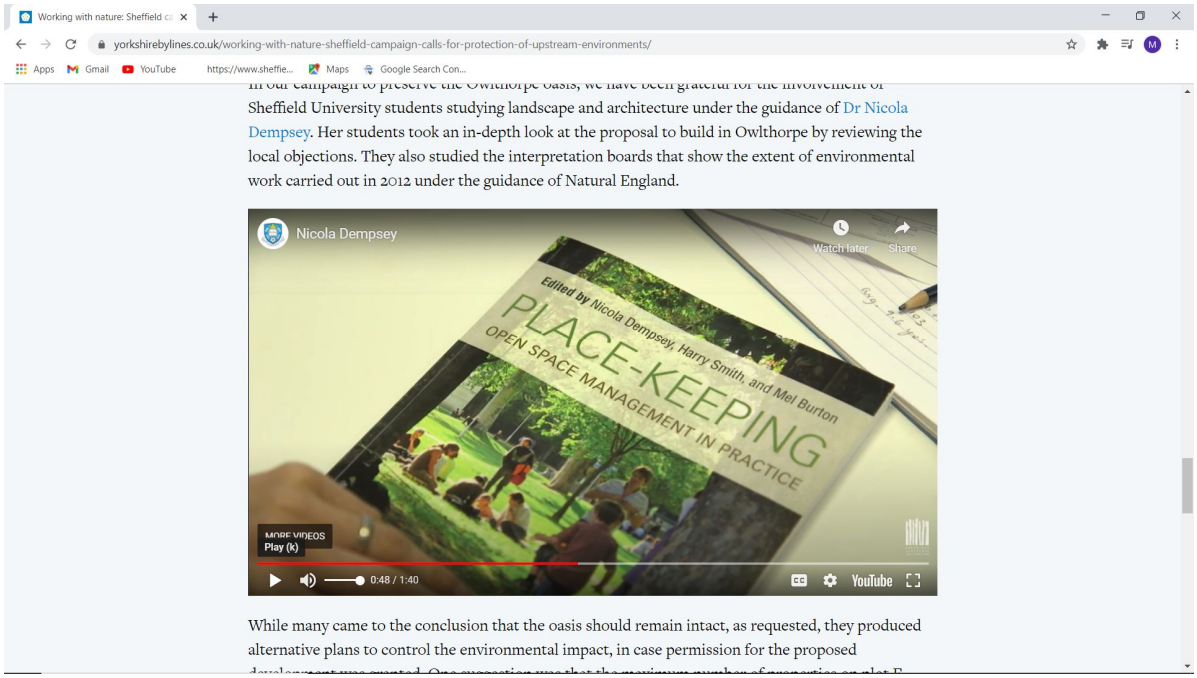

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Understanding Stakeholder Perceptions of Acceptability and Feasibility of Formal and Informal Planting in Sheffield's District Parks

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Abstract: Parks are well-visited sites of an urban nature in our cities where users can gain positive social and ecological benefits from vegetation including trees, grass, flowering plants and shrubs. However, ongoing financial public sector budget pressure is adversely affecting the management and quality of parks in the UK, resulting in changing vegetation and planting practices. It is not clear how such changes might affect park users, indicating scope for better understanding of how planting in urban parks is perceived. This paper addresses this gap in knowledge by exploring perceptions held by users who experience vegetation in parks and those involved in the decision-making about planting therein. It examines the feasibility and acceptability of three different planting practices according to different stakeholders in Sheffield, UK. This paper calls on empirical data collected via questionnaire surveys with residents around six district parks, and interviews and focus groups with community groups and professionals to gain an understanding of stakeholders' perceptions. The paper illustrates different attitudes towards formal and naturalistic (informal) planting, exploring a prevalent shift towards low-maintenance practices in green space management. The findings suggest a range of influences on feasibility and acceptability of planting practices, including the local park context and stakeholder perceptions of public opinion.

Keywords: planting; green space management; stakeholder; place-keeping; decision-making; perceptions; urban parks

1. Introduction

There have been numerous studies which explore the contribution of urban vegetation to biodiversity in terms of habitat and food sources [1,2]. Such studies have also examined the positive associations that vegetation has for people's health and well-being, in terms of helping reduce stress levels [3] and increasing recovery time after medical procedures [4,5]. In addition, research has found that vegetation can make a positive contribution to social cohesion and interaction [3,6] and enhance productivity at work [3,7]. More generally, studies have found that people have positive responses towards vegetation, specifically planting form [8], colour [9,10] and leaf texture [11]. In the UK, where residents live in wards made up of over 45% of green space on average [12] and where a significant proportion is private gardens [13], public green space such as parks are important urban sites with the potential to harness the benefits of vegetation. As urbanisation and increasing pressure on urban land can lead to fewer public urban green spaces, retaining access to existing public green spaces in neighbourhoods, including parks, is important [14,15]. Urban parks therefore have the potential to make a significant contribution to people's well-being through high-density vegetation [16]. This is demonstrated in research showing that urban green spaces provide greater mental health benefits

