IMPROVING THE EFFICIENCY AND REDUCING THE NEGATIVE IMPACTS OF A CIVIC AMENITY SITE IN AN AREA OF HIGH SOCIO-ECONOMIC DEPRIVATION: A CASE STUDY

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SUMMARY: It has been progressively recognised that civic amenity (CA) sites have an important role to play in increasing recycling levels. However, very few studies have focused on improving the operations of CA sites in areas of relatively high socio-economic deprivation. This study, carried out during 2007 in Plymouth in the south-west of England, involved the refurbishment of an urban CA site with multiple operational problems that is situated in a neighbourhood blighted by high crime and high levels of social and economic deprivation. This paper reports on the refurbishment project and evaluates its success, focusing on operational efficiency, trade abuse and other misuse, access to the site and facilities, quality of the local environment. The study has clearly shown how a carefully planned refurbishment project can significantly improve the impacts of a civic amenity site in an area of high socio-economic derivation, with key outcomes including a reduction in waste arisings and enviro-crime; significant improvements in recycling rates, aesthetic impacts, access, health & safety; and an affirmation that a dynamic, flexible, integrated and multi-faceted approach is necessary in complex refurbishment projects of this nature.

1. INTRODUCTION

Civic Amenity (CA) sites have historically been known rather disparagingly as “the tip” or “the dump” by the public, who tended to view them as dirty, smelly, untidy and unpleasant places that were only used when necessary. They were first introduced into the UK in the late 1960s under the Civic Amenity Act 1967, mainly to help reduce fly-tipping, by giving people somewhere to take their bulky waste that would not normally be collected by the refuse

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collection service. In reality, early CA sites were nothing more than available areas set aside at landfill sites for waste to be dumped, and very little effort went into site design, services, facilities or promotion (Williams and Alsop, 2005).

It has been progressively recognised that CA sites have an important role to play in increasing recycling levels. Williams and Taylor (2004) reviewed the variety of approaches that can be taken in order to increase the amount of household waste recycling on CA sites. However, very few studies have focused on improving the operations of CA sites in areas of relatively high socio-economic deprivation.

Plymouth City is located in the south-west of England in area of outstanding natural beauty but relatively high deprivation. It is the third largest urban area in the South West, a major port and a primary gateway to Cornwall. Plymouth is going through a major regeneration - it has recently had £1 billion investment in property and plans to significantly improve its infrastructure to allow the city to compete better at regional, national and international levels.

Plymouth City Council (PCC) is a Unitary Authority serving a rising population, currently nearing 250,000, with around 110,000 households. Like many local authorities in England and Wales, the Council's waste management infrastructure has been under severe pressure in order to comply with the requirements of legislation and national targets. However, the challenges in Plymouth were heightened by some local issues. Firstly, PCC's landfill site closed in March 2008 and an interim waste disposal contract was put in place for waste to be transported to a landfill site in the adjoining county of Cornwall. The deposit of Plymouth's waste in Cornwall is unpopular and PCC has a longer term plan to develop an energy-from-waste (EFW) plant, either within the city boundary or on a site close to the city. Secondly, as part of the regeneration plans for Plymouth, the city leaders have an ambitious vision to significantly increase the population to ~350,000 by 2020; this planned growth has major implications for the city's waste management infrastructure. Thirdly, PCC has 2 civic amenity sites to facilitate collection of waste from the public, both of which were in need of upgrading and refurbishment. For example, the Weston Mill CA site had restricted access for vehicles, lacked space for expansion and is situated within an urban environment in a neighbourhood blighted by high crime and high levels of social and economic deprivation. As a consequence, the site had become an aesthetic eyesore, had suffered for many years from extensive vandalism, arson and fly tipping, and funding was secured from the Neighbourhood Renewal Fund (NRF) to upgrade and refurbish the site.

This paper reports on the refurbishment project and evaluates its success. The key objectives were to assess how the improvements to the site affected: i) the efficiency of the site; ii) trade abuse and other misuse; iii) access to the site and facilities; iv) quality of the local environment.

