
Meeting of the Executive Members for City Strategy and Advisory Panel

10 December 2007

Report of the Director of City Strategy

Drainage in York

Summary

- 1 This report reviews the effects on the drainage system in York as a result of the rainfall events which occurred during June 2007. It also advises Members on the relationships between the various organisations who deal with the discharge of surface water from within the city. The report reviews the gully cleaning service in line with the motion to Full Council on 4 October 2007 and examines options to improve maintenance of the highway drainage assets.

Executive Summary

- 2 This report covers many drainage issues and tells the complex relations between the various bodies involved in conveying water away from residential areas and dealing with flood related activities. The principal finds in the report are:
 - The monthly rainfall for June 2007 was over 170mm, three times the long term average. The rainfall events ranged from 1 in 7 to 1 in 100 year return period.
 - The overwhelming cause of the flooding in June 2007 was the high intensity of rain falling on a catchment which was already saturated and caused significant run-off, far greater than the design capacity of 1 in 30 years for the receiving sewers and watercourses.
 - The majority of the city is served by an old highway drainage network. There is a lack of knowledge of its location, condition and it receives low levels of maintenance. There are some known deficiencies within the network such as broken gully leads, siltation and root growth. There is a need to undertake a survey to determine the location and condition of the network, and then produce a list of remedial works. To support this a growth bid has been submitted for consideration as part of the 2008/09 budget process.

- Yorkshire Water Services sewerage system is in better condition, its location is better known, it functioned as designed, had few known failures, but was in places overwhelmed by the volume of water. It is proposed that the council continue to work with and support them in developing solutions.
- Our records show that 138 locations reported flood related problems, of which 7 were believed to be habitable properties suffering from internal flooding. It is proposed that investigations continue and work be carried out with Yorkshire Water Services and the Internal Drainage Boards to see if there were any defects which contributed to the flooding.
- The council deployed 12 personnel, 3 tankers, 2 pumps and approximately 1000 sandbags to assist in the relief operation. Staff in Neighbourhood Services are well practiced in such activities, but the scale and distribution of the flooding locations meant that attendance at them all could not be achieved.
- The extent of the flooding is also dependant on the condition of watercourses and their ability to accept the quantity of water being discharged from the surface water sewers. In a number of locations it was noted and in others it is suspected, that the watercourses were running full thereby surcharging the surface water systems. Work will be carried out with the Environment Agency and the Internal Drainage Boards to identify any maintenance issues on watercourses and encourage them to use their powers, where necessary, to have these rectified.
- It has not been possible to assess what part the condition of the private household drains played in the extent of the flooding. They are only designed to deal with low return period rainfall and to discharge into an unsurcharged sewer. Such conditions were not available at many locations during the June event.

Background

- 3 In June 2007 various areas of the city experienced flooding which had previously not done so. The beginning of the month was dry, but by mid month we started to have regular and at times heavy rainfall events. This resulted in the catchment surface being saturated with little capacity to absorb further rainfall. On 24 and 25 June much of the country received significant quantities of rainfall. Whilst York received a considerable quantity of rainfall, by far the most severe weather occurred in South Yorkshire and the Midlands. These areas suffered their worst flooding in 400 years and stretched the resources of Local Authorities, Emergency Services, Environment Agency and the Utility Operators to their limit.
- 4 The Met Office reviewed the events and provides the following:
 - During 24 and 25 June 2007 in excess of 150mm of rain fell over most of Wales, the Midlands, Northern England, Northern Ireland and parts of Scotland, with over 250mm locally.

- This represents over 3 times the normal June rainfall over most of Yorkshire, Lincolnshire and the West Midlands and about 4 times the June average at places on the North York Moors and South Pennines
 - Many weather stations in Yorkshire (including Church Fenton and Linton-on-Ouse), Lincolnshire and close to the Welsh border had their wettest June on record. The locations in Yorkshire also recorded return periods for the rainfall event anywhere in the range from 1 in 7 years to in excess of 1 in 100 years.
 - With 182 mm of rainfall at Church Fenton, this represented 337% over an average June's rainfall.
- 5 Investigations on some local rain gauge stations has shown that the rainfall which fell over those two days in the York area varied in quantity depending on the location. The data from two rain gauge stations at Acomb Landing and Elvington Air Field, along with Church Fenton, is shown below:

	Location		
	Rainfall depth (mm)		
	Acomb Landing	Elvington	Church Fenton
24 June 2007	25	5	26
25 June 2007	39	58	36
2 – day Total	64	63	62
Total for June	172	177	182

- 6 The monthly total rainfall for June 2007 was 172.4mm over three times the June long term average at Acomb Landing rain gauge of 51.4mm. Due to the variable intensity of the rainfall there were areas of the city which received heavy rain at the same time as other places were receiving little.

Flooding Reported

- 7 During and after the heavy rains of 25 June there were at least 138 locations known to have had flood related problems, either reported to or noted by various departments within the Council and by Members. These ranged from: flooding on the highway, blocked gullies/drains, sandbags being required, flooding almost entering properties and flooding entering properties. See Annex A, for full listing.