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and biodiverse environments than hard surfaced areas such as urban squares [16]. However, financial pressures on urban parks are adversely affecting the management and quality of parks [17]. According to UNISON (2018), 59% of the UK's local authorities had cut their parks and green spaces budgets between 2016/2017 and 2018/2019 where the biggest cut was in Warwickshire County Council (from almost £110,000 to just over £14,000) [18]. This has led some local authorities to change how their parks services are delivered with fewer staff and an increased focus on lower maintenance [19]. In some places, this has led to changes in plantings, in particular to fewer bedding plants and flower displays, and grass cut less frequently: this is the case for 57% and 42% of councils, respectively [20]. Reflecting these changes, low-maintenance plantings such as wildflower meadows and long grass have emerged as alternatives to formal bedding plants in urban parks [21]. However, people perceive the diversity of vegetation differently [22,23], suggesting that the mental health benefits to be had from vegetation in parks differ according to their perceptions [21] and planting itself. In this way, there is a gap in knowledge about perceptions held by different stakeholders. Users who experience the vegetation and planting in parks are one stakeholder group. Another is the decision-makers who influence the type and extent of planting and vegetation in parks, primarily parks managers. Lastly, we are also interested in community groups as another set of stakeholders who are increasingly involved in the management of parks in a broad sense, which might include events organisation, fund-raising and consultation with the parks managers. This paper therefore aims to identify how feasible and acceptable different planting practices are in the park setting in the city of Sheffield according to different stakeholders. To address this aim, we first conducted a literature review of research in the areas of sustainability and public service delivery which involves exploration of new public management. This also focused on the features of urban plantings, examining existing evidence on urban park plantings in relation to changes in park management. We then carried out questionnaire surveys with residents, and held interviews and focus groups with community groups and professionals to gain an understanding of stakeholders' perceptions. The paper presents the research findings and provides a discussion of their implications in light of the ongoing changes to local authority budgets and accompanying changes in urban park management practices.

2. Plantings in Urban Parks

There is a strong legacy of formal types of landscape design in the UK [24] which can be found in British urban parks today [25]. Traditionally, planting in British formal gardens was influenced by French planting styles based on formal avenues, carpet or bedding plants in the late 17th century [26]. Formal plantings have been strongly appreciated by park users since the 1870s when carpet-planting became popular in the UK. For example, in the late 1800s formal bedding flowers were used as a flower-planting concept in Regent's Park, London throughout the year, which were positively perceived by users [27]. Formal planting is perceived to be

desired by the public, with some evidence suggesting that older people particularly demand colourful formal planting [8]. Particular features of formal bedding plantings including their systematic or regular patterns [28], and clear, legible and tidy image [8] have been found to contribute to psychological stress relief through creating a calm, peaceful and safe atmosphere [8,29].

In relation to management practices on the ground, Hitchmough (2011, p. 380) argued that, for urban planting to be sustainable, it should be low-maintenance, "support as much animal biodiversity as possible", be attractive and have meaning for local users [30]. Planted flower meadows constitute one example of such planting [31]. Meadows incorporate a range of wildflowers, grasses and ground-covering-plants which provide visual diversity and interest [32]. In urban areas, planted meadows are considered to provide environmental benefits [33] such as increasing biodiversity [21] and habitat provision [34,35], diversity of plant species [36] and perceived aesthetic value [37] through flower colour diversity [37,38] and flower cover [38]. Meadow planting has been correlated with high levels of site satisfaction of users [36] through the use of perennial seed mixes based on grasses and colourful flower species which flower over multiple years [39]. Meadow planting with wildflowers formed part of the London Olympic Park in 2012, and was often used as the backdrop for interviews and vox pop given the high numbers of users. According to Graves et al. (2017), public preference for planted meadows increases with the abundance and variation of flower colour [35]. These positive preferences and ecological benefits of urban meadow planting is reflected in APSE's report (2018) which found that 88% of local authorities have carried out flowering meadow planting to promote biodiversity [20].

Approximately two-thirds of the UK's urban green space is mown amenity grass used for recreation [40]. Grasses (or lawns) provide some benefits for ecological enhancement contributing to water management [41,42], providing floral resources and connectivity for pollinators [43] and other species [44,45], plant richness [46] and recreational and aesthetic benefits for people and their animals [41,44]. Grass can be considered as a homogenous species, typically dominated by a few grass species [47] perceived to differ little by colour, structure and species diversity. Positive perceptions have been recorded when examining different grasses in relation to their height and richness [36], indicating that frequently cut grass with simple structure is positively perceived. Conversely, more naturalistic grass management—where mowing regimes are reduced—has been perceived as untidy, poorly maintained and degraded [29]. Nevertheless, the cost-effectiveness of letting grass grow to provide more naturalistic park landscapes is attractive for local authorities facing budget cuts and dwindling resources. Where previous research tends to focus on people's perceptions of specific and single types of planting, we address the gap in understanding perceptions comparing different plantings. In this research, we therefore examined perceptions of formal bedding (FBP), meadows with wildflowers (MWP) and long grasses plantings (LGP).

3. Pressures of Budget Cuts on Planting Management

The heyday of pre-1970s urban park management evokes images of Victorian formally planted floral beds, fountains and pavilions linked by well-maintained paths and overseen by park-keepers, all funded and strongly supported by local authorities [48]. Central government policy supported local authorities to build their version of a "town in a park" and "quiet green heart" sometimes with funding and grants (e.g., the Housing Subsidies Act 1956 [49]; Elborough, 2016 [50]). Over time, and with changes in government, Parks Departments began to shrink and were merged into Departments of Leisure and Amenity Services around 1974, which marked the beginning of budget cuts for park management [51]. Compulsory Competitive Tendering introduced by the Conservative national government in the 1980s led to the contracting out of parks management tasks where tenders would be won by the lowest bidder [19,51]. This led to a deskilling of parks staff where professional judgement and specialist horticultural and arboricultural knowledge was required less and less as grounds maintenance became the main task [52].