2. METHODS

2.1 Study location

Prior to refurbishment, the Weston Mill CA site was roughly rectangular and approximately 70m x 55m (N to S). The site provided containers or an area set aside for the collection of a range of materials, including: metals, timber, paper, cans & plastic bottles (collected in the same bank), glass bottles, garden waste, engine oil, cardboard, hazardous items, hard core, WEEE (ad hoc) and furniture (again, ad hoc). National Best Practice indicated that CA sites could achieve 70.5% (including separated inert waste) in 2005/6 (Cameron-Beaumont et al, 2004). The Weston Mill CA site received 9895 tonnes/annum in 2005/6 and had a 53% diversion to recycling. Given the

poor site layout, lack of containerisation and insufficient facilities for the segregation and recovery of waste, there was significant potential to improve the site's efficiency to assist in achieving targets (now superseded) and the avoidance of Landfill Tax penalties. There were also some health and safety concerns at the site from vehicle movements and operational working practices. For example, during peak times, traffic congestion at the site caused queuing onto the main highway, leading to concern for the safety of vehicles coming over the nearby hill suddenly being confronted by static queuing cars and vehicles exiting the site. The congestion within the site also had implications for the safety within it. The residual waste hock load containers were centred in the middle of the site and unloading these containers with members of the public and vehicles in close vicinity was unnecessarily hazardous.

High and increasing levels of a variety of enviro-crimes were experienced at Weston Mill. These included: fly-tipping, vandalism, graffiti and anti-social behaviour that occurred during closing hours, particularly at night. The site was plagued by break-ins, a small element of which was by people in search of saleable material, but mainly involved young people inflicting mindless damage to the site and the surrounding area. From April–November 2006, there were 16 incidents reported to the police; 3 incidents were arson. However, numerous smaller incidents, such as damage to fencing and graffiti on signage and equipment, were not reported and the site had high maintenance costs for frequent repairs to the fencing.

Fly-tipping incidents were not recorded but the staff reported that on a daily basis they had to clear fly tipped waste from the site's entrance and surrounding area. Littering of the area was also a significant issue for PCC Street Cleansing who had to undertake additional cleanses. As the site is situated within a housing estate, there was pressure from the local community to address the site's impacts on the local environment.

In November 2002, PCC introduced a van permit system to reduce the amount of trade and commercial waste being disposed of illegally at the City's CA sites. A total ban of vans was introduced at Weston Mill, with height barriers installed to control vehicle access. At the same time, the opening hours were reduced, from 7.30 am– 8pm to 9am – 5pm as there was some evidence that people from outside the City boundary, particularly commuters from the Cornwall area, were using the site to dispose of items either on their way to or from work. This reduction in opening times coupled with the van ban had a significant impact on waste arisings at Weston Mill, with waste plummeting from 13,795 to 9,866 tonnes/annum between 2001/2 and 2005/6.

Nevertheless, despite these measures, in 2006 there was a general consensus from site staff that a significant number of people accessing the site were traders using cars with trailers to avoid commercial charges by manoeuvring around the van ban. Although some additional measures had been put in place to try and minimise misuse of the site by traders, these measures were weak and ad hoc e.g. intervention of site staff based upon visual inspections, the occasional presence of PCC Environmental Services Enforcement Team and the Environment Agency (EA). It was clear that the site required refurbishment and improved design.

2.2 Refurbishment project

Funding was secured from the Neighbourhood Renewal Fund (NRF) to upgrade and refurbish the site, although the fund's terms gave just over 3 months for project completion. A strategic risk assessment of the project's viability identified two high risk factors; the extension of the site into adjoining land and typical timescales for procurement processes. However, these problems were rectified quickly as the Council had a 'Framework Contract Agreement' with a major contractor, which meant that direct contact could be made with the company. They had sufficient capacity to undertake the work within the set timescale and this avoided tendering the works.

Plans for refurbishment were drawn up and included: a) best practice for maximising recycling rates, including public education and awareness-raising campaigns; b) health and safety requirements for staff and customers; c) facilities for better waste segregation; d) layout

changes to improve traffic flow, alleviate congestion and the potential for vehicles to overflow onto the highway; e) best practice guidelines for signage; f) methods of effectively reducing crime; g) improving customer access and service provision; h) best practice for minimising trade abuse and cross-boundary use of the site; and i) an assessment of how to reduce the aesthetic impact of the site on the locality.