Extent of Flooding

- 8 During and following the heavy rain there were many discrete areas of the city which suffered from flooding of property, gardens and highways. These were clustered principally in 5 areas of the city, Haxby/Wigginton, Rufforth,

Strensall, Clifton/Rawcliffe and Acomb/Holgate, with others randomly distributed, and were locations different to those which normally experience river flooding.

- 9 Reflecting on the causes of the flooding at these locations, there are several issues to consider. In many cases the volume of rain was just too great for the sewer or drain to cope with as it was well above the design criteria for the sewer. Some watercourses were running full and could not accept the flows trying to be discharged from the surface waters sewers. Some sewers have subsequently been found to need de-silting and this investigation is still ongoing. Also highway gullies could not cope with the water as they were overwhelmed with the volume of water or required cleaning. These issues will be discussed in further detail later in the report.
- 10 As reports came into the Council, staff from Neighbourhood Services were dispatched to offer assistance where possible. They deployed 12 personnel, 3 tankers, 2 pumps and approximately 1000 sandbags to assist in the relief operation. Even though these staff are well practices in dealing with such activities, the scale and distribution of the locations meant that attendance at them all could not be achieved. It was noted in some areas, particularly Haxby and Wigginton, that the heavy rain had filled the sewerage system and tankers were having to travel out of the area to discharge the water they had collected. Many sandbags were issued to assist residents for bunding off door openings and air bricks. This was followed up in the following week by staff investigating the causes of flooding and explaining them to numerous residents some of the causes of flooding in their areas.

Drainage Systems

- 11 The surface water drainage systems which conveys rainfall away from the urban areas of York are made up of a number of components and these are not managed by the same organisation. In simplistic terms the rain which falls on house roofs can be retained on the property by discharging the down pipe to a soakaway which allows the water to be dissipated into the ground at source. However, in York many areas have a clay soil composition which does not lend itself to absorbing water easily. In these locations the down pipe will be connected to a private householder drain which discharges to a public surface water sewer. The rain which falls onto the carriageway is collected on kerbed roads into gullies and on rural roads by grips cut into the verges from where the water soaks into the ground or is conveyed to ditches. Road gullies can be connected to either highway drains or surface water sewers which convey the water to becks, watercourses and rivers. It is noteworthy at this point to comment upon the large areas of private land which is being given over to hardstandings, drives, patios and house extensions, which it is not possible to prevent or regulate through current planning rules. This is giving rise to ever increasing volumes of run-off for the drainage systems to cope with. It is also leading to quicker run-off and higher flood levels due to the “peaky” characteristic of the discharge pattern.

Organisations who deal with drainage.

12 There are a number of organisations who have various responsibilities for dealing with the conveyance of water.

- The private householder is responsible for the piped drainage system which discharges surface water from their property.
- The Council fulfils two function, firstly to deal with water which falls on the public highway in preventing it from accumulating and secondly, that which finds its way into becks and watercourses under its control. The Council also acts as planning authority for new developments and consults with the following organisations about the methods of drainage being proposed within the development, before approving the proposal.
- Yorkshire Water Services (YWS) are responsible for the discharge of foul sewage to the treatment works and surface water to watercourses. The design of these sewers is such that they can cope with a return rainfall event of 1 in 30 years.
- The Environment Agency (EA) are responsible for regulatory functions on Main Rivers and Critical Ordinary Watercourses, along with flood defences and flood warnings. They also have a regulatory function with respect to all watercourses.
- Internal Drainage Boards (IDB) are responsible for maintaining flows in becks and watercourses in their Boards area. It is the responsibility of the riparian owner of the banks of the watercourse to carry out any necessary maintenance work required to maintain the flow in the watercourse. This is enforceable by both the EA and IDBs.

Analysis of flooding on 25 June 2007

13 As the main organisation for draining water away from the urban area of York is YWS, a number of meetings have taken place between its officers and Council staff to compare flooding report logs for 25 June 2007. During that period of intense rainfall YWS received an unprecedented number of phone calls to its operational desk from across the region. This was in the order of 9000 on the 25 June 2007, when on a normal day it would be 250. In subsequent days this dropped to 1000 per day and not getting back to normal for a week. By looking at their records its was possible to see that only a few of the locations reported to the council had been reported to YWS. However, by sharing the council reported flooding location information with YWS an interrogation of their system records was possible. This showed that at most of the locations where the council had received reports of flooding problems YWS's assets were generally performing, but were overwhelmed due to the high volumes of water i.e no breakdown or failure.

14 As part of this collaborative work YWS have carried out further investigations and identified some sewers which need de-silting. Following the severe floods which effected the south of Yorkshire, YWS is working with local

authorities, mainly in that area where the need is greatest, to establish a programme of de-silting work on those sewers which suffered inundation of floodwater. It is working with the local authorities such that their highways teams clean the road surface and gullies at the same time as they de-silt the sewers, thereby optimising the capacity of the system. They also have another budget for sewer jetting of regional priorities. Schemes in this programme have to be prioritised on a risk basis and YWS is now building up information to see if sufficient funding can be made available for some work on the recently identified sewers in York.

- 15 Also as a result of the June floods YWS have initiated a dedicated resource to look at the areas of Yorkshire that flooded in order to carry out assessments as to what level of capacity their assets have in these areas. This could lead to recommendations of service improvements. Following the discussions between the Council and YWS staff, areas of the City will form part of that investigation.