Today, parks are facing similar budgetary cuts with recent surveys showing that 57% of local authorities have reduced their bedding and flower displays, grass cutting (42%) and shrub bed maintenance (39%) [20]. Given the non-statutory nature of park provision and management in the UK, parks budgets are often an easy target when local authority budget cuts have to be made [53] which necessarily influences how vegetation is managed and maintained. It is claimed that formal plantings require higher costs and more maintenance than other planting such as naturalistic types [8] where less intensive management practices (e.g., fewer grass cuts) are required [54,55] (Table 1). This is reiterated in other examinations of landscape management practices. Mown grass, as one of commonest forms in urban green spaces [56], if cut less frequently or left unmown, can save money [20,35] in terms of labour and fuel [57], which has led to interest in alternative planting as less

intensive management [58,59]. However, a study from the 1990s [24] claimed that it is not always the case that maintenance costs are lower for more naturalistic plantings. They can require complex working arrangements involving flexible management operations, e.g., responding to seasonal weather changes, meaning that naturalistic plantings (i.e., urban flower meadows and unmown grass) can sometimes cost more than formal plantings depending on the local context. What is of further interest is the perceptions held by stakeholders of the perceived cost of maintaining different planting in parks. For example,
when consulting with professionals, Özgüner et al. (2007) found they did not perceive a significant difference in costs between formal and naturalistic plantings [8]. However, Hoyle et al. (2017) did find that a difference in perceptions could occur depending on a manager's personal opinions about different plantings, their specific role and if they have an ecological background [57]. As alluded to above, stakeholders' perceptions of users' planting preferences can affect decisions of which planting to include in a park [8,57]. We hypothesised that, within a context of austerity, where park managers expect continuing budget cuts [17], high-cost, high-maintenance plantings would be less acceptable for park users and feasible for park managers and community groups. To test this hypothesis, we examined the perceptions of three different plantings held by different stakeholders involved in park management decision-making.

Table 1. Features of formal and naturalistic plantings.

	Formal	**Naturalistic**
Forms	Uniformed, geometric, tidy, appearance, regular layout, bilateral or radial, abrupt and distinct edges	Spontaneous, unplanned, uncontrolled, absence of uniformity, maximised use of plant, minimised use of artificial elements, overt human control Fluent and complex edges
Ecological	Small planting areas and limited animals invited	Vast areas, species diversity, wild animals invited, more CO_2 absorbed
Social	Less vandalism and more preference	More vandalism, less preference
Management	Intensive maintenance, short-term regular maintenance, annual reforming circle, clear cut and more labour inputs	Low-maintenance generally, fewer labour inputs, perennial reforming circle, longer-term regular maintenance, horticultural skills require
Representative planting	Formal and carpet bedding plants (refer to Row 1 in Figure 1)	Meadow with wildflowers and long grass (refer to Rows 2 and 3 in Figure 1)

Adapted from Waugh, 1927 [28], Oudolf and Kingsbury, 2005 [25] and Özgüner et al., 2007 [8].

4. Materials and Methods

4.1. Site Selection

To identify stakeholders' perceptions of three different planting types in the park setting, six parks were selected in Sheffield, UK (Parson Cross (PCP), Manor Fields (MFP), High Hazels (HHP), Richmond (RMP), Meersbrook (MBP), and Bolehill Recreation Ground (BHP)). The parks were selected according to park type, socio-economic characteristics and community involvement. District parks were selected as they were felt to be the most likely of park types for such plantings to apply, as opposed to high-profile city parks and smaller local/neighbourhood parks [60]. Each site was broadly similar in size and in terms of vegetation features which are mainly amenity grass cover with small spinneys in which trees and shrubs are found (for more details see Nam and Dempsey, 2018 [60]). All sites are surrounded by residential areas, but socio-economic profiles differ. According to the English Indices of Multiple Deprivation (IMD) [61], PCP and MFP are in the country's 10% most deprived areas, while HHP and RMP are in the country's 30% least deprived areas and MBP and BHP lie in the "middle" bracket.

Community group involvement was also used as a selection criterion to ensure that a variety of stakeholders with an active interest in the overall management of the parks could be consulted. Parson Cross Community Development Forum (coded in this paper as CoPCCF) was established in 1999 and is closely involved in local community activities, partly including the management of PCP. The Friends of Manor Fields Park (CoFoMF) were established in 1998 and is closely supported by the non-profit 3rd sector organisation

company which manages the park on behalf of Sheffield City Council. CoFoMF contributes to park management through regular maintenance, fundraising through events organisation and a charity shop near the site. The Friends of High Hazels Park (CoFoHH) were established in 1988 and is made up of a small group of active members who have long been involved in park management, with an average member age of 70+. The Meersbrook User Trust Group (CoMBUT) has the largest number of active members of the community groups consulted. Formed in 1998, the group participates in a wide range of park management activities from fundraising to regular maintenance including the establishment of new play areas in Meersbook Park. The Friends of Richmond Park (CoFoRM) were established in 2006, getting involved in a broad range of park management, particularly improving facilities in the park, including the pavilion, sports equipment, seating and playground settings as well as involving regular maintenance activities and fundraising events. The Friends of Bolehills Park (CoFoBH) is a relatively new group (established 2011), which focuses its activities on small-scale events in collaboration with other local community groups and regular park maintenance (e.g., litter picks).

4.2. Measuring Stakeholders' Perceptions

There has been an increasing need to understand the opinions of key stakeholders such as park visitors, the general public and decision-making stakeholders [62] as well as community groups. This is in light of their involvement in decision-making where some stakeholders (particularly community groups) have long been involved in park management [63]. This is particularly significant, for example,
where local authorities are handing over park management responsibilities to community groups when faced with budget cuts [64]. In this way, we were interested in stakeholders' perceptions of acceptability and feasibility.

4.2.1. Measuring Acceptability and Feasibility

To understand perceptions of acceptability and feasibility of different plantings, it was necessary to develop suitable indicators. We adapted the definitions of acceptability and feasibility which were conceptualised by Johnson et al. (2016) [65]. According to their "Evaluation Strategy", acceptability is defined as the expectations of stakeholders comprising positiveness and negativeness, public concern, benefits to stakeholders and reaction to a proposed strategy (here, in relation to different planting types). Indicators of feasibility call on people's skill and knowledge, financial resources and overall management resources to ascertain whether a strategy would work in practice [65]. Therefore, this research adapted the concepts of acceptability as positive or negative perceptions of stakeholders and feasibility as financial (budget and funding) and human (stakeholder involvement, skills and knowledge) resources. To collect data on acceptability and feasibility, we employed a mixed-methods approach which meant using different data collection techniques: a quantitative questionnaire survey and qualitative interviews/focus group. These data were analysed separately, but we discuss the implications of these findings together in Sections 5 and 6. While this might be considered a limitation of the study, we purposely selected data collection methods which were well-suited to the specific participants (i.e., different stakeholder groups).