2.3 Evaluation project

The evaluation study aimed to assess: i) the effect of the refurbishment of the CA site on the local area in terms of aesthetic impacts, enviro-crimes and customer satisfaction; and ii) the impact of increased containerisation and improved signage on waste collection, source segregation and diversion of waste for reuse and recycling. The effect of the education/awareness campaign was also assessed in a separate survey. The NRF funding required both pre- and post- refurbishment customer surveys with a target minimum of 300 respondents for each. The pre-survey was undertaken over a 4 day period from Wednesday 31st January – Saturday 3rd February 2007, inclusive. The duration of the survey was largely dictated by the availability of funds to engage temporary staff as surveyors. The post-intervention survey was conducted using the same method as the pre-survey with face-to-face interviews over a 4 day period from Wednesday 29th August – Saturday 1st September 2007. For both surveys, the surveyors were engaged independently and before commencing work, the surveyors were given an induction and training session, including health & safety training.

A commercial consultancy (Resourcefutures) was engaged to provide an independent evaluation of the effectiveness of the education and recycling awareness campaign. They undertook pre and post intervention door-stepping surveys in the NRF target areas and a recycling participation and monitoring survey in which the NRF neighbourhood areas were compared to control neighbourhoods elsewhere in the City of Plymouth. These control neighbourhoods were identified from statistical profiling of the City. In the post-intervention survey, residents were shown images of the promotional material utilised in the branding campaign and asked if they had seen them on collection vehicles, buses, recycling banks etc.

3. RESULTS AND DISCUSSION

3.1 Refurbishment project

3.1.1 Best practice for maximising recycling rates, public education and awareness-raising

The National Assessment of Civic Amenity Sites (NACAS) best practice guidance (Cameron-Beaumont et al, 2004) makes several recommendations for maximising recycling rates, and the following factors were incorporated in this refurbishment project:

- Containerisation of all wastes and provision of recycling containers for a range of materials (this also addressed the requirement for better waste segregation).
- Simple and clear traffic management with traffic directions on signage and the road (this also addressed the requirements for improved health and safety features and layout changes to improve traffic flow and alleviate congestion).
- Recycling containers positioned at the front end of the site to encourage customers to segregate their waste.
- Training of site staff in customer service and information provision. Williams and Taylor (2004) have discussed the role of site attendants in educating the public about waste segregation and effective utilization of CA sites. The Weston Mill site is operated by a contractor and they were contractually obliged to ensure that site staff received training on

health & safety aspects for themselves and site users, instructions on how to assist the public with disabilities and those seeking advice on recycling or safe disposal of material. For example, staff were directed to take residual waste from customers and place it in appropriate containers; if the waste was recyclable, staff were directed to instruct customers to deposit materials in specific containers. The Contractor was also encouraged to maximise recycling via the setting of targets and a financial incentive scheme (details are commercially confidential).

- Appropriate signage and information provision (see *Section 3.1.2*).

In terms of education and awareness-raising, the site's name was changed so that it became a Household Waste Recycling Centre. This change was intended to reinforce its function as a recycling centre whilst making it clearer that it is for the deposit of household waste only. The NRF grant included funds for the development of a new brand image and campaign for waste awareness and recycling to trial in the target areas. A key objective of this campaign was to develop promotional material and signage for the site that would assist addressing the identified problems. The campaign was developed using the National Campaign 'recyclenow' which provided iconography – pictorial material relating to or illustrating a subject - and included branding on buses and refuse collection vehicles. A bright and eye-catching colour scheme and largely pictorial signage was adopted in order to make the practice of recycling more attractive and aid those with literacy and language barriers (see also *Section 3.1.2*).

One of the consequences of the refurbishment project is that the site's recycling rate increased from 53% in 2005/6 to 63% in 2007/8, with the total recycled increasing from 5293 to 6045 tonnes. Significant increases were recorded in the quantities of glass (from 62 to 84 tonnes yr^{-1}), engine oil (from 10 to 21 tonnes yr^{-1}), domestic appliances (from 131 to 161 tonnes yr^{-1}), wood (from 796 to 1123 tonnes yr^{-1}), green waste (from 961 to 1014 tonnes yr^{-1}), doors/windows (from 211 to 298 tonnes yr^{-1}), cardboard (from 86 to 149 tonnes yr^{-1}) and WEEE (from 143 to 191 tonnes yr^{-1}) recycled. The residual waste deposited at the site fell from 4602 to 3613 tonnes over the same period.

