

**DORSET COUNTY COUNCIL  
2008/9 ASSET MANAGEMENT FUNDING SUPPORT  
BID FOR ELEMENT 2**

**1. PURPOSE**

- 1.1. The purpose of this bid is to further develop Dorset County Council's draft highways asset management plan in respect of the its third largest asset group; Drainage.
- 1.2. It is to provide funding for data collection works so that:-
- underground drainage inventory can be better defined;
  - drainage asset condition can be assessed;
  - maintenance treatment models can be developed;
  - An improved drainage asset valuation can be undertaken;
  - Investment backlogs and strategies can be calculated and considered;
- 1.3. To demonstrate an innovative use of data in making investment and maintenance decisions on the highway by financing a collaborative partnership approach with the Environment Agency and Dorset's Sewerage & Land Drainage Authorities.

**2. INTRODUCTION – HIGHWAYS ASSET MANAGEMENT IN DORSET**

- 2.1. Dorset County Council has developed a draft Highways Asset Management Plan. Working from an asset register that has been developed in the Council's EXOR database for over 10 years, the foundations have been created for whole life costing, investment option analysis and needs based budgeting.
- 2.2. The Asset Management Plan sets out a framework for planning and monitoring both maintenance and management activity based around an asset register. The framework includes statements of capital investment (replacing or replenishing the assets), revenue costs for routine maintenance (maintaining serviceability) and operational costs (providing the services to manage the network).
- 2.3. The same framework has been used to define activities for time recording within the Highways Group's service plan. This means that the whole cost of maintenance and management of each of the highways asset groups can be identified.
- 2.4. Treatment models have been proposed for each of the asset groups. They include both capital investment and revenue expenditure. The models are being developed at the moment through consultation with the operational managers for each of the activities. The output from this is a needs-based

budget based on the condition and service levels aspired to for each of the assets.

- 2.5. A working group of officers and members has been set up to consider the aspired condition levels and service levels for each asset group. Based on their guidance the needs based budgets will be calculated using the treatment models. This will be an iterative process, as the Council balances aspirations with affordability and considers different investment options.
- 2.6. Once the budgets have been set, progress will be monitored within the Asset Management framework. The treatment models will be fine tuned to reflect actual expenditure and improve the accuracy of future forecasting. The relationship between investment in highways and service to the public will become very clear.

### **3. DRAINAGE - MISSING DATA AND THE PLAN TO ADDRESS THE GAP**

- 3.1. The asset management approach demands data to define inventory and condition for each of the asset groups. To complete the exercise described above gaps in the available data must be filled.
- 3.2. The most significant gap in the asset register relates to highway drainage. A provisional estimate indicates that highway drainage is the County Council's third largest asset group (approximate £348M) after pavements and bridges. Whilst there has been good information about the numbers and locations of highway gullies, no electronic information has been held about the underground chambers, pipes and outfalls.
- 3.3. The Pitt Report, published in June 2008, highlights the need for cooperation between authorities to solve flooding problems. A fundamental block to this is the lack of reliable and accessible information about underground drainage assets and the responsibility for their maintenance.
- 3.4. Dorset County Council has formed a partnership group together with all the district councils in Dorset, the relevant water companies and the Environment Agency. The aim of the group is to combine the total knowledge of the drainage assets under the highway and to create a shared dataset.
- 3.5. Element 1 of the Asset Management Funding support is being used to pool the available drainage record information with a mainly desk based data capture exercise. It is also being used to develop the necessary data sharing protocols and procedures to ensure that the data is properly maintained.
- 3.6. If this bid for Element 2 funding is successful, it will be used to extend the work in three ways.
  - To add further value to the earlier investment by enhancing the inventory data and making it available to a much wider audience.

- To improve the asset valuation for drainage, taking into account sample condition information.
- To determine treatment models for the various highways drainage asset elements, so that needs based budgets and investment options can be calculated.