4.2.2. Surveys of Residents

We employed a questionnaire survey to quantify residents' perceptions of the existing and proposed plantings in their local park. This included a mixture of photos (three per planting type) of urban park plantings, based on different form, flower cover and structure (Figure 1). This was designed to help respondents visualise these planting types in their local park. We felt it was inappropriate and potentially leading if we employed photo visualisations to demonstrate what a particular planting regime might look like in situ in a particular local park, therefore used more generic images.

Figure 1. A mixture of photos of formal bedding (FBP), meadows with wildflowers (MWP) and long grasses plantings (LGP) combined with different flower cover and colour mixes (for LGP, different species cover and mixes).

To measure acceptability of plantings, the questionnaire asked whether residents could envisage the particular urban planting in their local park and if that planting could contribute to better park management. With respect to feasibility, residents were asked the question "Would you get involved in this park management as a management practice?" with follow-up questions detailing how this might be manifested (e.g., joining the community group). We also collected socio-economic/ demographic data on gender, age, length of residence, household composition and postcode, frequency of park visit and if the respondent was a park user/non-user [60].

4.2.3. Surveys of Community Groups and Professionals

Semi-structured interviews were carried out with the six park community groups and eleven professionals with different affiliations, all currently involved in management of the six parks. They were two local authority officers (coded as ProLA-1 and -2), two University academics (ProAC-1 and -2), and a third sector social enterprise involved in urban land management (ProSE). A focus group interview was held with the six local authority park managers for the parks and their line manager as part of one of their regular team meetings (ProLA-Ms). The interview questions were structured to explore interviewees' perceptions of urban park plantings as a potential park management practice and probed how acceptable and feasible the urban park plantings might be within their local park. All interviewees were asked open questions about acceptability to elaborate on positive and negative perceptions based on personal experience and feasibility in practice underpinned encounters whilst working out in the park. All interviews lasted between fifty and sixty minutes. All participants agreed to take part in the interviews with their consent for interviews to be recorded and used anonymously for purposes of the research and publication.

4.3. Data Collection and Analysis

A large-scale household questionnaire and a set of semi-structured interviews were conducted in 2015. Drop-off/Pick-up methods were employed for the questionnaire because of expected higher response rates and survey costs [66,67]. The questionnaires were dropped off at residents' houses and picked up by the researcher twice i.e.,) a week and ten days later. A total of 2670 questionnaires were distributed to respondents living within 300 m walking distance of the entrance of each park, with 535 returned questionnaires (83 in PCP, 81 in MFP, 94 in HHP, 94 in RMP, 86 in MBP, and 97 in BHP, respectively), resulting

in a final sample of 506 valid questionnaires (average response rate of 19%). All analyses for questionnaire data were performed using Statistical Package for the Social Science
(SPSS 22), to undertake a range of statistical tests: one-way ANOVA, Independent samples *t*-test and correlations as well as effect sizes, "Eta squared (h^2) = SS_{effect}/SS_{total}" and "Cohen's (*d*) = *M1-M2/* σpooled" were employed.

For the transcribed interview data, thematic analysis was employed to explore the range of perceptions held by community groups and professionals to identify, analyse, and report the themes within data [68,69]. The data were therefore systematically examined for patterns to provide an illuminating description of the phenomena under scrutiny [70]. Emergent themes and cases were coded and grouped to categorise and identify how acceptable and feasible urban park plantings were perceived to be in the study sites. We followed thematic analysis as set out by NatCen [71] in their "Case and Theme Based Approach" (CTBA) to allow for looking across (case analysis) and looking down (thematic analysis), combining both to explore explanations and patterns in responses.

4.4. Analytical Frameworks: Place-Keeping

The thematic analysis performed in this study was conceptualised within the analytical framework of place-keeping, given the emergent themes [72] around for public space management [64]. Analytical frameworks commonly allow researchers to achieve creative thinking and novel outcomes as well as future applications [73] and can help understanding of the different approaches to the management of public spaces [74]. Arts and Leroy (2006), in their theory of "Policy Arrangement Approach" (PAA), claimed that a comprehensive examination of policy can help understand overall contexts of green space management [75]. Mattijssen et al.'s study (2018) supports this notion and further employs PAA to understand governance in urban green space management [76]. For effective management in an era of austerity, a holistic approach to management should combine or contextualise the positive contributions of varying management models and dimensions [63]. Evaluation tools for park and green space management have been developed at a national scale in support of policy contexts: for example, the Green Flag Award (GFA) assesses the quality of the UK's parks, supported by central policy [77,78]. However, its practical methods show that there are limitations when applied to green spaces management, as GFA assesses largely on the basis of maintenance standards [79]. In practice, public space management involves dimensions of maintenance, investment and regulation which will differ in degrees according to the nature of relationships with and between stakeholders [74]. Place-keeping provides an analytical framework which recognises six dimensions of long-term management, namely: (1) policy; (2) governance; (3) funding; (4) partnership; (5) maintenance; and (6) evaluation (Figure 2; Dempsey and Burton, 2012 [63]). It also allows for an analysis of the site (here, park), its characteristics, and the wider context or "place". Place-keeping conceptualises long-term management as a "process", permitting a discussion of "place", "process" in relation to a
"product" which here can be used to describe the specific park management practices under scrutiny.