3.1.2 Best practice guidelines for signage

The signage at Weston Mill and on the containers and recycling banks was developed as part of the new branding campaign. The site was colour coordinated so that all containers, recycling banks and cabins were sprayed in the 'recyclenow' scheme of lime green, pantone 376 and the perimeter fencing was painted dark green to provide a striking and attractive environment.

Cameron-Beaumont et al (2004) stated that signage is a vital factor in improving capture rates of recyclables and reducing contamination levels of recycling containers. Key improvements to the site thus included: the use of brief messages; information boards to relay recycling performance to the public; training of staff in customer service; use of artistic features to make the site aesthetically pleasing; the provision of leaflets and information on the recycling process. For example, every container was provided with signage incorporating concise wording supported by pictorial images to clearly demonstrate the material being collected. In addition, a sign was erected on-site to show appreciation to customer for their efforts to recycle and to inform them of the site's recycling performance. The sign is magnetic so that the numbers can be changed as appropriate.

3.1.3 Methods to effectively reduce crime

The installation of a comprehensive Closed Circuit Television (CCTV) system linked to a Central Control Centre that alerts Police to the site within minutes of reported unauthorised entries was planned. A company that had installed this system at other sites was approached to

provide guidance on the best system for the Weston Mill site. Unfortunately, the co-ordination centre for this system was over-subscribed and a less efficient option had to be installed in which the link is to a security company via a modem that facilitates dial-in and view facilities and motion centres for response. Security personnel subsequently make assessments of these messages to decide if they should attend the site (or not).

Due to the previous high level of crime at the site, the local police were often called to attend incidents which led to a good working relationship between police officers and staff. The police and an officer who specialised in 'designing out crime in the built environment' were involved in the refurbishment and made several recommendations on how to reduce the opportunities for crime, including the removal of all visible materials from the site at night, covering all containers and the installation of high security fencing of a minimum height of 9 feet. Traditionally, palisade fencing has been used at CA sites as it is easy to replace and repair individual strips. However, the police pointed out that this ease of replacement also made it very easy for offenders to remove and bend fencing to gain entry and so high security fencing was installed. Note that the container covers had to be specially manufactured for the 'roll-on roll-off' (RORO) containers that hold material on site overnight.

3.1.4 Improving customer access and service provision

An Equality Impact Assessment (EIA) was undertaken in order to evaluate how the site's services interfaced with the public and what actions were necessary to ensure that, where possible, access was facilitated for all users in a fair, equitable and sensitive way. The PCC EIA has six equality strands – age, disability, religion and belief, gender, race, sexual orientation – and the policy is intended to take into account statutory obligations and legal requirements for access to services and buildings. Any potential access problems were identified via EIA and appropriate action taken to eliminate or reduce the problem e.g. customers not allowed to access residual waste containers; staff instructed to assist customers with unloading and decanting of waste into containers; cabin at entry of site so that requests for assistance can easily be made.

3.1.5 Best practice for minimising trade abuse and cross-boundary use of the site

An Automatic Number Plate Recognition (ANPR) system was installed on-site as it was viewed as the best option for tackling cross border and trade abuse. ANPR is a computer-based system that enables software analysis of pictures from CCTV to identify number plates. The system is very effective at detecting and notifying staff about repeat visitors and at providing Driver & Vehicle Licensing Authority (DVLA) data on vehicle registration. Vehicle throughput (monitored by the ANPR system) increased from an average of 300/day pre-intervention to 563/day post-intervention. There was little change in the types of vehicles visiting the site pre- and post-survey, although there was a reduction in the number of cars with trailers, which supports the view that some traders were using trailers to avoid the van ban.

