Greening for Growth in Victoria

Green Infrastructure Case Study

Creating a vibrant and climate-resilient business area in the heart of London

Greening for Growth in Victoria is at the heart of the Victoria Business Improvement District's (BID) ambition to boost the local economy, enrich the sense of place and create a sustainable urban setting for people to enjoy. A pioneering green infrastructure audit commissioned by Victoria BID has revealed that enhancing the natural environment not only has the potential to improve workforce satisfaction and increase local property values, but also reduce the costs to local businesses resulting from flooding.

Snapshot

- **The green infrastructure audit encouraged BID members to invest in urban greening as part of their long-term regeneration strategies**
- **Existing green infrastructure assets in Victoria divert up to 112,400m³ of storm water run-off from the local sewer system every year, resulting in between £20,638–£29,006 of annual CO_2 and energy savings**
- **When implemented, green infrastructure opportunities identified by Victoria BID could reduce peak summer temperatures by up to 5.1°C**
- **Fitting 25 ha of green roofs could absorb 80,000m³ of rainwater each year and prevent future surface-water flooding in Victoria BID**

Workers and local residents enjoying existing green infrastructure assets in Victoria

Key facts:

- Size of Victoria BID: 126 ha (311 acres)
- More than 1,300 VAT-registered businesses in BID area
- Approximately 250 levy paying businesses in BID area
- Victoria BID has an annual budget of approximately £1.3m
- Potential size of new green infrastructure within the BID: 1.24 ha (3 acres)
- Potential size of enhancements to existing green infrastructure within the BID: 1.69 ha (4.2 acres)
- Key partner for Green for Growth in Victoria include Natural England, Greater London Authority and Westminster City Council

Key environmental functions:

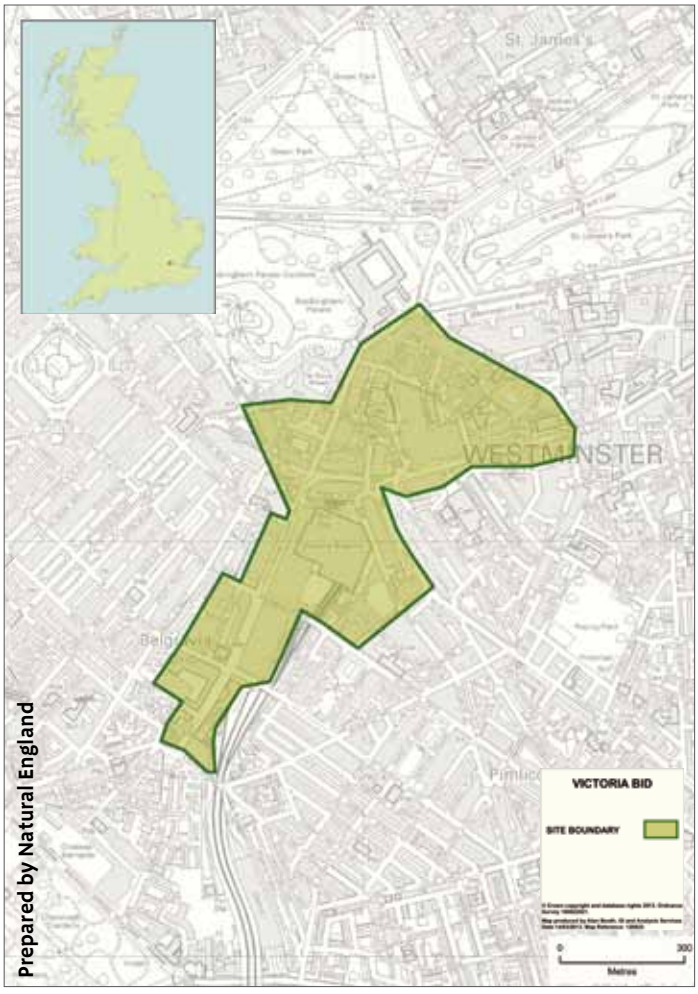
- Improving flood water management
- Climate change adaptation and mitigation
- Create a sense of place in Victoria
- Promoting opportunities for people to use green space
- Increasing land values
- Reducing atmospheric pollution
- Enhancing biodiversity

