

DELIVERING SURFACE WATER MANAGEMENT PLANS IN GLASGOW: LESSONS LEARNT

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Abstract

Glasgow City Council are working with key stakeholders and communities to address surface water flooding and identify interventions that will help reduce flooding of homes, businesses and important transport links, while also protecting our streams and rivers. One of the main conduits for this engagement is the Metropolitan Glasgow Strategic Drainage Partnership (MSGDP), through which we aim to sustainably drain Glasgow to reduce the risks and impacts of flooding, while at the same time delivering a greener, more resilient and vibrant “place” for growth. The MGSDP partners have already delivered many projects, but there is still a significant amount of ongoing work, to deliver the Actions defined in the Clyde and Loch Lomond Local Flood Risk Management Plan, which will continue for the years to come.

Glasgow City Council is in the process of undertaking numerous surface water management plans, across the city, which are funded by City Deal. These projects are at various stages of development from feasibility through design, to the physical construction of the selected interventions. The delivery of these plans has provided challenges, but has also presented the Council with opportunities to collaborate with multiple organisations to create new green infrastructure, which will not only address flood risk, but will help deliver high quality attractive public green space. This can be used by local communities in some of the most deprived areas in Scotland, at the same time as creating drainage capacity to facilitate regeneration of vacant and derelict sites. In so doing it will provide new wildlife corridors and improve the attractiveness of the city for investment, business, life and tourism.

The Scottish Government guidance on sustainable flood risk management refers to the importance of public awareness, participation and community engagement. Glasgow City Council recognise the importance of obtaining community acceptance of our proposals and have endeavoured to engage with the public throughout our projects. We have worked closely with the Central Scotland Green Network Trust to provide interactive sessions to educate the public on surface water flood risk, while providing the public with the opportunity to assist in shaping our proposals.

Glasgow City Council’s vision from the outset was to provide exemplar innovative surface water management measures and we anticipate that when complete, many of these will become nationally significant examples of sustainable flood risk management.

This paper explores the lessons that have been learnt, delivering SWMPs from the design phase through to the construction of the surface water management interventions. It also highlights our successes, which could be applied elsewhere.

Background to Surface Water Management Planning in Glasgow

Glasgow is one of the fastest growing cities in the UK, with a growing economy and population. However, the city and wider region also faces numerous challenges that act as barriers to future economic growth, including pressures facing existing drainage infrastructure. The existing drainage and flood management infrastructure across the Metropolitan Glasgow area is, in common with other major cities, inadequate and in need of modernisation.

Historically access to capital funding for surface water drainage infrastructure has been viewed as a lower priority in comparison with other new infrastructure projects, such as schools, but the city has continued to carry the burden of high annual average flood damages.

Against this backdrop, the Glasgow City Region City Deal was agreed with UK and Scottish Governments in 2014. The City Deal will facilitate £1.13bn of investment in the Glasgow City Region over a 10 year period, including a £40m investment in drainage infrastructure.

The Metropolitan Glasgow Strategic Drainage Partnership (MGSDP) was formed in late 2002 to address the deficiencies in the city's drainage infrastructure and is represented by organisations involved with the operation of the sewerage and drainage network within the Metropolitan Glasgow area. The Vision of the MGSDP is to 'transform how the city region thinks about and manages rainfall to end uncontrolled flooding and improve water quality'. The objectives of the MGSDP are:

- Flood risk reduction;
- River water quality improvement;
- Enabling economic development;
- Habitat improvement;
- Integrated investment planning.

Delivery of this vision and meeting these objectives is being facilitated using City Deal funding, to construct new interventions, provide improvements to existing infrastructure and create public realm enhancements to reduce flood risk. This will facilitate regeneration and growth by creating capacity in the drainage network.

The Flood Risk Management (Scotland) Act 2009 (FRMA) places duties on named responsible authorities to investigate the causes of flooding, to identify actions, to address them and develop mitigation measures as appropriate. Local authorities are defined as responsible authorities and are expected to act, so as to secure compliance with the EU Floods Directive. Glasgow City Council as Lead Local Authority, for the Clyde and Loch Lomond Local Plan District, published in June 2016 the CaLL Local Flood Risk Management Plan (LFRMP) for the first cycle 2016 to 2022. All MGSDP projects as individual, defined 'Actions' in the LFRMP will each deliver against multiple 'Objectives' in the LFRMP, as follows:-

- Avoid an overall increase in flood risk;
- Reduce overall flood risk;
- Reduce the economic damages and number of people at risk of surface water flooding in [multiple locations across the city];
- Raise public awareness of flood risk.