Maintenance of Watercourses

- 16 Prior to 2005 the Council was responsible for maintaining four watercourses; Tang Hall Beck, Oswaldwick Beck, Burdyke and South Beck. However, following the floods in 1998 and 2000 the Department of Environment, Food and Rural Affairs (Defra) issued new guidelines that all watercourses which could cause flooding of a significant number of properties, should be classified as Critically Ordinary Watercourses (COWs) and be administered by one organisation, the EA. The EA determined that 3 of the Council's watercourses should become COWs and the Council relinquished responsibility for the operation and management of Tang Hall Beck, Oswaldwick Beck and Burdyke on 1 April 2006. However, the EA did not have the resources to undertake the maintenance of these inherited assets and so asked the Council to continue maintaining them, on a cost reimbursement arrangement, until they could put in place other arrangements. This arrangement is due to end in April 2008 when the EA are due to contract out the service.
- 17 The only watercourse that the Council continues to be responsible for is South Beck. However the council does have land, managed by Learning Culture and Childrens Services (LCCS) and Housing and Adult Social Services (HASS), adjacent to this and those watercourses transferred to the EA from CYC and the IDBs (Holgate Beck, Blue Beck and upstream length of Burdyke), and therefore is a riparian owner. This requires the Council to maintain the banks and bed of the watercourse and carry out maintenance, such as removal of fly-tipping, so the flow in the watercourse is not impeded. This type of work was previously carried out at the same time as other work on the becks, but is something that is not the responsibility of the EA. The Council therefore needs to establish a budget to cover the cost of this work.

River Flood Emergencies and Warping

- 18 The Council, under the Civil Contingencies Act 2004, is responsible for dealing with “Emergencies”. This is an event or situation which threatens serious damage to human welfare and flooding falls into this definition. The Council has therefore set up well tried and tested flood management procedures to deal with river flood events. An operations manual, annual updates and simulation exercises are carried out. During actual flood events assistance is given to residents to alleviate the effects of flooding and temporary defences are erected, along with the provision of sandbags for creating bunds to residential properties. The Multi-Agency York Flood Group is convened to manage flood response above a certain level. More extreme events are managed by the Police’s Silver Control to assist in the management of the emergency and to keep transport links going and liaise with other responding organisations. This involves principally staff from both City Strategy and Neighbourhood Services. However, many other departments within the Council become involved in serious events to offer care and support during and after the event. The roles of each department is detailed in the Emergency Flood Plan.
- 19 Following a river flood event, the footways, cycleways and towpaths alongside the rivers have, for health and safety reasons, to be cleaned to remove silt and debris which has been deposited on them during the flood. This is known as Warping and is a resource intensive activity for Neighbourhood Services staff, and hence is expensive to undertake at the frequency currently being experienced.

Government Initiatives

- 20 Prior to the June surface water flooding events the government, through Defra, had set up a research project called Integrated Urban Drainage Management (IUDM). It believes that by enabling partnerships and taking an appropriately joined-up approach to planning of improvements thus there is the potential to provide integrated catchment benefits for urban areas (i.e reducing flood risk, improving water quality and water resources management). Defra is now seeking to promote collaborative working between stakeholders to deliver an integrated approach to urban drainage management on a strategic, regional and local level. To assist, it is sponsoring 15 pilot projects across the country from which important lessons will be learned on how best to deliver integrated solutions, what barriers there might be, and how these might best be managed.
- 21 The existing legislation that governs urban drainage has resulted, unintentionally, in an over complex system with a legislative gap between the six parties involved in drainage run-off, namely; Landowner, Highway Authority, Environment Agency, Local Authority, Water Company and Internal Drainage Board. It is felt that with co-operation, however, its is possible for these bodies to work together to deliver cost effective urban drainage management. To achieve this will require a full understanding of the complex mechanisms that affect flood risk, linking together cause and effect, and accounting for the social and organisational issues as much as the technical aspects. The new planning process in England, that requires consistency

between Regional Spatial Strategies, Local Development Frameworks and Strategic Flood Risk Assessments, provides a sensible umbrella under which integrated urban drainage planning can take place. The report discussing the findings of the study is due to be published by Defra in September 2008.

Climate Change

- 22 Much has been reported about climate change, but there now appears to be consensus in the scientific field that climate change is with us. There are a number of issues from this which have an effect on rainfall and hence flooding. The average temperature is predicted to rise between 1 and 2.5 deg C by 2050. This may lead to wetter winters and drier summers, and more extreme weather patterns. The warmer air creates more rainfall, due to evaporation and transpiration, and therefore when it rains the intensity of rain increases by up to 20%. In York, this could potentially lead to more river flood events in the winter and more surface water events in the summer.