## 4. STRATEGIC AIMS

4.1. The strategic aims of the Element 2 project are:

- to improve the service to the people of Dorset in relation to drainage and surface flooding  
*By making information readily available, clarifying responsibilities and introducing protocols for dealing with actual and potential flooding events, problems will be resolved more quickly.*
- to make the best use of the available funding for highway drainage maintenance.  
*The development of a reliable drainage asset register and drainage asset treatment models will target spending where it is needed. Clarity about responsibility for drainage assets will avoid highways money being committed to resolve flooding problems where the responsibility lies elsewhere.*

## 5. ELEMENT 2 PROJECT DESCRIPTION

- 5.1. The project will develop the joint highways drainage dataset to backfill missing information. It will verify the information already gathered through the Element 1 project where there is doubt about its accuracy. This will include the collection of more detailed data requiring the lifting of covers and tracking of drains.
- 5.2. The survey work will include condition inspections to assess residual life and the need for replenishment and serviceability works; scheduling them accordingly. This practical work will be used to help confirm the underground drainage asset valuation and to develop the treatment models for the various drainage assets, drawing on the expertise of our partners.
- 5.3. Priority will be given to those sections where there is a history of flooding events, a lack of knowledge about ownership, or a lack of data evidenced by surface features (gullies) but no record of underground features. This will involve working closely with our partners to agree responsibility for the various drainage assets.
- 5.4. The project will be managed within Dorset County Council's internal project management procedures, based on a Prince 2 approach. These procedures have a track record of delivering complex projects on time and to budget.
- 5.5. To ensure that appropriate resources are available, consultants with expertise in data capture, GIS publishing and project management will be appointed through the County Council's framework agreement for consultancy services.

## 6. PROJECT OBJECTIVES

6.1. The first objective is to publish a joint dataset for drainage assets in Dorset.

6.1.1. This dataset will identify the responsible authority for each asset and that authority will be responsible for the maintenance of the data relating to that asset.

6.1.2. Rather than maintain parallel datasets the aim is to use a technical solution whereby each partner's in house records can be published within the joint dataset. This may be in real time or through a regular export arrangement.

6.1.3. A number of options will be considered for publishing the information in a GIS format. These include:

- Dorset Explorer – a partnership arrangement for publishing GIS information about local services.
- The water companies' extranet arrangement for sharing their record drawings.
- The Atlantis initiative – a web site for sharing information about flooding.

6.2. The second objective is to improve confidence in the underground drainage asset valuation.

6.2.1. The project will confirm the extent of the infrastructure that Dorset County Council is responsible for.

6.2.2. The condition survey work will provide a sample assessment of condition, allowing a valuation to be calculated.

6.3. The third objective is to develop a drainage asset treatment model that can be applied to the highways element of the drainage asset.

6.3.1. This will include:

- the development of deterioration profiles for various types of construction to identify replacement or replenishment needs,
- categorisation of assets to target routine maintenance or intervention, for example pipe runs that regularly silt up, outfalls that may block if not cleared downstream, grips and open channels, inlets that become blocked through accumulation of debris, pipe runs subject to root invasion.
- identification of assets that require routine maintenance by design, for example oil interceptors to be emptied, gully pots and sumps designed to collect silt, pumping stations, culvert grids etc.

## 7. PROJECT SCOPE

7.1. This project will build on the achievements of the project delivered by the Element 1 Asset Management funding. At the time of writing this bid, Element 1 has started, the partnership has met once and each of the partners has expressed enthusiasm for tackling this issue. Dorset County Council has committed funds equivalent to the Element 1 funding to take the project forward to meet the conditions shown below.

7.2. This Element 2 plan starts from the point where:

- a partnership agreement exists between the various authorities involved,
- the design of a joint dataset is agreed, including a common set of parameters to describe each asset,
- a dataset is built incorporating the drainage records of each of the authorities within the partnership,
- a means of maintaining the dataset is established,
- the processes within each authority to update the dataset as changes occur are established.

7.3. The Joint Dataset will include all drainage elements within the highway boundary, including foul and surface water sewers, culverts, highway drains and private drains. Where required (to show the logical extent of the piped system to an outfall that might require maintenance intervention to relieve highway flooding) drain systems will be plotted beyond the highway boundary to the outfall to a watercourse.

7.4. The Joint Dataset will be made freely available to the partners. It will be made available to the public through a publication scheme for a fee to be agreed. Each of the partners will retain intellectual property rights for the records of the assets for which they are responsible.

7.5. The logical design of the dataset, and the agreements made between the authorities for its use and maintenance, will be made available to highway authorities throughout the country.

7.6. Treatment models will be developed to apply to all highways drainage assets. Models will reflect capital replenishment needs, (for example where drains need to be replaced due to structural failure) as well as revenue needs such as routine cleaning and clearing of debris.

7.7. The developed models will be used to create needs based budgets for the Dorset Highways Asset Management Plan. However their application in this way will not be part of this project.

7.8. The treatment models will be published for other highway authorities to adopt and apply to their own highway drainage assets.

7.9. A presentation will be developed to deliver to other highway authorities and similar partnerships around the country to raise awareness of the benefits of joint working on drainage issues.