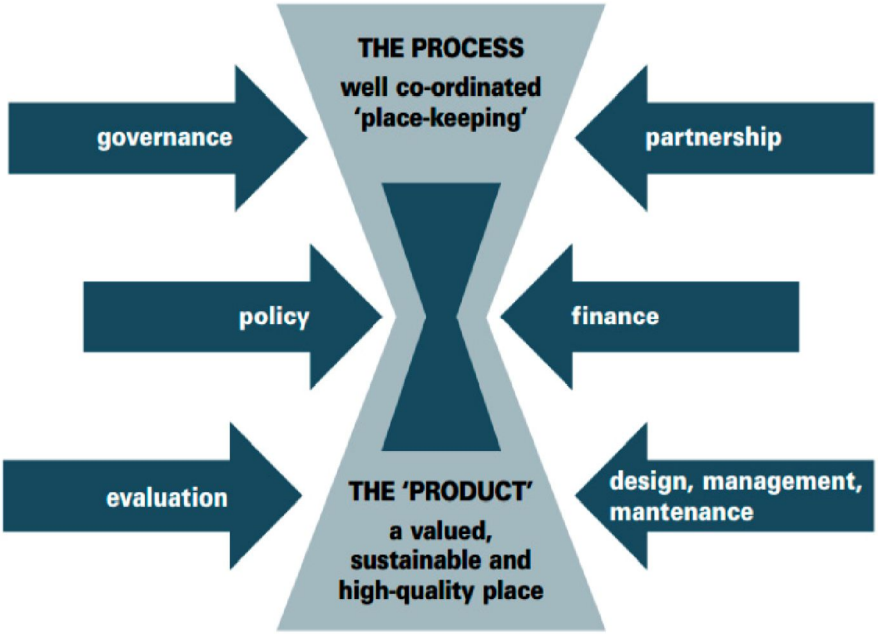

Figure 2. Place-keeping frameworks (Dempsey and Burton, 2012 [63]).

Based on the data from the interview and questionnaire questions, while this study acknowledges that place-keeping is not the only analytical framework that could have been applied, within the context of parks management, it was considered to be a suitable one to test given its recent application elsewhere (e.g., Mattijssen et al., 2018 [76]). Part of the discussion below relates to how the framework "stands up" when the plethora of data was analysed.

5. Results

5.1. Descriptive Results

Overall household questionnaire results are presented in Figures 3–5. These analyses were based on the questionnaire responses to "Could you see this urban park planting approach in your park?" (Question A: Figure 3), "Could this practice contribute to better park management?" (Question B: Figure 4) and "Would you get involved in this practice?" (Question C: Figure 5). Formal bedding planting (FBP) and meadows with wildflowers (MWP) were the more popular plantings: on average, 55.9% of respondents would like to see FBP in their park followed by MWP (53%). A third of the sample expressed how they would like to see long grasses plantings (LGP). HHP respondents were particularly positive about FBP (70.7%): while BHP respondents were less positive (35.2%). Overall, 67.1% of MFP and 64.8% of BHP were more amenable to seeing MWP in their parks, which was 40% for HHP respondents. Similarly, the sample in MFP (43.4%) and BHP (43.3%) could see LGP in their parks (Figure 3). On average, 50.5%, 42.5% and 20.4% of the overall sample agreed that the plantings (FBP, MWP and LGP, respectively) could contribute to better park management (Figure 4). However, much smaller percentages of respondents (9.8%, 11% and 4.4%) stated that they would get involved in FBP, MWP and LGP practices (Figure 5). The largest numbers were respondents in MFP for all the plantings (16.7% in FBP, 20.8% in MWP and 13.0 in LGP). Interesting results conducted by correlation analysis showed that there are strong positive correlations between the perceptions of the sample responding to Question A and Question B in FBP (r = 502, p = 000), MWP (r = 600, p = 000) and LGP (r = 641, p = 000), suggesting that those respondents who would like to see the specific planting in their park have a tendency to agree that planting could contribute to better park management.

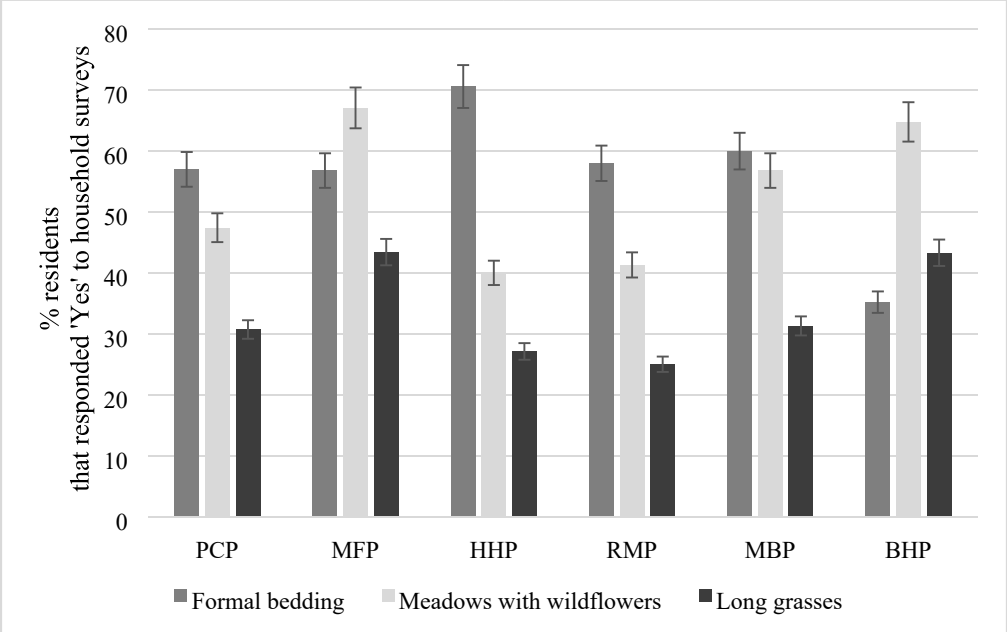

Figure 3. Responses to questionnaire Question A: "Could you see this urban park planting approach in your park? ".