Introduction

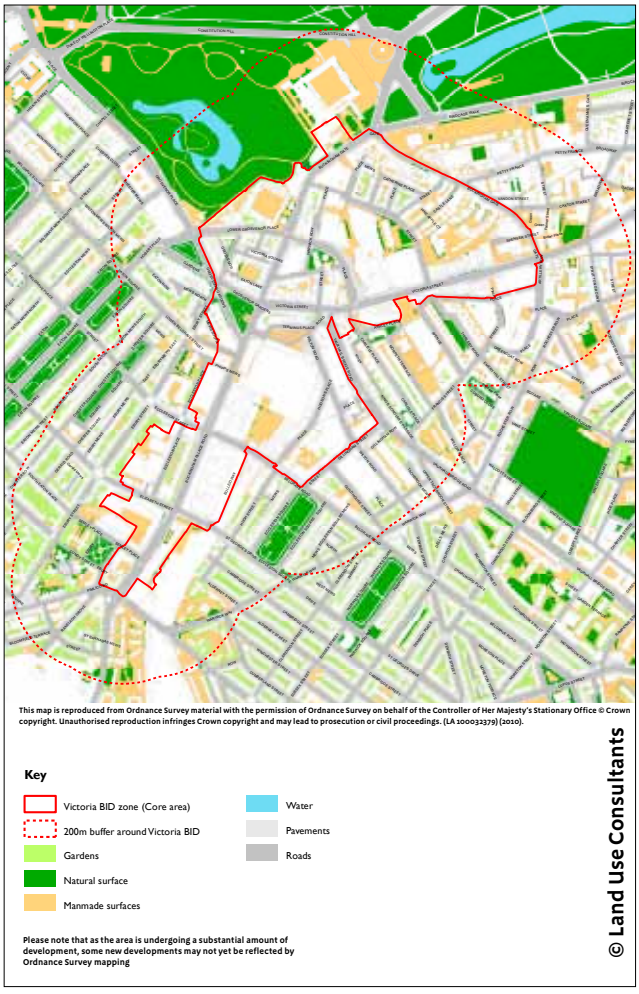
Greening for Growth in Victoria started in September 2010 as a response to a Westminster City Council report that identified that large areas of the Victoria BID were in a critical flood zone. The report recommended a cumulative approach to reducing the risk of flooding, with any new developments encouraged to implement Sustainable Urban Drainage Systems (SuDS), alongside retrofitting lots of smaller green infrastructure interventions including rain gardens, green roofs and tree planting. To address these recommendations, the BID agreed that the starting point should be a full audit of existing green infrastructure in the area and of the opportunities available to retrofit existing buildings with green infrastructure.

Located in the City of Westminster, Victoria is a centre of government, commerce and cultural activity. The Victoria Station upgrade, which is designed to accommodate a footfall of 350,000 people, reflects the station's role as a gateway to London for much of the south, as well as international visitors via Gatwick Airport. Surface-water flooding in the area has in the past led to the temporary closure of Victoria Station and Underground and in the past overheating is also a problem in the summer partly due to the density of buildings and heavy traffic.

All BIDs are valid for five years and provide a platform for local businesses to work together to improve their local area. Building on the success of the Victoria Partnership, Victoria BID officially launched in April 2010 with a strong agenda to develop a vibrant cultural identity for Victoria – an area that has developed in a somewhat piecemeal way over the past 50 years.