## 8. PROJECT DELIVERABLES

- Publication of a joint highways drainage dataset as a GIS layer
- Publication of the logical design for the joint dataset
- Verification of the strategically important records of Dorset's drainage asset
- Condition data for those elements of Dorset's drainage asset that have been verified
- Refined valuation of Dorset's highway drainage asset
- Treatment models for each of the highways drainage asset groups
- Publication of the various treatment models
- A presentation to promote the project's achievements as best practice

## 9. OUTLINE PROJECT PROGRAMME

	<b>Activity</b>	<b>Start</b>	<b>End</b>
1	Element 1 Project, (data capture and setting up systems)	Nov 2008	Jun 2009
2	Setting up partnership and governance arrangements for Element 2	May 2009	Jun 2009
3	Writing Element 2 project documentation	May 2009	Jun 2009
4	Set up contract performance monitoring regime	Jun 2009	Jul 2009
5	Writing partnership data sharing agreement	Jun 2009	Sep 2009
6	Identification of priority sites for investigation	May 2009	Nov 2009
7	Site investigation, data verification	Jun 2009	Mar 2010
8	Re-valuation of drainage assets	Oct 2009	Nov 2009
9	Development of maintenance treatment models	Oct 2009	Dec 2009
10	Testing of maintenance treatment models	Dec 2009	Jan 2010
11	Benefits appraisal and review	Jan 2009	Mar 2010
12	Create and deliver lessons learnt documents and presentations to share with other authorities	Feb 2010	Sep 2010

## 10. PROJECT COSTS

10.1. The costs of Element 2 of the project have been calculated based on estimated inventory quantities, with the greatest part of the cost being the site investigation to verify drainage layout and condition. More accurate cost estimates will be possible once work has started and the processes are established, but provisional estimates show potential cost of £1m.

10.2. This is a substantial investment, but compared to the provisional asset valuation of £384m it seems reasonable, given the potential savings that could be made through the application of sound asset management principles to highways drainage assets.

## **11. BENEFITS**

- 11.1. This project is focussed on the effective use of data to benefit public services, by breaking down some of the barriers between the responsible authorities within a partnership arrangement. It also uses both data and partnership expertise to develop treatment models to inform maintenance investment decisions.
- 11.2. The high level benefit delivered by this project is the adoption of an asset management approach to the maintenance of highway drainage assets. Through a reliable asset register it is possible to actively manage asset condition, avoid expensive reactive maintenance and pre-empt problems that can lead to flooding.
- 11.3. Working with all the relevant partners to deliver a joint database brings a shared understanding and improved communication.
- 11.4. An immediate benefit of a reliable joint dataset of drainage assets is the time and effort saved when a flooding investigation is required. The responsible authority can be quickly identified and the public can be advised with confidence.
- 11.5. Publication of the asset data in a GIS format through an internet portal makes it readily accessible to the people who need it. It also allows other relevant geographic data to be overlaid to give a full picture. This might include flood contour information, land ownership, location of other underground services, location of key infrastructure installations, alternative routes, the list goes on and on.

## **12. BENEFITS REALISATION**

- 12.1. Progress of the project will be judged by the Project Board, based on the delivery of the various deliverables listed above.
- 12.2. Outputs from the project will feed into Dorset's Surface Water Management Plan and the Strategic Flood Risk Assessments.
- 12.3. The value for money in this exercise will be judged by comparing the cost with the quantified benefits in terms of a reduction in reactive maintenance, reduced traffic disruption due to flooding and reduced property flooding.
- 12.4. At the start of the project benchmarks will be set to measure each of these objectives against. The realisation of benefits will be demonstrated by reporting future experience against these benchmarks.

### **13. HOW OTHER HIGHWAY AUTHORITIES COULD LEARN FROM THE DORSET EXPERIENCE**

- 13.1. All highway authorities must improve their services to address the challenges of the Pitt Report. This includes the need to improve partnership working and deliver service improvements in relation to surface flooding.
- 13.2. This proposal demonstrates a very practical approach to overcome many of the issues blocking joined up service delivery for drainage and flooding. It tackles both organisational and cultural issues around sharing information. It also tackles the technical challenge of defining treatment models for the various highways drainage assets.
- 13.3. Involvement of private sector consultants in the project will allow the lessons learnt and first hand experience to be bought in by other highway authorities to accelerate progress.
- 13.4. Documents created during the project will be made available for other authorities to use and there may be opportunities to share the technical facilities used to publish the GIS data. Presentations will be created suitable for delivery at conferences or seminars.