

## GREENER GRANGETOWN – DELIVERY PLANS

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### Reason for Report

1. To provide Members with some background to the Greener Grangetown project and consider the plans which have been put in place for delivery of 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 four 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 have 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. A series of workshops were held which identified the following objectives:
  - 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. 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 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. A map of the project area has been attached as **Appendix 1**.
10. A number of tasks were identified during the study that are vital to the delivery of the project. Ensuring that these are achieved during the implementation of the scheme is 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. **Appendix 2** shows a plan of the type of scheme which could be implemented.

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. **Appendix 3** shows an artist's impression of what the proposed planters and pocket parks could look like.
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, up to 155,770 m<sup>2</sup> of hard surface run-off could 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 recent 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.

### **Monetisation**

17. 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. It is projected that the scheme will generate £250,000 in terms of savings per annum and that the costs for delivering the project will be paid back in approximately 10 years.

### **Wider Benefits**

18. It is hoped that the Greener Grangetown project will provide a valuable amenity feature by creating an attractive open space along with a variety of economic, environmental, ecological and social / socio-economic benefits. It is anticipated that the project will create wider benefits in the following areas:
  - Community Pride;
  - Outdoor Experience;
  - Health & Wellbeing;
  - Transport & Connectivity;
  - Community Engagement;
  - Sustainable Behaviours;
  - Managing Surface Water;
  - Biodiversity;
  - Water Efficiency;
  - Carbon Footprint;
  - Climate Change Resilience;
  - Green Spaces;
  - Water Quality;
  - Economic Effect;
  - Operational Management;
  - Partnership Working.

19. As this scheme is unique, it is anticipated that the lessons learnt from the design, consultation and analysis stages will provide useful guidance for other such future schemes.

### **Project Finance & Timescales**

20. The Greener Grangetown project will be delivered in two initial phases. The design for Phase 1 has started and will cover approximately 500 houses in the area. The main design, tendering, project management and supervision of construction are being carried out in-house, in recognition that the successful delivery is very likely to ensure more phases over the coming years. This will not only ensure fee paid work for several officers, but make Cardiff a UK leader in retro-fitting urban sustainable drainage. It will cost approximately £2 million to implement the basic scheme, although if sufficient funds become available then an upgraded option could be delivered for £2.4 million. Welsh Water has committed £1 million to phase 1 of the project and the Council has matched that through a capital sum of £750,000 to date. Natural Resources Wales has allocated £50,000 for the design phase of the project. Further applications for Welsh Government funding have been made and are pending.
21. It is anticipated that public consultation on the scheme will start in May 2014 and last for up to four weeks. This will be followed by more detailed resident consultation in June 2014 when individual households will be asked to confirm their preference for the type of scheme implemented in the area, for example, they may be consulted on parking options and the degree to which their properties are retro fitted to better manage rainwater.
22. It is hoped that a tender exercise to appoint a construction partner will start in August 2014, with the successful bidder being in place to start work by December 2014. The expected build cost for such a project is between six to eight months, i.e. phase 1 will be complete by the summer of 2015.
23. Once phase 1 has been completed there will be a pause in the process to reflect on the success of the project and consider how the process can be improved. The lessons learnt will be recorded and used to inform phase 2 of the project. Phase 2

will cover an area of between 300 and 400 properties in the ward. It is anticipated that costs and delivery timescales for phase 2 will be similar to phase 1.

### **Challenges**

24. The team with responsibility for delivering the project has identified the following issues as the projects 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.
25. The report concluded by setting out a summary of headline and other benefits which it is hoped that the project will deliver. These are listed below:

### **Headline Benefits**

- Removing 155,000m<sup>2</sup> of impermeable area;
- Releasing capacity for between 6,000 and 12,000 new homes;
- Realising annual monetarised benefits in the order of £250,000;
- Payback period of 12 years;
- 16,500m<sup>2</sup> increase in green space;
- Approximately 400 additional trees.