Map showing the location and boundary of Victoria BID



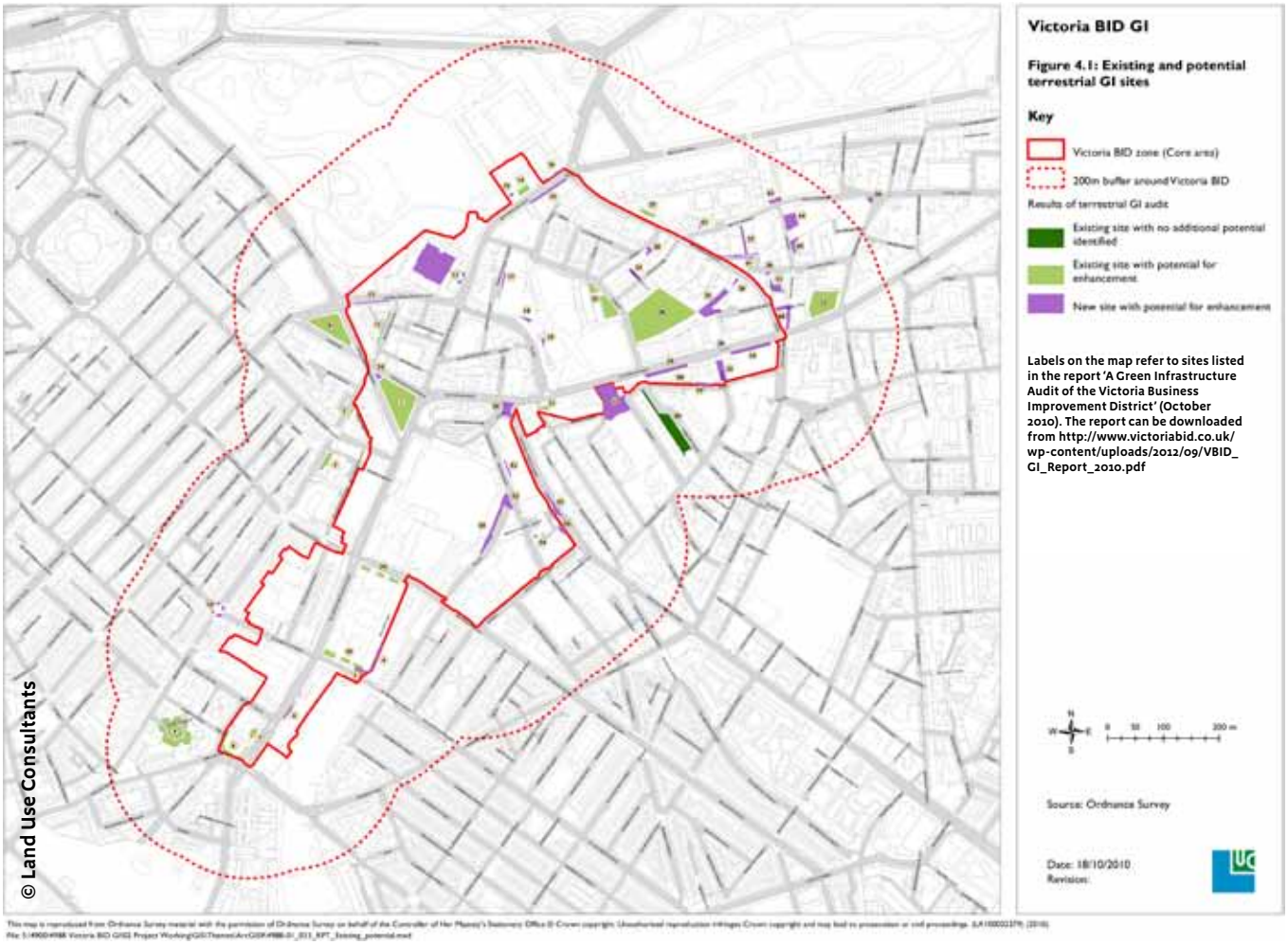
Current land uses in Victoria BID and surrounding area as identified in Land Use Consultants' green infrastructure audit

Identifying opportunities for new green infrastructure

Natural England advised the Victoria BID on the specification of its green infrastructure audit, which was then conducted by Land Use Consultants and the Green Roof Consultancy in 2010. It is believed to have been one of the first of its kind anywhere in the world and has since been adopted by ten other London BIDs. All of the BIDs have received funding from Drain London under the Mayor's London Plan, which aims to address surface-water flooding in the capital and increase green cover by 5 percent by 2030 and 10 percent by 2050.

This long-term target is driven by the need to adapt the capital to both current and future climates and help improve quality of life in central London. The Mayor's London Plan (policies 5.10 and 5.11), the Climate Change Adaptation Strategy and Leading to a Greener London, all recognise that urban greening through green roofs and street trees are cost effective ways of helping to achieving this.

The audit mapped the current green infrastructure resource in the BID including all green spaces no matter how big or small, tree cover by species and location, and the potential to install green roofs. The report also highlighted where changes in management of existing areas could increase multifunctionality, such as by changing planting to provide more food and shelter for wildlife or to improve drainage capacity. Details of all opportunities to retrofit green infrastructure were carefully mapped and assessed according to their ability to alleviate flooding, adapt the area to climate change, contribute to visual enhancement and recreation, and improve biodiversity.



Map showing existing and potential green infrastructure sites within Victoria BID

Given the dense urban fabric of the Victoria BID, the majority of green infrastructure opportunities were identified at roof level. These were mapped and rated according to their potential to support a roof garden and the relative ease of retrofitting the building. These ranged from roofs that could only support sedum roof gardens to those that could support a high-quality biodiverse green roof with a combination of wildflowers and sedums. Implementing this grading system from the start has helped the BID to prioritise which building owners to approach first and where investment is best spent. The audit also classified projects according to cost, with 'quick win' projects identified as costing between £5,000–£10,000 and medium- to long-term projects costing from £10,000–£40,000.