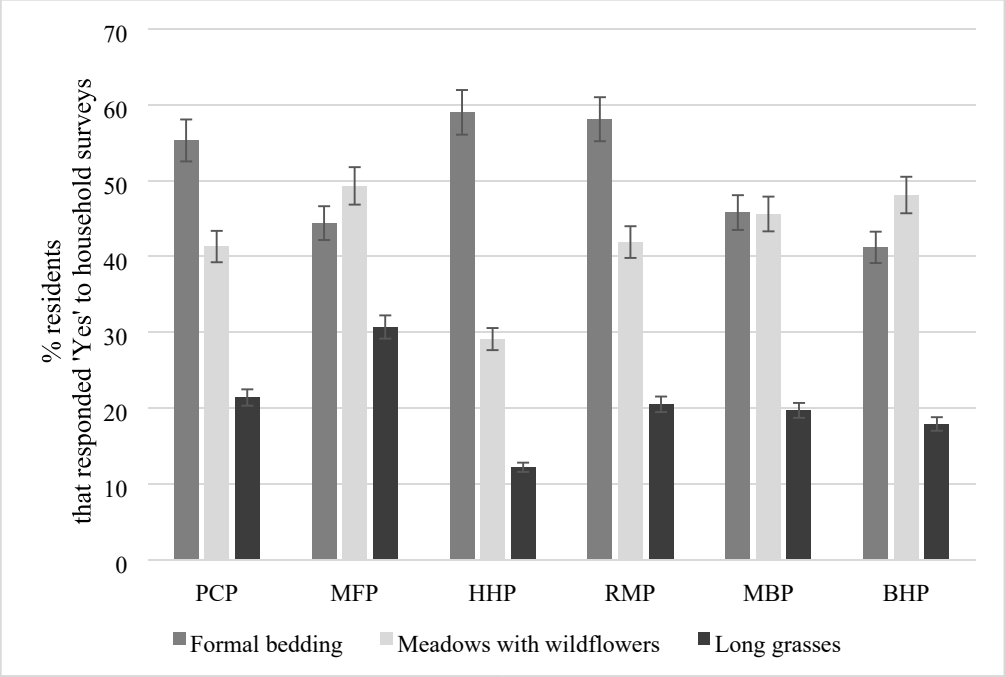

Figure 4. Responses to questionnaire Question B: "Could this practice contribute to better park management? ".

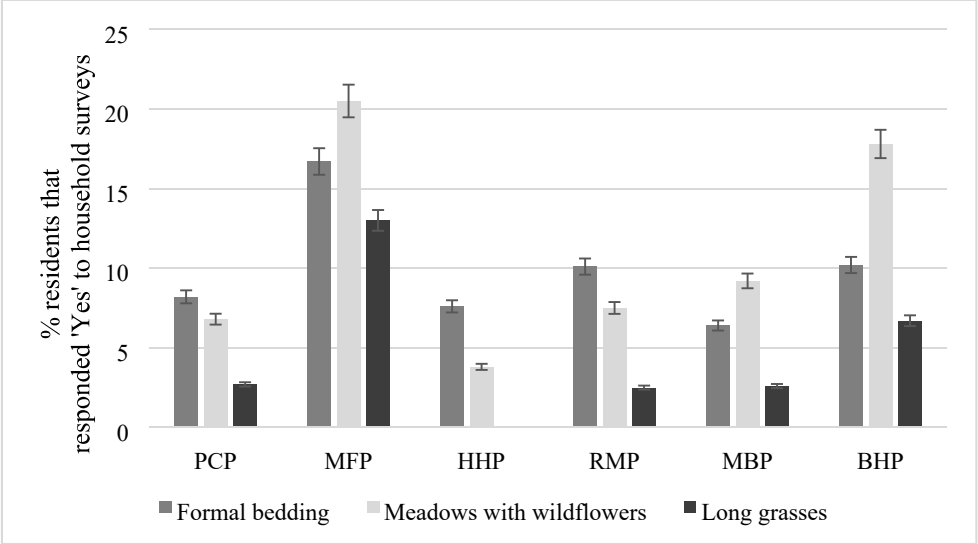

Figure 5. Responses to questionnaire Question C: "Would you get involved in this practice? ".

5.2. Acceptability and Feasibility of Urban Park Plantings

5.2.1. Residents' Perceptions of Acceptability and Feasibility

Several tests were conducted to examine whether residents' perceptions of acceptability and feasibility of urban park plantings have any association with their park use and socio-economic characteristics (Table 2).

Table 2. Residents' perceptions of acceptability and feasibility of urban park planting in relation to park use and socio-demographic characteristics (S, Small; M, Medium; and L, Large effect size).

Variable	Question A			Question B			Question C		
	df	***t***	**Sig(*p*)**	***df***	***t***	**Sig(*p*)**	***df***	***t***	**Sig(*p*)**
Users & non-users	488 FBP	3.717	0.000 M	450 MWP	−2.194	0.030 M	467 FBP	−5.414	0.001 M
	484 LGP	−3.111	0.002 M	-	-	-	471 MWP	−5.225	0.001 L
	-	-	-	-	-	-	474 LGP	−3.289	0.001 M
Gender	-	-	-	-	-	-	467 FBP	−2.538	0.012 M

	df	*F*	Sig(*p*)	*df*	*F*	Sig(*p*)	*df*	*F*	Sig(*p*)
Age	5, 485 MWP	2.342	0.041 S	-	-	-	5, 463 FBP 5,	7.057	0.001 M
	-	-	-	-	-	-	467 MWP	6.760	0.001 M
	-	-	-	-	-	-	5, 470 LGP	4.656	0.001 S
Frequency of park visit	4, 398 MWP	2.717	0.030 S	4, 370 MWP	2.635	0.034 S	4, 380 LGP	3.938	0.004 S
Length of residence	-	-	-	-	-	-	6, 462 FBP	3.092	0.006 S
	-	-	-	-	-	-	6, 466 MWP	2.417	0.026 S
	-	-	-	-	-	-	6, 469 LGP	2.568	0.019 S
Household composition	-	-	-	-	-	-	2, 461 FBP 2,	5.617	0.004 S
	-	-	-	-	-	-	464 MWP	4.842	0.008 S
	N	*r*	Sig(*p*)	*N*	*r*	Sig(*p*)	*N*	*r*	Sig(*p*)
Deprivation	490 FBP	−0.130	0.004 S	-	-	-	469 FBP	−0.116	0.012 S

