	EMERGING	DEVELOPING	ADVANCED
APPROACH TO ASSET MANAGEMENT	Unclear/incomplete asset knowledge Reactive response to gaps in knowledge No formal inventory Failures / events are unexpected and crisis managed Not specialised / formalised portfolio Treatment measures applied on a trial and error basis	Greater focus on a data driven approach often generated in response to an external pressure/stimulus e.g. Flood Risk Main motivator is cost effective maintenance focussing on identified problems Greater awareness of interrelatedness of internal & external systems leads to partnerships with external bodies	The focus is mostly data driven with a smaller reactive component Main motivator is the efficient deployment of budgets and resources to deliver greatest gains. Mature, efficient partnerships with external stakeholders ensures focussed approach and successful delivery Proactive and prioritised programmes are developed	A mature system that provides a framework to detail and examine management practices for drainage infrastructure and forms the basis of an improvement / replacement programme to progressively meet identified deficiencies Maintenance is no longer the sole concern of asset management and is dealt with as a single component of the approach

	FOUNDATION	EMERGING	DEVELOPING	ADVANCED
DATA COLLECTION, MANAGEMENT & USE	Limited data collected in response to specific events or interventions. Project determined standards – no consistency in formats, deliverables or areas of interest Data not shared or centrally located leading to duplications	Data base approach starts to develop. Assets are grouped by type and common terms are formalised around a common frame of reference e.g. gazetteer , GIS etc Formal and informal processes for collecting and communicating data are developed Harmonisation with existing asset management systems is investigated/implemented Asset group treatment options are investigated and understood	Databases are formalised and largely integrated into Organisational systems and culture. Drainage data is collected from schemes as well as field surveys and disseminated throughout the Organisation Clear procedures are developed and audited for compliance Data disseminated by "user demand" via a common access point e.g. intranet or web. Usually a map based system	Data is collected at all stages of the asset lifecycle commencing with design through maintenance to decommissioning and used to improve existing knowledge Databases are comprehensive but simple to maintain through the provision of clear procedures and training Databases are regularly audited and improved where necessary High data density facilitates informed planning against future necessity
RESOURCING & WHOLE LIFE COSTS	Every time is the first time – past events have limited effect on future actions Resources and funding are deployed reactively with little planning or analysis of context No appreciation for asset life planning or management No system feedback	Rolling maintenance plans are developed – focus on seasonal maintenance of surface assets. Costs become more predictable and service delivery is monitored against requirements Resources and funds are specifically allocated Little predictive planning or whole life costing	Focussed maintenance is now a hallmark. Efficiencies delivered allow for more detailed surveys of problem areas "Future Picture" of risks and opportunities is beginning to develop and is being used to informally support decision making	Present and future demands are clearly understood and action is coordinated with wider activities where possible Asset lifecycles are well understood facilitating efficiencies through streamlined delivery of service levels Resources and budgets closely aligned to current activities and future needs are anticipated with long lead in

Table 3.10.3: Asset Management development maturity

3.10.4 Any guidance will have to cater for all groups and will therefore not be able to be set against a single timeline or frame of reference. It will need to be flexible enough to appeal equally to LHA's who occupy the same stage of maturity for all categories, are transitioning between stages or who occupy different stages of maturity for each category.

4 Examples of good practice

4.1.1 During the review of Element 2 funded projects and consultations with stakeholders a number of examples of good practice have come to light which are summarised in table 4.1.1 below. This is not an exhaustive list; examples have been included based on their suitability to wider adoption.

Category	Element	Item	Description
Asset Management Approach	Collaboration	Procurement and management	Several LHAs have collaborated in developing and delivering systems which has led to a smaller individual cost to each
	Focus	Risk based data collection	Programmes should be developed to radiate out from areas of known risk of flooding or system failure
	Focus	Wider risks	Awareness of wider risks such as asset theft and an understanding of the effects of these on the system priorities and asset management scope
Data Management	Standards and quality	HD43/04	HA standard for drainage asset recording. Provides a good framework for ensuring coverage and is readily adaptable to suit local needs
	Standards and quality	Transferability	Ensure data collected by partners is on a common format to ease sharing between stakeholders
	Collection	Sources	Asset data may be available from multiple sources not immediately associated with drainage. For example Building control, flood risk management or environmental departments. Asset managers should investigate all possible sources to piece together as dense a picture as

Category	Element	Item	Description
			possible
	Collection	Appropriate type	The method of data collection should be determined by the quality and quantity of information required. CCTV should be used as a last resort
	Collection	Tracked gulley cleansing	This is a good source of spatial data however gulley cleansing in difficult areas is infrequent and leads to knowledge gaps
	Systems	Integration	Conduct thorough review of existing IT systems to ensure any new systems are compatible
	Systems	Evolution	In many cases there are existing systems in use. Review these first to establish their continued usefulness and adapt if necessary. “Build on what you know”
	Storage	Simple or complex	Many LHAs advocate the use of GIS based systems for recording and sharing data. While these are very good they are very expensive to develop and not essential. Simple tabular systems are a good point of departure; they cost little, require few specialist skills and can be incorporated into more complex systems at a later date
Resourcing	People	Information retention	Ensure local knowledge held by long service ‘gurus’ is captured and incorporated into data records
	Funding	Long term planning	5-10 year investment plans required to offset political pressures constantly reprioritising

Category	Element	Item	Description
			issues
	Funding	Defensible budgets	Asset knowledge provides a firm footing for preparing and defending budgets for maintenance and improvement
	People	Roles	Clear role definition and lines of communication

Table 4.1.1: Examples of Good Practice

5 Delivery plan for Stage 2

5.1.1 In preparing the notes for guidance document, which comprises Stage 2 of this work package, particular attention will be given to:

- The views from workshop delegates as set out in section 3.7;
- Comments from the Project Board;
- Comments made at the Asset Management Working Group meetings;
- Identification of "quick wins";
- Ensuring the document is accessible and useful to a wide variety of expertise;
- Ensuring the document is consistent with related documents produced by other work packages; and
- Ensuring the overarching aim is met - of improving efficiency in drainage asset management.