Getting local business support for green infrastructure solutions

In total, the audit revealed the potential to fit 25 ha of green roofs across the BID, which would be capable of absorbing 80,000m3 of rain water each year. It also identified the potential for 1.24 ha of new green infrastructure and 1.69 ha of enhancements to existing green infrastructure. This included a number of opportunities to install rain gardens, which are designed so that surface water drains into them during periods of heavy rain. One particular site outside John Lewis on Victoria Street was selected as a priority by the BID due to the high footfall in the area and because it could be used as an opportunity to showcase a sustainable solution to surface-water flooding.

As it is the businesses themselves that provide principal funding for the work, it's important that the client for each project is part of the design process and that the design reconciles conflicts between purely environmental objectives and the requirements of the building owners and users. The client was keen to go beyond simply replacing hard surfaces with planting and implement a full bio-infiltration feature that combined greening of the adjacent store portico. Existing hard surfaces were replaced with an engineered free-draining substrate and, in addition to the green roof, a stormwater planter captures runoff directly from the portico roof surface. Any excess then drains into the rain garden, which is integrated into the existing drainage system. Planting for the rain garden has also been selected to maximise the foraging potentail for bees.

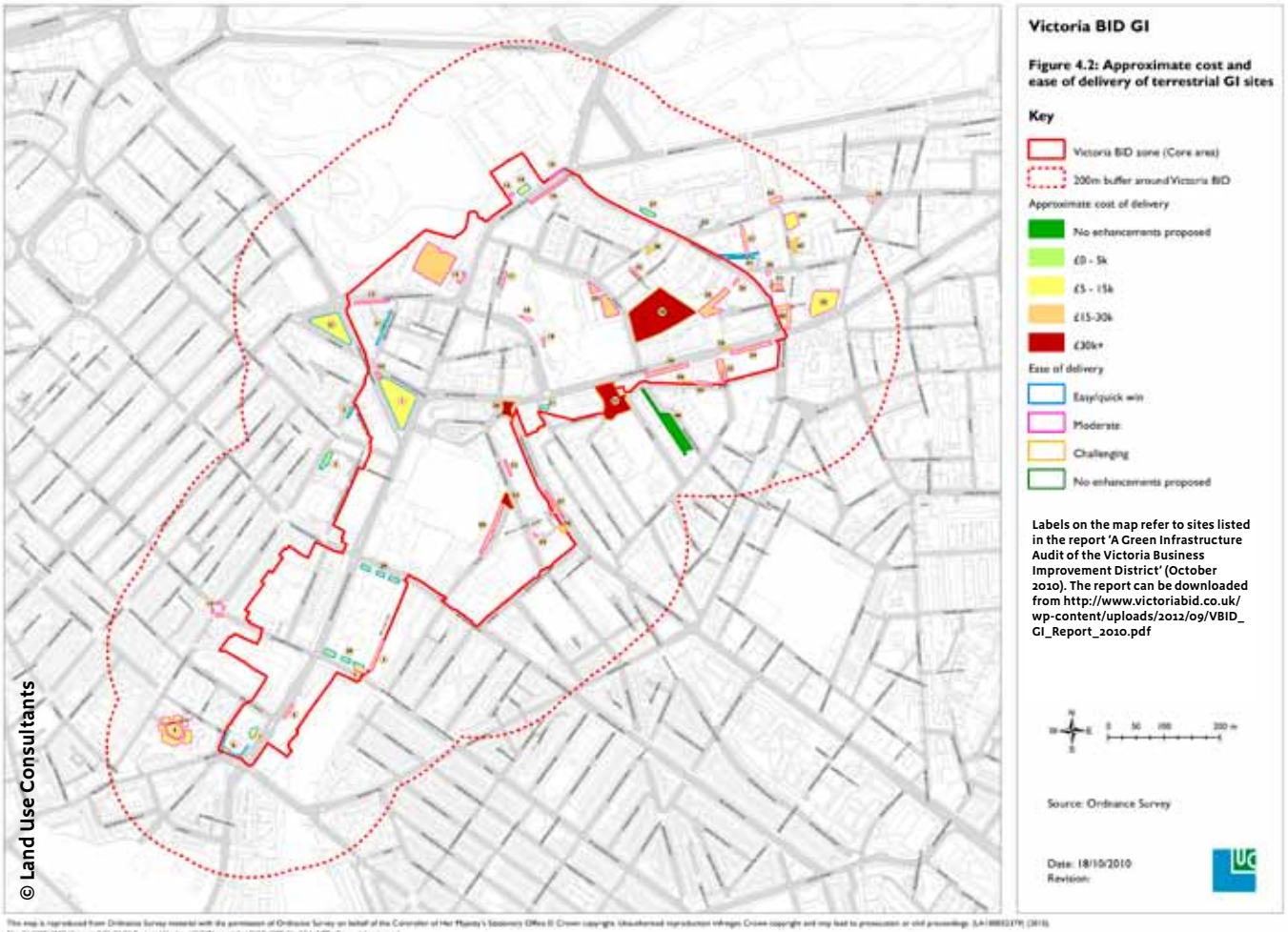
Artist's impression of how the John Lewis Rain Garden on Victoria Street will look when completed