Planning Policy

- 23 One question which frequently arises is about how developments are allowed in areas which flood or flood as a result of allegedly under-capacity sewers. The Council as Local Planning Authority is responsible for discharging planning permission. In doing so it consults with and takes account of comments made by the EA, YWS, IDB and the Council's Drainage Engineers, before making its decision. This process has recently been formalised into the Strategic Flood Risk Assessment (SFRA).
- 24 The SFRA forms part of the Local Development Framework evidence base work and will feed into the Core Strategy, the Allocations Development Plan Document and the Area Actions Plans for York Northwest and the City Centre. It assesses the different levels of flood risk in the York area and provides maps of this information. The study also recognises the increasing threat of global warming and explains how climate change could increase flood risk in York due to more intense rainfall, which would increase peak river flows.
- 25 The study provides concise information on flood risk issues to aid planners in the preparation of the Local Development Framework and in the assessment of future planning applications. The main focus of the SFRA is on flood risk associated with the rivers and watercourses, recognising that development can be at risk of flooding itself, or that it can cause flooding elsewhere.
- 26 Guidance is provided to enable proposed development to be assessed for flood risk in accordance with national practice embodied in Planning Policy Statement (PPS) 25. It is this document that requires Planning Authorities to produce a SFRA as this enables them to consider not only the national guidance but also regional guidance, and most importantly any local factors related to flood risk. These are, for example, topography, soil types, the nature and extent of existing development, and the capacity of the existing drainage infrastructure.

- 27 In York there is concern that even small developments have the potential to exacerbate flood risk due to a lack of capacity in the drainage systems infrastructure and the generally flat topography of the area. It has been customary for planning applications to be approved, but with conditions relating to drainage attached, requiring details to be submitted and approved later. Experience has shown that in many cases developments are completed without reference to the conditions and provision for drainage has been deficient with detrimental consequences for the development itself and adjacent properties.
- 28 In order to address this, guidance has been provided in the SFRA for Development Control Officers as follows.

Guidance for Development Control

- 29 The Council's Drainage Section should be consulted on all applications, in addition to consulting the EA, YWS and IDBs where required in accordance with PPS25. This will enable potential problems to be identified at the appropriate stage of the applications and the engineers to advise the planners on the following matters:
- Surface water flows from all sites should (where practicable) be restricted to the existing runoff rates (if a brownfield site) or agricultural runoff rates (if the site has no previous development).
 - Surface water from developments shall not connect to combined drains or sewers, unless expressly authorised by YWS.
 - All full planning applications shall have complete drainage details (including Flood Risk Assessments when applicable) included with the submission, to enable the assessment of the impact of flows on the catchment to be made.
 - Sustainable Urban Drainage (SUDS) methods of source control and water quality improvement should be utilised wherever possible for all new developments in the catchment.
 - Proposed flow balancing of storm water runoff shall be capable of storing a 1 in 100-year (1%) rainfall event, with no run-off into adjacent sites.
 - Ground water / land drainage from proposed developments shall not be connected to public sewers and existing land-drainage systems should be maintained.
 - Applications for smaller scale developments in relation to surface water drainage, which are part of larger sites that already have outline permission, must comply with any conditions that were applied to the larger site.

- Proposed development near to existing areas served by combined sewerage systems (typically pre-1930 terraced housing and inner-city) will need careful consideration with regards to additional hydraulic loading.

Gully Cleaning Service Review.

- 30 At the Full Council meeting on 4 October 2007 the following motion was approved.
- 31 “Council firstly calls on CYC Officers to take an urgent review of the Gully Cleaning process in the City and report to Councilors all gullies which are damaged or blocked and need urgent work undertaken. Secondly, that Officers bring forward a scheme to undertake a maintenance program to ensure the situation is not repeated again”.
- 32 Specific reports on the gully cleaning service have been brought to Members periodically, the three most recent reports being in December 2004, July 2003 and June 2001. A summary of the changes to the gully cleaning service, as a result of these reports, is attached in Annex B.
- 33 There are approximately 40,000 road gullies under the Council’s control and these are cleaned on a planned basis. There are also about 1,000 gullies situated in the back lanes of terraced properties, mainly on the outskirts of the city centre, and an estimated further 1,000 gullies in footways. Back lane and footway gullies are cleaned on a reactive basis i.e. as and when there is a noted or reported problem.
- 34 In addition to this the Council creates and maintains around 7,500 roadside grass verge grips on rural roads. These are the earth slots cut into grass verges to drain water from the carriageway. These are normally cut in the late summer/early autumn in readiness for the coming winter and to assist with this form of drainage, a number of roadside ditches are also cleaned periodically.
- 35 Most of the gullies are in good condition and operate effectively with regular cleaning but there are some which present ongoing problems. We have an extensive list of repairs which is worked through on a priority basis as the budget allows.
- 36 The number of gullies needing some form of ‘repair’ varies with time but the current list, at the end of October 2007 is quite typical:
- 215 gullies are “non-runners” (blocked for some reason)
 - 301 gullies have broken or seized grates or frames
 - 372 gullies have concrete or tarmac in the gully pot resulting in reduced capacity and/or some blockage
 - 13 are known to be affected by tree roots, as these are visible in the gully pot
- 37 The total number of ‘problem’ gullies is 901 and this represents 2.3% of all road gullies. Problem gullies are repaired using the drainage budget and in

most cases the repair is permanent. The exceptions to this are those that silt up or where root invasion reoccurs.

- 38 Whilst these comments deal mainly with the provision of the gully service and aims to address the motion to Council, it is clearly recognised that the gully service forms only one part of a much larger drainage system that is sometimes affected by natural circumstances beyond our immediate control.