### **Other benefits**

- Increased community cohesion;
- Better health through easier access to recreational opportunities;
- Safer routes to school;
- Educational opportunities around visually connecting with the water cycle;
- Commercial potential for opening up the embankment;
- Improved air and water quality;
- Additional green space providing opportunities for



conservation corridors and increased connectivity to the river and the bay;

- Reduced crime through greater visibility, increased footfall, one-way traffic.

### **Legal Implications**

26. 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 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**

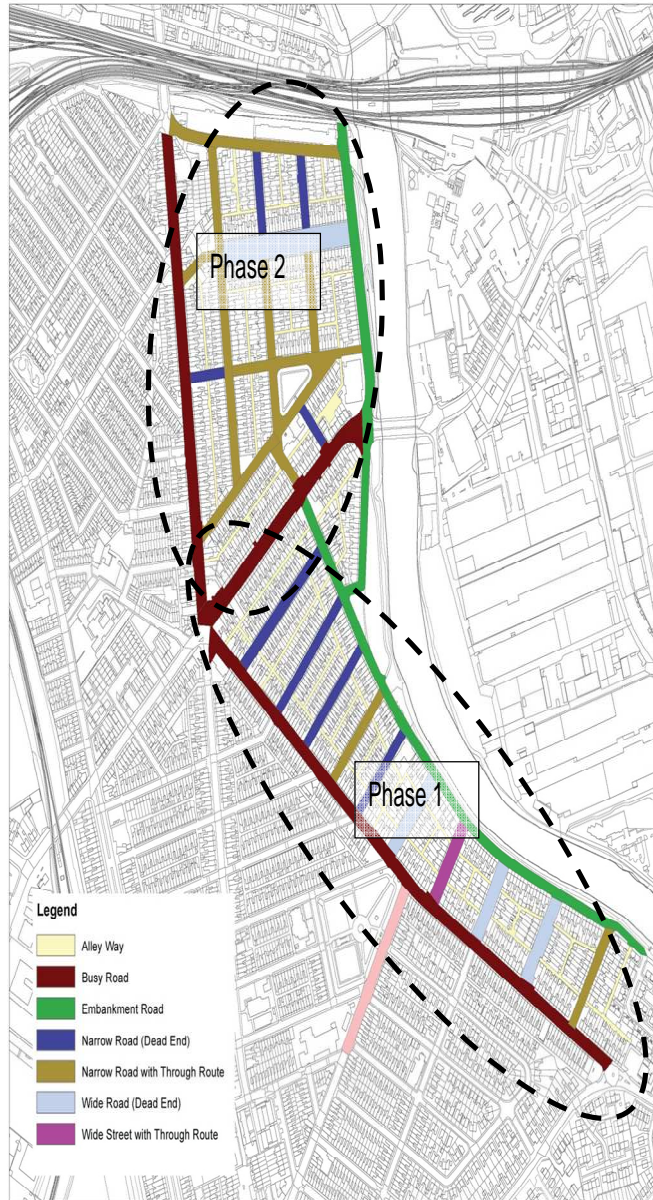
27. The Scrutiny Committee is empowered to enquire, consider, review and recommend but not to make policy decisions. As the recommendations in this report are to consider and review matters there are no direct financial implications at this stage in relation to any of the work programme. However, financial 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.

## **RECOMMENDATIONS**

The Committee is recommended to:

1. Take account of the information received at the meeting, and;
2. Report any comments to the Cabinet for their consideration.

**Marie Rosenthal**  
**County Clerk and Monitoring Officer**  
**2<sup>nd</sup> April 2014**



Greener Grangetown



## Appendix 2 – A plan of the type of scheme which could be implemented in the Greener Grangetown Project.



## Greener Grangetown



**Appendix 3** - an artists impression of what the proposed planters and pocket parks in Greener Grangetown could look like.



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