

**GREENER GRANGETOWN – MEMBER BRIEFING**

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**Reason for the Report**

1. To provide Members with a background information briefing on the Greener Grangetown project; to assess progress achieved to date on the scheme; to consider lessons learnt from the project and most importantly to identify future potential opportunities arising for Cardiff from the scheme.

**Background**

2. Grangetown is a thriving urban community of almost 20,000 residents, with a population density of almost twice the average of the city. It has one of the most culturally diverse communities of any Council ward in Wales. The ward is situated on the west bank of the river Taff.
3. Approximately eight years ago, an opportunity was identified by a Cardiff Council officer to use the proximity of Grangetown to the River Taff to rethink the surface water management strategy in the area and trigger a range of wider benefits for the community. This idea formed the basis for the 'Greener Grangetown' project which has become a partnership project between Cardiff Council, Dŵr Cymru Welsh Water and Natural Resources Wales.
4. To create a formal structure for the project the three partners created a signed memorandum of agreement; a project board with equal representation; and an equally funded design/consultation process.

5. The main driver for Greener Grangetown is sustainable water management; but the aims of the project are much broader. Overall the project aims to achieve the following:
- To explore the feasibility of managing surface water in Grangetown with the aim of minimising the amount of water entering the surface water system and using it in a more beneficial way. The rationalisation of the carbon footprint associated with this management was also seen as important.
  - To understand the practicality and implications of retrofitting Sustainable Drainage Systems (SuDS)/green infrastructure throughout the study area, accompanied by the wider benefits of Water Sensitive Urban Design.
  - To integrate the chosen measures into the public space to enhance the overall outdoor experience, and link the city, the river and the green spaces for the benefit of all.
  - To encourage water efficiency and behavioural change towards water usage.
  - To understand how best to establish community engagement and to ensure that directly affected residents and other interested parties are involved at an appropriate level.
  - To improve the perception of Grangetown and increase pride in the community.
  - To provide an adaptable framework toolkit for future projects in Cardiff and wider afield, plus develop ideas to incorporate into the CIRIA Water Sensitive Urban Design guide.
  - To identify, reduce and manage environmental risk associated with the preferred options.
  - To address issues associated with climate change, such as flash flooding and water shortages, as these are expected to become more severe over time and dealing with them now could save time and expense in the future.
  - To assess the success and practicality of partnership working.

## **Water Sensitive Urban Design**

6. The project is based on the idea of using Water Sensitive Urban Design as a catalyst for maximising the benefits from surface water rather than disposing of it directly into the sewer system. The potential benefits resulting from implementing such a scheme include improved water quality, financial, health benefits, increased recreational spaces, community engagement and education.

## **The 'Greener Grangetown' Report**

7. At the outset of the project the partnership commissioned the consultants Arup to undertake a feasibility study for Greener Grangetown. This considered the surface water management regime and how parts of the Grangetown ward could be united with the riverine environment. The feasibility study report which was titled 'Greener Grangetown' was published in May 2013.
8. The study benefited from the pioneering work which had been undertaken by Dwr Cymru Welsh Water in their 'Surface Water and Elimination Reduction Strategy'. It was also supplemented with water and energy efficient measures for the community within a Water Sensitive Urban Design framework.
9. The study area focused on the area of Grangetown bordered by Corporation Road and Clare Road on the west, the River Taff on the east and the railway line to the north.
10. A number of tasks were identified during the study that were vital to the delivery of the project. Ensuring that these were achieved during the implementation of the scheme was essential. The main tasks of the Greener Grangetown project delivery are listed below:
  - To identify opportunities for implementing surface water elimination and reduction through Water Sensitive Urban Design;
  - To create water efficiency through Water Sensitive Urban Design;
  - To assess the wider costs and benefits of the scheme;
  - To ensure there is proper stakeholder engagement and consultation;