Current Gully Cleaning Service Arrangements

- 39 Carriageway gullies are currently cleaned out once per year in most locations but twice per year in tree lined areas, as well as twice per year in the city centre and on the classified network, irrespective of whether or not there are trees in the vicinity. The budget for programmed cleans is £122,000 with a further £88,000 for reactive work. In addition to this there is a budget of £141,000 for drainage repair works.
- 40 Neighbourhood Services was unable to complete all the scheduled gully cleans in 2006/07, but this was completed early in 2007/08. In 2007/08 the scheduled cleaning is slightly behind programme at the moment. Of the 21 orders placed, 17 have been completed. The balance of the orders are being worked on at the moment. It is estimated that the programme is approximately 2 weeks behind schedule at the moment and efforts are now being made to catch this up following the backlog that occurred as a result of the summer floods when Neighbourhood Services resources were directed elsewhere. It is expected that everything will be completed by the end of March 2008.
- 41 Reactive cleans of reported blocked gullies are now carried out each day, as part of the planned daily work and are not 'saved up' and undertaken each Friday, as used to be the case. Any gully problem that creates an immediate hazard to customers will be dealt with straight away.
- 42 The 317 streets where difficulties are encountered due to parked cars have their gullies cleaned on a programmed basis using a series of road closures, on a Wednesday and Thursday for most weeks in the year. This approach is still considered to be the most effective and allows other works to be incorporated at the same time, such as sweeping and routine footway and carriageway repairs. These programmed cleans are up to date and it is expected that the full programme will be completed by the end of March 2008.
- 43 Where the gully cleaning service identifies a problem which is not associated with the gully pot and more likely to be with the gully connection to the main drain, or perhaps with the main drain itself, then this is reported so that the necessary investigation can be arranged. The work to alleviate these problems is done by Neighbourhood Services as part of the Term Maintenance arrangements. It will usually involve high pressure water jetting, root cutting or in more severe circumstances, excavation to repair damaged sections of pipe.

- 44 The ability to respond to some of the backlog of persistent drainage issues or problem gullies was assisted in this financial year by the inclusion of £100,000 in the capital allocation. Unfortunately, due to budget pressures elsewhere in the Directorate, half of this funding has had to be reallocated, as specified in the report on 2007/08 City Strategy Finance Monitor One Report to the Executive Members for City Strategy and Advisory Panel on 10 September 2007.
- 45 Collection of leaf fall is carried out by 3 gangs, one of them being funded from the gully cleaning budget, as evidence shows that this level of leaf clearance reduces the extent and costs of reactive gully cleaning.

Customer Satisfaction Information on Gully Cleaning

- 46 The most recent specific information about the gully service comes from the Talk About survey carried out in August 2004. Out of 2200 survey requests to the Talk About panel, 1630 (74%) responded. Of these, 25% hold a negative opinion of the maintenance service whilst a sizeable proportion, 44%, rate the service as good or better. The actual opinion of all respondents was:
- Excellent 2%
 - Very good/good 42%
 - Average 31%
 - Poor/very poor 19%
 - Unacceptable 6%
- 47 Prior to 2000/01 the number of planned gully cleans was two per year for road side gullies. From 2000/01 this was reduced to one clean per year and then gradually increased in a targeted way to the frequencies already stated in the current service arrangements.
- 48 Records show that the number of customer complaints and reactive cleans from 1999/00 to date, is as follows:

Financial Year	Customer Complaints	Reactive Cleans	Comment
1999/00	708	360	Last time we did 2 cleans/year
2000/01	1093	668	
2001/02	886	929	
2002/03	1224	1206	
2003/04	981	1099	
2004/05	908	1268	

2005/06	824	694	
2006/07	611	1230	
2007/08	760	644	Half year to end of September 2007

- 49 It can be seen from the numbers of complaints that since the peak in 2002/03 there has been a steady decline until this financial year when, due to the summer flooding events, the number of complaints has increased significantly once again.
- 50 It is noteworthy that the current number of reactive cleans remains above the 1999/00 level, the last year in which 2 scheduled cleans per year was carried out.

Highway Maintenance Code of Good Practice

- 51 The Code of Good Practice recommended by the Local Government Association provides a standard which can be used as a guide. It is the responsibility of each highway authority to set its own locally based standards based on measurement of need. The standard in the code states that on kerbed roads with gullies at least 0.5 metres deep (typical for York) cleaning once per year should be adequate but it is known from discussions with other authorities that between once and twice per year is the normal range, depending on local circumstances.