In 2012, a second audit was undertaken by Victoria BID and led by a steering group that included the London Climate Change Partnership, Westminster City Council, Natural England and Greater London Authority. This resulted in a detailed report called 'Green Benefits in Victoria Business Improvement District', which used the i-Tree Eco model originally pioneered in the US to study the benefits delivered by trees and other green assets in the Victoria area and the role they play in carbon sequestration, reducing the urban heat island effect and reducing surface-water drainage issues.

The trees in Victoria BID were found to remove a total of 1.2 tonnes of pollutants each year and store 847.08 tonnes of CO2 at a value of £44,895. To assess the tree's role in carbon sequestration, the study calculated the predicted growth of the trees to provide a 'volume of tree growth'. This was converted into tonnes of carbon based on conversion factors specific to each species and then multiplied by the unit cost of carbon as set by the Department of Energy and Climate Change in 2009.

Of the 139 species of tree recorded in the Victoria BID, London Plane trees dominate the treescape, storing 59 percent of all carbon and filtering 67 percent of all pollutants, the pollutants that are dealt with by the by the BID's trees. This gives it a high Capital Asset Valuation for Amenity Trees (CAVAT). The study points to this as justification for the investment required to establish and maintain large trees in the urban environment. However, it also warns that an area can be vulnerable when such a proportion of value resides in a single species.

According to the study existing green infrastructure assets in Victoria divert up to 112,400m3 of storm water run-off from the local sewer system every year, resulting in between £20,638 and £29,006 of annual CO2 and energy savings from reduced electrical pumping costs. It also identified the potential to divert up to an additional 67,500m3, representing further yearly savings of between £12,392 and £17,417, and the potential to reduce peak summer temperatures by up to 5.1°C. This evidence base, combined with the clear recommendations set out by Green Infrastructure Audit and a number of flagship projects have not only raised awareness within the BID of the benefits of green infrastructure, but helped set key performance indicators for the life of the BID and secure funding for priority projects.



Map showing the cost and delivery of potential green infrastructure projects, with 'quick win' projects identified as costing between £5,000–£10,000 and medium- to long-term projects costing £10,000–£40,000

Lessons learnt from making urban greening a business priority

Since the launch of Greening for Growth in Victoria, the BID has built momentum with local business owners through seminars on the benefits of green roofs and SuDS, and the importance of energy management, urban wildlife and biodiversity. These have proved hugely popular. Making sure that businesses understand the overall strategy and why specific projects have been prioritised over others makes them keener to be part of the process. The more stakeholders understand about how issues such as surface water drainage and the urban heat island can affect them and their business, the more urban greening propositions are likely to appeal to them.

The importance of qualifying and quantifying the impact of particular projects on the environment and how this links to community and business benefits cannot be underestimated. Part of the Victoria BID's success has been in the way that this has been communicated. By framing its green infrastructure projects as part of a long-term strategy, Victoria BID was also able to identify where it could establish quick wins that would act as key demonstration projects and give investors something tangible to work with.

Victoria BIDs Green Infrastructure Audit has proved to be the first of many. Drain London funding has been used to commission green infrastructure audits in ten other central London BIDs. More than 500 ha has now been audited across eleven London BIDs (including Victoria), identifying the potential for 300 rain gardens, 200 green walls and more than 100 ha of green roofs. In August 2012, Drain London announced a Greening the BIDs Implementation Fund to provide grants of up to £100,000 to help catalyse the implementation of projects identified in the audits, especially those that help to deliver the objectives of the All London Green Grid. In 2013, Victoria BID was awarded a £15,000 grant from a Natural England fund administered by the Cross River Partnership to produce a guide aimed at all BIDs. The guide will promote the benefits of a green infrastructure audit and explain how to implement one.

For further information

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- Green Benefits in Victoria Business Improvement District i-Tree Eco study: http://www.itreetools.org/resources/reports/VictoriaUK_BID_iTree.pdf

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