- To provide a framework for assessing the governance and interaction between stakeholders in this work, including barriers and benefits, how these can be maximised and how to monitor and evaluate collaborative working through the project.
11. During the evaluation a number of options for each street type were developed. These were assessed and the preferred option for each one identified by considering the maximum wider benefits, for example, cost, maintenance and constructability issues.
  12. An investigation identified that there were restrictions on the use of infiltration options; this led to the use of proposals based around attenuation features, i.e. features which direct surface water into particular areas. Reprofiled streets and shallow drainage collect the surface water and direct it to planters and swales which provide treatment through bio-remediation before the flows enter the River Taff.
  13. The study proposed that planters and pocket parks would be located along the streets providing the water treatment and attenuation features but also acting as catalysts for the wider Water Sensitive Urban Design benefits. Other ideas which were considered included spaces for community gatherings, art installations, educational and recreational features, mini-orchards, allotments, cycle paths and safe routes to school.
  14. Any new streetscapes will require different operations and maintenance regimes to the ones that currently exist. The Council will need to review the new requirements and address any legal considerations around ownership and maintenance.
  15. The report included a feasibility study which identified a number of key findings that relate to the delivery of the project, these were:
    - **Impermeable Area Removed** - The potential for removing surface water was assessed by considering the impermeable area that could be intercepted. Taking the roads, alleys, and portion of roofs draining to the front gave a figure for the impermeable areas that could be diverted. Based on the study, 42,480 m<sup>2</sup> of hard surface run-off will be intercepted and removed from the sewer system. It

is anticipated that residual flows from back gardens and rear portions of roofs will still enter the combined system, ensuring that the sewers were still flushed with adequate volumes of surface water.

- **Dwr Cymru Welsh Water Asset Benefits** – That Dwr Cymru Welsh Water's Western District Pumping Station (behind the Pump House on Penarth Road) is already operating at near capacity and there are other flows from existing combined sewer overflows on the sewers connecting to this Pumping Station into the River Taff. The costs were assessed for the reduction in pumped volumes through the Marl, Western District and Cog Moors Pumping Stations; reduced volumes treated at Cog Moors Wastewater Treatment Plant and released capacity within the system for future developments.

With the treatment works six miles away and the final discharge point approximately eight miles from Grangetown, reductions in pumped and treated volumes have immediate corresponding cost, energy and carbon savings. The cost savings are based upon the current energy bills and volumes treated at the different facilities.

- **Development Benefits** - Grangetown is located at the downstream end of the catchment. Removing flows at this location relieves capacity for additional flows from new developments in the vicinity or upstream. It also provides a 'buffer' to the system for extreme events. Considering the volume of surface water diverted from the system by this scheme and equating that to the foul flows that would be generated by new developments provides an equivalent capacity released.
- **Water Efficiency Benefits** – A Natural Resources Wales report identified that 89% of the carbon emissions associated with water use (water abstraction, treatment, conveyance, use and disposal) relate to water use in the home. It is, therefore, very important to use this project as a catalyst to engage with the residents and encourage behavioural change both through education and upgrades to domestic appliances (for example low flow aerator taps and water butts).

16. Dwr Cymru Welsh Water completed a pre-feasibility study of water efficiency intervention for the study area. This detailed the current water consumption figures, possible water efficiency devices and interventions. The Energy Savings Trust was engaged to run their Water and Energy Modelling model using the data from the Dwr Cymru Welsh Water report. The Energy Saving Trust looked at the level of likely adoption of the different interventions, for example, the water savings per device and the likely percentage uptake for any interventions. From the results of these assessments, they calculated the reduction in water demand, reduced hot water demand and associated carbon and energy bill savings and metered water savings.

### **Finances & Delivery Timescale**

17. The project will cover approximately 500 houses in the area.
18. It will cost approximately £2 million for the basic implementation. Welsh Water has invested £1 million to the project and the Council has matched this sum with £750,000 of capital funding and £750,000 from the Landfill Communities Fund. Natural Resources Wales has allocated £50,000 towards the design elements of the project.
19. The main design, tendering, project management and supervision of construction has been carried out with a combination of in-house resources and locally based Consultants. This will make Cardiff a UK leader in retro-fitting urban sustainable drainage.
20. Certain benefits can be monetarised to capture their value; for example, carbon footprint reductions, health benefits of green spaces, changes to house prices and increased commercial activity.

### **Benefits**

21. The anticipated headline benefits coming from the Greener Grangetown scheme are set out in the bullet points below:
- **42,480 m<sup>2</sup>** – the number of square metres of surface water removed from the combined waste water network (the equivalent of ten football pitches);
  - **1,600 m<sup>2</sup>** – the number of square metres of additional green space;

- **495 m2** – the number of square metres of new paving that will be installed;
- **135 trees** – the number of new trees that will be planted;
- **45 shrubs & grasses** – the number of different species of shrubs and grasses that will be planted;
- **26 cycle stands** – the number of new cycle stands that will be installed;
- **19 trees** – the number of different species of tree that will be planted;
- **12 litter bins** – the number of new litter bins that will be installed;
- **10 seats & benches** – the number of new seats and benches that will be installed;
- **8 miles** – the number of miles rainwater from Grangetown is pumped out to sea.