An independent samples *t*-test shows a significant difference that **users** were more likely to accept the LGP and agree that MWP contributes to better park management than **non-users**. Non-users were more likely to prefer FBP. A difference was also found in terms of feasibility: users were more likely to be/get involved in these urban park planting practices than non-users. Subsequent Independent samples *t*-test indicate a propensity to become involved in the park management practices was significantly associated with **gender**: women were more likely to want to get involved in these practices than men.

A one-way ANOVA test shows that perceptions of urban park plantings change according to **age,** where respondents (over 65) are more likely to favour MWP compared to other age groups. However, when examining the extent of potential involvement in the three different types of urban park planting practices, older people were less likely to participate in urban park planting practices.

Subsequent one-way ANOVA testing shows that there was a significant difference in perceptions of urban park plantings according to **frequency of park visits**, in particular, MWP. Regular park visitors (at least 1–2 days a month) were more likely than less regular visitors to accept this practice in their parks and perceive it as potentially contributing to better park management. In addition, regular visitors (at least once a week) tended to report wanting to be involved in MWP maintenance.

Further one-way ANOVA analyses show variations in the propensity to get involved in urban park plantings according to **length of residence** with short-term residents (<3 years) most likely to get involved in the urban park plantings. Similar findings emerged in the analyses based on age groups. Correlation analyses show a strong, positive correlation between age of respondents and length of residence ($r = -0.672$, n = 506, $p < 0.001$) that there was a significant propensity for short-term residents of fewer than 10 years to report wanting to become involved in the potential park management practices. Long-term residents were less likely to have a tendency to get involved in park management practices. **Household composition** was also found to make a difference: householders with children were more likely to want to get involved in FBP and MWP practices than householders without.

There were significant associations between the level of deprivation of a respondent's neighbourhood and their preference for urban park plantings. Pearson's correlation was carried out to explore relationships between the variables measuring neighbourhood **IMD** and perceptions of urban park plantings. Respondents in more deprived areas had a stronger tendency to prefer FBP than did respondents living in less deprived areas. Similarly, respondents in more deprived areas had a stronger tendency to want to be involved in the practice of formal bedding plants than respondents living in less deprived areas.

5.2.2. Community Groups' Perceptions of Acceptability and Feasibility

Perceptions of acceptability: Analyses of **community groups**' perceptions of the acceptability of urban park plantings show the difference between plantings according to the **extent of maintenance** of planting types (Figure 6).

Most of the community groups had a tendency to perceive FBP to be a high maintenance planting, while the other plantings, MWP and LGP were perceived to be lower maintenance and also more acceptable in their parks than FBP.

For all the community groups, FBP was described as a high maintenance planting practice. One of the community groups stated, "*We don't want bedding plants because this is very high maintenance …*" (CoFoRM). The same community group stated that "*we want wild flowers. Low maintenance . . . things with low maintenance*" (CoFoRM), indicating that, for this community group, wildflowers plantings are perceived to be low maintenance. This was reiterated by the CoFoBH: "*Naturalistic planting is easier to maintain . . . Overgrown planting depends on areas. Naturalistic overgrown plants are fine like woodlands . . . . . Manicured management planting or flower bedding require more work needed [sic.]*" (CoFoBH). However, as such, potential maintenance problems were also identified: "*The problem is . . . dog mess, things like that. Many users are mindful of . . . [and don't like] long grasses and plants*" (CoFoRM). CoFoHH described MWP as high maintenance and dependent on frequent inputs: "*Naturalistic plantings like meadows sometimes need high maintenance. It is costly [in case of frequent works].*".