Current Constraints on Gully performance

- 52 Gully cleaning is part of the overall drainage service. To put this in context the factors that mainly affect the likelihood of flooding occurring are:
- Intensity of the rainfall
 - Extent of the rainfall over a given period
 - Level of the ground water table and watercourse levels relative to outfalls
 - Frequency of gully cleaning
 - Frequency of road channel sweeping
 - Ability to remove grass cuttings in areas adjacent to road channels
 - Ability to remove leaf fall effectively
 - Ability to remove the backlog of known drainage problems (tree roots and pipe collapse issues mainly)

- Lack of detailed recorded knowledge of the gully asset resulting in an inability to tailor the cleaning service more specifically to the needs of the asset
 - Lack of knowledge of the location, size and condition of main drains in CYC ownership
 - The fact that parts of the asset are known to be old and in poor condition, such as the old and problematic arterial gully grates
 - Damage to the asset by others that is not reported, resulting in water soaking into the ground and eventually, often years later, resulting in a collapsed surface and/or a flooding issue
 - Lack of any planned maintenance system to clean out catchpits, renew soakaway filter material, checking of carrier drains for silting up etc
 - Other unforeseen issues that will often only arise when the capacity of a drainage system is tested to the limit – such as the cause of the problems in Usher Lane Haxby this summer and those in Bradley Lane Rufforth
 - The inevitable upper capacity limit of CYC’s drainage systems as determined mainly by the pipe size and the gradient to which the pipe is laid
 - The fact that drainage systems have been designed to cater for rainfall of a particular intensity and cannot therefore work efficiently above this design level
 - The fact that producing a coordinated approach to drainage is the responsibility of a number of organisations in our area: namely IDBs, Yorkshire Water and this Council
 - The upper capacity limits of Yorkshire Water’s systems, again determined by the designed pipe size and gradient but also by the designed capacity of their pumping systems.
 - Planning issues which have, over the years, increased the hardened landscape without fully addressing the cumulative affect of water run-off and the ability for existing surface water systems to cater for this
 - The ability of IDBs and Yorkshire Water to improve standards of maintenance and to upgrade, as necessary, their assets
- 53 The gully cleaning service by itself cannot, of course, overcome all the factors likely to affect flooding, no matter how effective it may be.

Improvements to Gully Operation

- 54 The issues are complex and there is no easy or low cost solution that could remove the constraints listed in connection with the gully and drainage asset. Attempts have been made over the years to improve the systems for which this Council has control. The key areas of Council control are:

- Road sweeping
 - Grass cutting
 - Leaf fall clearance
 - Frequency of gully cleaning
 - Obtaining more detailed knowledge of the Council's drainage asset
 - Routine maintenance and repair of the drainage asset
- 55 Bearing in mind that gully cleaning is one element in the overall provision of an effective drainage service, albeit a very important element, and given that budgets are already set and to a large extent spent for 2007/08, it would need additional funding to make improvements to the service.

Options

- 56 The report aims to address the motion to Council by providing the required information and by setting the gully cleaning service in context. Members have the option to approve any further improvements to the service at this stage or to use this report as a means to inform the budget process for 2008/09.
- 57 As a result of the recent heavy rain a review of the councils highway drainage assets and records has been carried out and both of these have been found wanting.
- 58 It is felt that if the rainfall experienced in Gloucestershire, Worcestershire, Warwickshire and South Yorkshire had affected the Vale of York or the Dales in the same way, then York would have had extensive localised flooding across its region, or the flood defences of the River Ouse would have been tested to an extent never before experienced.

River Flooding

- 59 Defences are in place to protect the majority of the City and we have a tried and tested emergency plan. The EA have already carried out the River Ouse Flood Risk Management Plan which identifies a strategy for improving their assets to offer better protection against flooding. This is a long term plan which involves better catchmentwide water management to lower water levels in the river, rather than building more and higher defences.

Localised Flooding

- 60 We have an old highway drainage system that is not well documented or well maintained. The system is also dependant to a large extent upon the surface water sewers under the control of YWS. If we want to improve the council's existing asset so that it is in the best possible condition to cope with intense rainfall, then we need a lot of information to allow a proposed programme of

works to be established and then costed. Only then can a robust bid for funding be made.

- 61 A proposed programme of maintenance work may be along the lines of:
- Additional gully cleaning in certain locations
 - Additional street sweeping in certain locations
 - Routine maintenance of catchpits, soakaways, french drains etc
 - Removal of known trouble spots
 - Upgrading of larger scale drainage systems (possibly joint work with other agencies)
 - Preparation of a climate change localised flooding plan, with action on contingencies arising from this plan
- 62 The resources needed to obtain data, prepare a proposed programme, work with other agencies, provide cost estimates for work and prepare a funding bid are considerable and beyond the capacity of existing staff resources.

Flood Prevention – perspective from Highway Infrastructure

- 63 Our knowledge of underground apparatus is very limited and the least well known of all our assets. It isn't possible to set up systematic and properly targeted improvements in the maintenance of existing assets if the knowledge base is very limited. In the ideal world, one of the first requirements of any large scale overall improvement is to substantially increase the level of understanding of the extent and condition of the existing asset.
- 64 Paper records from the past appear to have been misplaced over the years and much of the non-documented local knowledge has been lost as long serving members of staff have left the service. A comprehensive re-survey of each road is an expensive and daunting prospect given the lack of resources at the current time. Even the prospect of finding the staff resource to pull together the information that does exist is extremely difficult and will probably not happen unless this matter is addressed properly.
- 65 Historically the only pro-active maintenance carried out to drainage systems is gully emptying. The frequency of this needs to be reconsidered in some locations as the approach is probably too generic at present.
- 66 Examples of the type of pro-active drainage maintenance that should be carried out if resources could be made available are:
- Regular inspection of drainage systems by removal of manhole covers
 - Jetting and flushing through systems which are fully or partially blocked
 - Checking catchpits and cleaning out as necessary
 - Checking and renewing filter media, as required, in soakaways and french drains