Glasgow's progress in delivering SWMPs

The MGSDP has developed a risk-based, catchment led approach to the development of surface water drainage and flood risk interventions i.e. one that considers drainage constraints and the risks of flooding on a catchment by catchment area basis. The SWMP interventions will reduce the frequency /cost of responding to and recovering from storm events over future years, by pro-actively reducing flood risk and impacts, rather than just reacting each time at a local and City level when a flood event occurs.

The SWMPs across the city are in various stages of development. Table 1 describes the status of the current SWMPs.

SWMP IN GLASGOW	STATUS
Hillington/Cardonald <i>Phase 1 – Moss Heights</i>	<i>Under construction</i>
<i>Phase 2- Penilee Park</i>	<i>Planning permission granted, construction works Autumn 19</i>
<i>Phase 3- Queensland Gardens</i>	<i>Planning decision due May 19</i>
Fullarton Avenue	Detailed Design being progressed
High Knightswood/Netherton	Detailed Design being progressed
Eastern Springburn	Detailed Design being progressed
Darnley Mains	SWMP complete. Interventions progressed through planning process
SE Glasgow	Construction works about to begin
Cardowan	Under construction
Drumchapel	Detailed Design being progressed
Garrowhill	Detailed Design being progressed

Collaborative working

Flood risk management in Scotland is complicated. There are numerous organisations, responsible for delivering various pieces of legislation and policy, some of which are conflicting. Funding streams across organisations are often not aligned, which makes collaboration difficult. To overcome these challenges, Glasgow City Council has adopted a pro-active approach, whereby relevant parties were invited to engage in the process at the earliest possible stage and encouraged to remain involved until project completion.

Our experience has been that there are often other ongoing projects within SWMP catchments with similar aims of providing environmental improvements, whether it be renovation of existing housing association stock or the regeneration of whole communities, which offer the opportunity for collaborative working. It was therefore considered sensible to identify what other projects were proposed or what interest there was in collaborating at a catchment scale. By pooling our resources, we not only spread the cost of the environmental improvements, but in addition we have managed to identify additional funding opportunities while generating more confidence and interest in what we are trying to achieve.

An example of where collaborative working has been successful is the Hillington and Cardonald SWMP, where there was a need to survey the drainage network downstream of a potential intervention, but there were uncertainties over ownership. To allow the proposed SuDS retrofit to progress and to avoid extensive delays to the project while ownership was agreed, a collaborative approach was adopted. Network Rail agreed to carry out a CCTV survey of their drainage assets beneath railway owned land, Glasgow City Council provided a financial contribution toward the cost and project management of the survey in the remainder of the downstream catchment. At the same time, Scottish Water provided a financial contribution and Transport Scotland provided support by offering details of the drainage arrangements for the adjacent motorway.

Community engagement

Community engagement has been challenging. We recognised that the public are generally dis-interested, unless they have actually been flooded and it is difficult to stimulate enough interest for people to attend. Public engagement campaigns were completed across all of the SWMP catchments, such as the Rain Ready in Glasgow campaign, where a consistent format was used for any information relating to the SWMP, so that it was instantly recognizable to the public.



A lesson learnt is that community consultation events need to be on the people's doorstep or they will not make the effort to attend (which has led to objections to planning applications, due to lack of understanding of what we are trying to achieve). Our experience was that events in community centres are not well attended, unless there were other events taking place at the same time. The key to a successful consultation event was to identify locations which the community are most likely to use. For example, the Cardowan SWMP consultation event in Cranhill Park, involved setting out the extent of the proposed SuDS measures with blue flags and providing free barbequed food next to these locations. The local primary school was invited to attend and an obstacle course was provided, designed to mimic water vole burrows. Children were encouraged to make mud pies and at the same time discuss how water is managed. An old bath was also used to demonstrate proposed water depths, rather than preparing engineering drawings, which the public often struggle to understand.

Conclusions

The Glasgow City Council SWMP interventions will benefit many areas of the city. The modernisation of drainage provision and surface water management will unlock development at brownfield sites across the city that are currently considered uneconomical. This will drive inclusive economic growth in Glasgow by increasing the total workforce, employment opportunities and residential options.

In delivering the SWMP projects, Glasgow City Council has had to overcome multiple challenges, but we have also gained extensive experience from the earlier projects, which has been applied to more recent plans. We have also been successful in working collaboratively with other organisations. Working together has meant that we have avoided duplication of effort, pooled expertise and shared the costs of projects, which has assisted in our ability to provide integrated solutions that deliver multiple benefits.