5.1.2 As described in Section 3.10, LHAs manage their drainage asset at various degrees of complexity; the guidance will offer a non-linear approach to drainage asset management strategies that caters for multiple levels of maturity with emphasis on the optimisation of existing methods to provide a firm point of departure for further development. It is felt that in this way efficiency benefits may be realised in the short to medium term while working towards a future goal.

5.1.3 The notes for guidance will be offered as report covering the three main categories identified in Section 3.10 and examples of good practice 4.11 in such a way as to facilitate their inclusion into drainage asset management planning undertaken by LHA's and further guidance offered by the project board.

5.2 Report focus

5.2.1 Particular items to be addressed in the report include:

- Efficiencies to be made in drainage data collection;
- Priorities in asset management; and
- Short and long-term goals.

5.3 Proposed report outline

5.3.1 The contents of the guidance will include the following main sections:

1 Executive Summary
2 Introduction

- Purpose of report
- Drivers for improvement

- Definitions

3 Organisation

- Resource requirements
- Commitment
- Skills

4 Drainage Asset Management Policy

- Maintenance focused
- Asset Management focused

5 Drainage Asset Management Planning Process

- Data surveys, storage and use
- Risk management
- Partnerships and data sharing

6 Drainage Asset Management Tools

- Foundation
- Emerging
- Developing
- Advanced

7 Drainage Asset Management Plans

- Foundation
- Emerging
- Developing
- Advanced

8 Other Stakeholders
9 Review

5.3.2 Where appropriate the sections will provide specific indications as to the best fit for maturity. Case studies will be included to illustrate examples of good practice and to demonstrate tangible benefits.

5.4 Project Board review

5.4.1 It is anticipated that the development of the notes for guidance will be completed by May 2012. On completion, the notes for guidance will be submitted as a draft to the Project Board for discussion and review. This will bring this element to a programmed hold point pending feedback from the Project Board.

5.4.2 Should Project Board approval be confirmed, this element will move on to Stage 3: User Acceptance Testing.

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Appendix A: Asset development matrix

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Asset management development.

Highways Maintenance Efficiency Programme

	FOUNDATION	EMERGING	DEVELOPING	ADVANCED
APPROACH TO ASSET MANAGEMENT	• Unclear/incomplete asset knowledge • Reactive response to gaps in knowledge • No formal inventory • "out of sight, out of mind" • Failures / events are unexpected and crisis managed • Not specialised / formalised portfolio • Treatment measures applied on a trial and error basis	• Greater focus on a data driven approach often generated in response to an external pressure/stimulus e.g. Flood Risk • Main motivator is cost effective maintenance focussing on identified problems • Greater awareness of interrelatedness of internal & external systems leads to partnerships with external bodies	• The focus is mostly data driven with a smaller reactive component • Main motivator is the efficient deployment of budgets and resources to deliver greatest gains. • Mature, efficient partnerships with external stakeholders ensures focussed approach and successful delivery • Proactive and prioritised programmes are developed	• A mature system that provides a framework to detail and examine management practices for drainage infrastructure and forms the basis of an improvement / replacement programme to progressively meet identified deficiencies • maintenance is no longer the sole concern of asset management and is dealt with as a single component of the approach
DATA COLLECTION, MANAGEMENT & USE	• Limited data collected in response to specific events or interventions. • Project determined standards – no consistency in formats, deliverables or areas of interest • Data not shared or centrally located leading to duplications	• Data base approach starts to develop. Assets are grouped by type and common terms are formalised around a common frame of reference e.g. gazetteer , GIS etc • Formal and informal processes for collecting and communicating data are developed • Harmonisation with existing asset management systems is investigated/implemented • Asset group treatment options are investigated and understood	• Databases are formalised and largely integrated into Organisational systems and culture. Drainage data is collected from schemes as well as field surveys and disseminated throughout the Organisation • Clear procedures are developed and audited for compliance • Data disseminated by "user demand" via a common access point e.g. intranet or web. Usually a map based system	• Data is collected at all stages of the asset lifecycle commencing with design through maintenance to decommissioning and used to improve existing knowledge • Databases are comprehensive but simple to maintain through the provision of clear procedures and training • Databases are regularly audited and improved where necessary • High data density facilitates informed planning against future necessity
RESOURCING & WHOLE LIFE COSTS	• Every time is the first time – past events have limited effect on future actions • Resources and funding are deployed reactively with little planning or analysis of context • No appreciation for asset life planning or management • No system feedback	• Rolling maintenance plans are developed – focus on seasonal maintenance of surface assets. Costs become more predictable • Resources and funds are specifically allocated • Little predictive planning or whole life costing	• Focussed maintenance is now a hallmark. Efficiencies delivered allow for more detailed surveys of problem areas • "Future Picture" of risks and opportunities is beginning to develop and is being used to informally support decision making	• Present and future demands are clearly understood and action is coordinated with wider activities where possible • Asset lifecycles are well understood facilitating efficiencies through streamlined delivery of service levels • Resources and budgets closely aligned to current activities and future needs are anticipated with long lead in

Mark boxes with a "**P**" for present situation and an "**F**" for where you think your Organisation will be in 2 years

Limitations

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