3.2 Evaluation project

During the pre-refurbishment survey, 380 customers were interviewed over a 4 day period from 31st January – 3rd February 2007. The post-refurbishment survey was completed between 29th August- 1st September 2007 and a total of 682 customers were interviewed. The key findings from the surveys were:

- Pre- and post-refurbishment, 91% and 94% of the site users, respectively, came from Plymouth City, suggesting that the perception of high cross-boundary usage was incorrect.
- In the pre-intervention survey, 67% of respondents visited the site occasionally, 17%

fortnightly, 14% weekly and 2% daily. In the post-intervention survey, 55% of respondents visited the site occasionally, 23% fortnightly, 20% weekly and 2% daily.

- In the pre-intervention survey, 83% of respondents found the site to be good or excellent, 15% satisfactory and the remainder poor/very poor. This very positive outcome was not expected and further analysis was therefore undertaken. A quarter (24.6%) of respondents stated unprompted that site staff were good, friendly and helpful. In the post-survey, respondents were asked about whether the site had improved. Their responses demonstrated that the refurbishment had been overwhelmingly successful, with over 90% of customers stating that the site's appearance, recycling facilities, number of containers and layout had improved. A high proportion of respondents (over 85%) also found the signage, capacity for green waste collection and facilities for textiles and shoes were better. The latter is an anomaly as there were no facilities for textiles or shoes prior to the refurbishment and therefore 100% should have found the facilities better! Although there are still access problems at busy periods, 76% of respondents considered that the road access had improved.

The key outcomes from the independent evaluation of the effectiveness of the education and recycling awareness campaign by Resoucefutures were:

- The interventions by PCC appeared successful, with the percentage of committed recyclers increasing from 54.6% in the pre-campaign phase to 67.3% in the post-campaign phase. The improvement was particularly pronounced among young respondents and awareness of the range of recycling facilities provided by PCC also improved substantially.
- There was a slightly higher level of participation in kerbside recycling in the target areas than in the control areas (80.1% compared to 78.3%).
- The average set out of recycling for the target area was 65.9%, compared to 59.8% in the control area.
- However, most people were not able to identify any activities by the council aimed at encouraging people to recycle.

In 2006/7, following the site's refurbishment and the education/awareness campaign, the City's overall recycling rate increased by 5% from 27 to 32%. Although Resourcefutures' evaluation of the recycling branding and promotional campaign did not indicate a direct link between the increase in recycling and waste awareness, there is evidence from other sources. Feedback from site staff and PCC officers working in the community reported that the eye catching branding image, colour scheme and high usage of pictorial images has proved popular with the public. One of the key points raised was regarding a suite of informational statements ("Did you knows") which appeared on buses and collection vehicles. These statements contained locally related messages about recycling e.g. "Did you know that the kerbstones on the Tamar Bridge are made from 5 million recycled plastic milk bottles" *(Tamar Bridge is a well known local landmark)*. This observation reinforces Williams and Taylor's (2004) view that user surveys have an important role to play in providing practical assistance to the development of improved sustainable waste management strategies.

4. CONCLUSIONS

The study has clearly shown how a carefully planned refurbishment project can significantly improve the impacts of a civic amenity site in an area of high socio-economic derivation. The key outcomes of the study were:

- A reduction in waste arisings and an increase in diversion from landfill and customer satisfaction.

- Significant improvements to the aesthetic look of the CA site, reduced local environmental degradation and improved local environmental quality.
- Significant improvements to the site's performance from a combination of more effective signage, increased number and better positioning of containers, better facilitation of waste segregation, better customer information and support from well-trained, customer-focused and motivated staff.
- The presence of CCTV and ANPR systems provided an effective deterrent to crime and trade abuse.
- A clear demonstration that working co-operatively with outside agencies is essential. For example, police advice on designing out crime on an urban site in a built-up area of relatively high deprivation was vital; without their input, the significant reduction in site crime could not have been achieved.
- An unambiguous confirmation that the design layout of a site is critical in minimising health & safety hazards and achieving operational efficiency. It is important that there should be total, or at least partial, separation of service and public traffic and that containers of all types should all be on the same side of public traffic.
- A clear demonstration that undertaking and acting on an equality impact assessment can ensure that access is provided for users with physical disabilities and those with literacy and language barriers.
- An affirmation that a dynamic, flexible, integrated and multi-faceted approach is necessary in complex refurbishment projects of this nature, with multiple stakeholders and multiple objectives.
- A further illustration of the benefits of local authorities and universities working together in partnership based on the principles outlined by Williams (2009).

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