- 67 In addition to this there are links with other parts of the street service that can contribute to an overall improvement in the condition and capacity of the drainage systems, namely:
- Increasing the extent and the frequency of road channel sweeping, especially in locations where a propensity for flooding is identified.
 - Removal of grass cuttings where it is known that they cause a problem by drifting into the road channel and then into drainage gullies.
- 68 The above approach is very expensive and probably not affordable without a commitment to transfer scarce resources into this service from elsewhere. The benefits to customers will be difficult to quantify with certainty as the intensity of the rainfall in a storm situation could easily be greater than the capacity that the drainage systems were designed to receive, even if they are being well maintained and therefore flooding will still be evident despite spending a large amount of money, with the inevitable criticism that will follow.
- 69 A more sustainable solution, requiring little or no increase in budgets, is to proceed as follows:
- Accept that we have limited knowledge of the asset, but make sure that systems are in place to start capturing, into the Highway Management system, Exor, all the information that currently exists in various forms. This will be an ongoing process and may mean bringing in a student, for example, once or twice a year to add the information onto the system. This information should also show the drains carrying highway surface water but in the control and ownership of YWS.
 - The Council could also incorporate, into the River Flooding Emergency Plan, a section for dealing with localised flooding due to intense rainfall. This will enable a much more coordinated approach to dealing with situations such as that on 25 June 2007. An essential part of this will be the coordination of work with YWS.
 - Continue to deal with the flooding problems that become evident, as and when they develop, in the shortest possible timescale, for example the problems with the highway systems that caused the worst of the flooding in June have now been identified, in some cases solved and in others work is ongoing to try and address the problem.
 - Continually examine the gully emptying frequencies and if necessary seek approval for officers to have delegated authority to carry out minor alterations to the current policy to increase the frequency of gully emptying in certain high risk locations.

Consultation

- 70 This report has not been used for consultation purposes. It is, however, partly informed by the customer opinion survey from the Talk About panel and forms one of an ongoing number of reports, which are listed below, on this important public service.

Analysis

- 71 This report does not deal in detail with the cause of flooding at each individual location around the city. There are some areas of maintenance to be addressed within the drainage networks operated by the various organisation, but the overwhelming cause of the flooding was the high intensity of rain falling on a catchment which was already saturated and caused significant run-off, far greater than the design capacity of the receiving sewers and watercourses.

Corporate Priorities

- 72 Maintenance of the City's drainage systems has a direct impact on several of the corporate priorities for improvement, namely:
- improvement of the actual and perceived condition and appearance of the city's streets, housing estates and publicly accessible spaces.
 - improvement of the health and lifestyles of the people who live in York, in particular among groups whose levels of health are the poorest.

Implications:

Financial

- 73 The Council has a number of budgets to deal with actions on its water related functions and these are shown below:

Highway drainage budget is made up of three elements

- Repairs £141,000
- Schedule gully cleaning programme £122,000
- Reactive gully cleaning £ 88,000

Cleaning Becks

- Works £2,890

Flood Emergency

- Works £19,770
- Warping £35,000

- 74 In an attempt to address some of the shortfalls in the Highway Maintenance budgets a growth bid for additional funding has been submitted for consideration as part of the 2008/09 budget process. An outline of this bid is provided below and the outcome will be determined as part of the overall budget process.

Highway drainage survey and repair (£200k per year)

- 75 Recent flooding events in June 2007 have highlighted the poor quality of information about the extent and condition of our drainage asset. It is not possible to target maintenance and repair works accurately until further information is obtained. Survey work of the drainage asset is therefore required in the first instance and this will involve obtaining whatever information currently exists from various sources, plotting this into maps held in Exor, and then physically surveying roads to provide more information where none currently exists. Physical surveys will involve metal detection of gullies and manholes, lifting manhole covers and tracing the routes gully connections and main carrier drains.
- 76 Once this information is available then the growth bid funding will enable a more appropriate level of pro-active routine maintenance to be carried out. Most of the maintenance work done at present, other than gully emptying, is on a reactive basis. This growth bid would therefore improve the maintenance regime and also allow more of the known trouble spots to be systematically dealt with. It would provide an increase in our ability to jet and flush through drainage systems, greater checking and pro-active cleaning of catchpits, as well as the routine renewal of filter media. There would also be local increases in the frequency of gully emptying and road sweeping.
- 77 The bid is structured so that up to £50k each year would be spent on survey related works and the remainder on repairs and maintenance. It is anticipated that with this level of funding it would take 4 years to complete the survey works across the whole city but once this is finished a much greater proportion of the funding can then be spent on maintenance and repair but still leaving a relatively small amount for continued survey requirements.