22. In addition to the headline benefits set out above it is hoped that the Greener Grangetown scheme will trigger a number of wider benefits, these include:

- Increased community cohesion / engagement and enhanced community pride;
- Improved health & wellbeing through easier access to recreational opportunities;
- Improved transport and connectivity;
- Safer routes to school;
- Educational opportunities around visually connecting with the water cycle;
- Enhancing economic / commercial potential from opening up the embankment;
- Improved air and water quality management;
- Helping to develop sustainable behaviour;
- Better climate change resilience and a reduction in carbon footprint;
- Additional green space providing opportunities for improved biodiversity, conservation corridors and increased connectivity to the river and the bay;
- Reduced crime through greater visibility, increased footfall, one-way traffic;
- Real partnership working.

## Challenges

23. During the planning and implementation stages of the Greener Grangetown scheme the project management team has identified the following issues as key challenges, they are:

- Quantification of benefits;
- Direct funding is from three different organisations with different drivers and responsibilities;
- Stakeholder engagement - most culturally diverse council ward in Wales, with 92% of children attending the local school with English as their second language;
- Dealing with combined sewers;
- Dealing with local parking challenges;
- Working with and around unmarked utility services;
- The challenges encountered with retrofitting around existing buildings, structures and vegetation;
- Working in unchartered territory to deliver a scheme which is the first of its kind in Europe.

## Lessons Learnt & Future Opportunities

24. It is important that the challenges and experiences of developing of the Greener Grangetown scheme are understood, recorded and learnt. Understanding the challenges and creating a list of lessons learnt is a crucial element in ensuring that the Council maximises the future opportunities in this areas. During this meeting Members will have an opportunity to discuss the lessons learnt and consider any future potential opportunities arising from the Greener Grangetown scheme.

## Previous Scrutiny

25. The Environmental Scrutiny Committee previously scrutinised the Greener Grangetown scheme on the 8<sup>th</sup> April 2014 and 19<sup>th</sup> May 2015. The papers for both of these meetings are attached to this report as **Appendices 1 & 2**. The meeting on the 8<sup>th</sup> April 2014 addressed the delivery plans for the Greener Grangetown scheme, while the meeting on the 19<sup>th</sup> May 2015 considered the results of the consultation



exercise. Following both of these meetings letters were sent to the Cabinet Member; the letter sent to the Cabinet Member following the meeting of the 8<sup>th</sup> April 2014 is attached to this report as **Appendix 3**, while the letter sent to the Cabinet Member following the meeting on the 19<sup>th</sup> May 2015 is attached as **Appendix 4**.

### **Way Forward**

26. Councillor Michael Michael, Cabinet Member for Clean Streets, Recycling & Environment has been invited to attend for this item. They will be supported by officers from the City Operations Directorate.

### **Legal Implications**

27. The Scrutiny Committee is empowered to enquire, consider, review and recommend but not to make policy decisions. As the recommendations in this report are to consider and review matters there are no direct legal implications. However, legal implications may arise if and when the matters under review are implemented with or without any modifications. Any report with recommendations for decision that goes to Cabinet/Council will set out any legal implications arising from those recommendations. All decisions taken by or on behalf of the Council must (a) be within the legal powers of the Council; (b) comply with any procedural requirement imposed by law; (c) be within the powers of the body or person exercising powers on behalf of the Council; (d) be undertaken in accordance with the procedural requirements imposed by the Council e.g. Scrutiny Procedure Rules; (e) be fully and properly informed; (f) be properly motivated; (g) be taken having regard to the Council's fiduciary duty to its taxpayers; and (h) be reasonable and proper in all the circumstances.

### **Financial Implications**

28. The Scrutiny Committee is empowered to enquire, consider, review and recommend but not to make policy decisions. As the recommendations in this report are to consider and review matters there are no direct financial implications at this stage in relation to any of the work programme. However, financial implications may arise if and when the matters under review are implemented with or without any modifications. Any report with recommendations for decision that goes to

Cabinet/Council will set out any financial implications arising from those recommendations.

## **RECOMMENDATION**

The Committee is recommended to:

- i. Note the contents of the attached report;
- ii. Consider whether they wish to pass on any comments to the Cabinet following scrutiny of the item titled 'Greener Grangetown – Member Update'.

**DAVINA FIORE**

**Director of Governance & Legal Services**

**1 November 2017**