Watercourse Riparian Duties

- 78 When the EA took over responsibility from the Council for Tang Hall Beck, Oswaldwick Beck and Burdyke in 2006, the council's budgets for watercourse maintenance were reduced in line with the reduced length of watercourse to be maintained. With the end of the arrangement the council, as Land owner, will be responsible for keeping the bed of the watercourse clear and the removal of fly tipping from its banks.
- 79 Learning Culture and Childrens Services (LCCS) and Housing and Adult Social Services (HASS) are significant riparian owners and have been advised by City Strategy that the costs of maintaining these watercourses, particularly removal of fly tipping etc., have increased significantly in recent

years. Exact figures have yet to be confirmed, but they have been encouraged to make budget provision possibly via a growth bid.

River Flood Emergencies

- 80 The annual budget for River Flood Emergencies has, in recent years, generally been overspent, but covered by other budgets within the Directorate such as last year by the under-spend on Winter Maintenance. Already this year the budget of £19,770 has been exceeded with the June flood event alone, with expenditure currently standing at £30,014. However, so as not to be a constant threat on the contingency fund and with the current knowledge on climate change predicting wetter periods, a growth bid has been submitted for consideration as part of 2008/09 budget proposals to take account of this increase pressure.

Warping

- 82 The budget this year stands at £35,000. Expenditure currently stands at £11,000 and this prior to the beginning of traditional flood season. Last year the outturn expenditure was £42,686 and given the rate of spend this year a growth bid has been submitted for consideration as part of the 2008/09 budget proposals.
- 83 The impact of climate change could potentially have an impact on all drainage / flooding works and may require redirection of budgets. However, these events are uncertain in nature and the impact varies greatly in each instance so there is an argument for leaving things as they are and bidding through the contingency fund.

Human Resources

- 84 There are no Human Resources implications in this report.

Equalities

- 85 There are no equality implications in this report.

Legal

- 86 The Council, in its capacity as the highway authority, has a duty under Section 41 of the Highways Act 1980 to maintain the public highway and permissive powers for Drainage Authorities under the Land Drainage Acts of 1991 and 1995.

Crime and Disorder

- 87 There are no crime and disorder implications in this report.

Information Technology

- 88 There are no information technology implications in this report.

Property

89 There are property implications in this report.

Other

90 There are no other implications in this report.

Risk Management

91 In compliance with the Council's risk management strategy, the main risks that have been identified in this report are:

- Strategic Risks, arising from judgements in relation to medium term goals for the service.
- Physical Risks, arising from potential underinvestment in assets.
- Financial Risks, from pressures on budgets.
- People Risks, affecting staff if budgets decline.

92 Measured in terms of impact and likelihood the risk score for all of the above has been assessed at less than 16. This means that at this point the risks need only to be monitored as they do not provide a real threat to the achievement of the objectives of this report.

Recommendations

93 That the Advisory Panel advise the Executive Member that they note:

94 The rainfall which fell on the 25 June 2007 was an exceptional event which overwhelmed the capacity of the drainage infrastructure, there were local exceptions to this and remedial works have either been carried out or further investigations are ongoing.

Reason: To inform the Executive Member of the severity of the conditions which caused the event.

95 The work being undertaken as part of the Department of Environment, Food and Rural Affairs research into their Integrated Urban Drainage Management project which will report in September 2008 and hopefully establish a better legal framework for those involved in drainage run-off to operate within.

Reason: To advise the Executive Member of the ongoing work being undertaken at a national level, so decisions for the future can be taken in light of emerging national guidance.

96 The collaborative work undertaken by Council and Yorkshire Water Services staff to identify potential problems in the drainage network, this work is still ongoing.

Reason: To manage the drainage assets efficiently.

97 The work carried out over recent years to the gully cleaning service and that the information outlined in paragraphs 75 to 77, is used to inform the budget setting process for 2008/09.

Reason: To demonstrate the strategic importance of the service and to enable it to develop and improve within set parameters to deliver the most sustainable outcome.

98 The work carried out to produce the Strategic Flood Risk Assessment and the new guidance given to Planning Development Control Officers.

Reason: To advise the Executive Member of improvements in the planning process.

99 The pressure being put on the budgets supporting river and surface water flooding, along with resources to react to the riparian ownership duties, flood emergencies and warping, and that the information outlined in paragraphs 78 to 83, is used to inform the budget setting process for 2008/09.

Reason: To demonstrate the strategic importance of the service and to enable it to develop and improve within set parameters to deliver the most sustainable outcome.

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Report
Approved



Date 27 November 2007

Chief Officer : Bill Woolley
Director of City Strategy

Specialist Implications Officer(s)

Implication: Financial
Patrick Looker
Finance Manager - City Strategy
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Wards Affected: *List wards or tick box to indicate all*

All

For further information please contact the author of the report

Background Papers:

Gully Cleaning Review – 29 June 2001, Director of Environment and Development Services in Consultation with the Executive Member for Planning and Transport

Gully Cleaning Service Review – 2 July 2003, Meeting of the Executive Member Advisory Panel for Planning and Transport

Gully Cleaning Service Review – 3 December 2004, Meeting of the Executive Member Advisory Panel for Planning and Transport

Report on 2007/08 City Strategy Finance Monitor One Report - 10 September 2007, Meeting of the Executive Member for City Strategy and Advisory Panel

Annexes:

Annex A – Known Flooding Locations on 25 June 2007-11-28

Annex B – Summary of actions taken to change the gully cleaning service as a result of reports to EMAP meetings for Planning and Transport