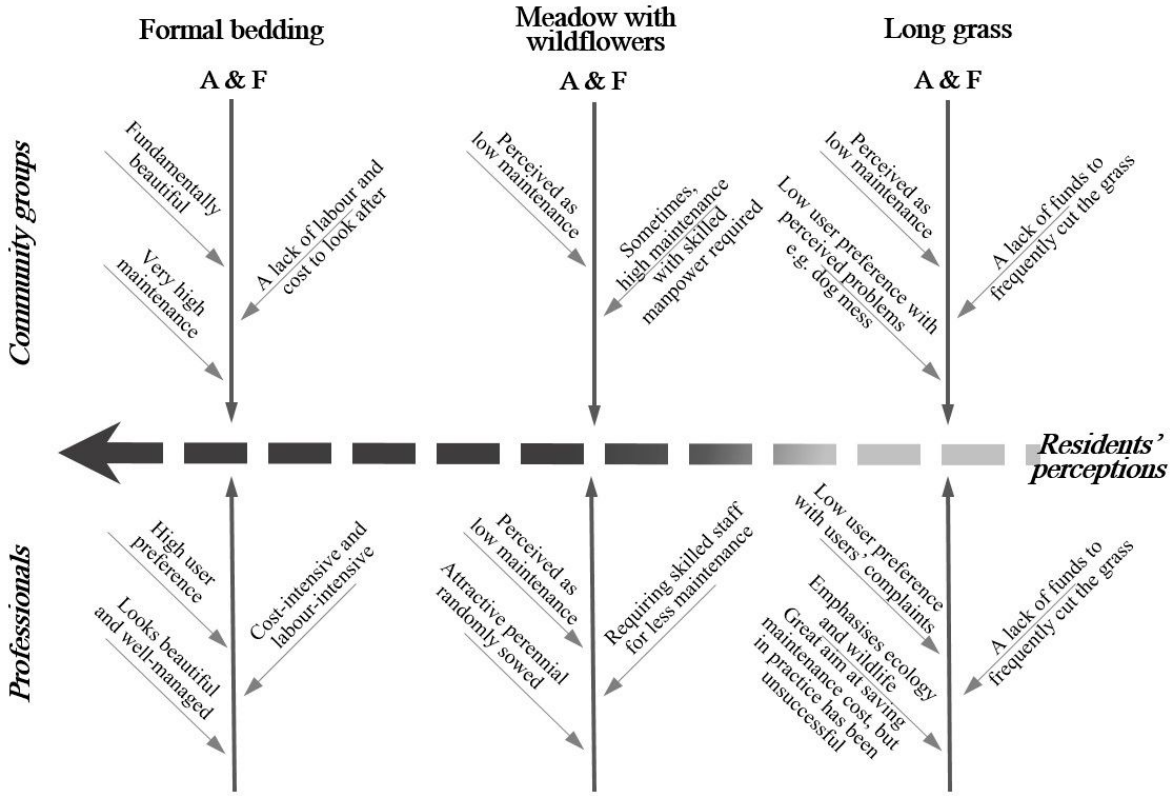

Figure 6. Framing perceptions of community groups and professionals of acceptability and feasibility.

Perceptions of feasibility: Analyses of the perceptions of **community groups**, in relation to the feasibility of urban park plantings, reveal that they largely relate to **funding** and **manpower** (Figure 6). These findings concur with existing findings that financial cuts reduce and worsen labour levels [17,80,81]. The perceptions of community groups are clearly influenced by the extent of the perceived levels of maintenance involved in the plantings.

Overall, FBP was less likely to be preferred by community groups than MWP and LGP. To help illustrate this point, CoFoMF stated, "*There's definitely been a change in terms of emphasis, in terms of park management, because of the financial situation that local councils have found themselves in. There's been a massive retreat, hasn't there, from the old official way of cutting the grass, putting signs up saying "Keep off the grass", and formal planting too.*" Even though community groups reported a preference for plantings which have seasonal changes and a variety of colours, FBP was described overall as low feasibility, considering the wider management contexts and the high maintenance requirements around cost and labour: "*lovely bedding planting . . . but, nobody's looking after it. It needs looking after. It needs somebody there to manage the park*" (CoPCDC) and "*We haven't got money to keep plants*" (CoFoRM).

It is proposed in the literature that reducing maintenance costs can be achieved through naturalistic plantings including meadow with wildflowers instead of bedding flowers [82]. However, others insist that meadows often require financial resources and labour [83] and this sentiment was shared by interviewees in this research. Some community groups stated that " . . . *regarding meadows, sometimes, [there is] more*

maintenance [than] people think. It depends on manpower [sic.]" (CoFoRM). This finding indicates that naturalistic plantings are not perceived to guarantee low costs as Kendle and Forbes (1997) [24] claimed.

5.2.3. Professionals' Perceptions of Acceptability of Feasibility

Similar to the community groups, when asked about their perceptions of urban park plantings, the **professionals** interviewed also considered financial restrictions corresponding to the literature which highlights how they can influence land management decisions [10].

Perceptions of acceptability: Analyses of the perceptions of **professionals** regarding the acceptability of urban park plantings reveal that obstacles to better managing parks were dominated by two factors: **users' perceptions** and **self-evaluation on the Urban Nature Park project** (explained below). One of the emergent themes shows that professionals' perceptions reflect users' positive and negative responses to urban park plantings. In relation to FBP, professionals' perceptions call on shared images and ideas: "*Attractive bedding plants are bright and well-managed.*" (ProLA-1) and "*The flowerbeds are planted. Everything looks beautiful.*" (ProLA-2). However, users' perceptions of FBP are different: "*However, it [users' perceptions of FBP] results in splitting people 50-50*" (ProLA-1). In contrast, one of the academics engaged in relevant research found that user preferences vary according to their backgrounds:

> *I think that people might like more formal planting in certain places, but I've got a lot of evidence to show that a lot of people like informal planting, and it depends a lot on their life experience and their education and their beliefs and values as well*. (ProAC-2)

Users' complaints towards local authority managing plantings have increased where some users are unhappy with lower levels of maintenance: "*They (people) used to say, "cut it, mow it, mow it down" but leaving it . . . "why leave it?" . . . So, they think they are going to get less service*" (ProLA-Ms). "*There's a perception in the park that's always having its grass mowed to about an inch, that if you let it grow longer, that means it's neglected. It doesn't look nice*" (ProLA-2). This links to users' complaints about poorly-maintained areas where litter is found in areas of long grass. However, local authority interviewees expressed that the responsibility for park management must be shared with the public:

> *We've had [it] in some parks where we've let the grass grow longer. We have had users of the park ringing us up and saying, "There's loads of dog poo in the long grass." They think we'll [go back] and clean it up. For a lot of the public, it's always somebody else's responsibility and now we are having to say [that] you have to do this. You have to take responsibility for your park and green space. You have to help us. You can't just leave it to the council anymore. The public have got a journey to go on to understand what their part could be*. (ProLA-2)

Within professionals' perceptions, reflecting the importance of people's perceptions are emphasised [84,85]. In addition, there is still dependency on local authority to take responsibility for maintaining public services [74].

Professionals reflected on an unsuccessful project which has resulted in lower levels of public acceptability of naturalistic plantings in particular LGP. In the current period of austerity, professionals from the local authority employed a cost-effective management scheme called the "Urban Nature Park (UNP) programme". UNP aimed to achieve wildlife and biodiversity benefits based on minimal grass mowing: "*We can manage naturalistic sites [via an] UNP programme where we are attempting to bring great biodiversity to sites, promoting wildlife within interventions of types of species and high fertility soil*" (ProLA-1). Also, "*Naturalistic planting had started the UNP project which is managing areas of grass. So we are planting trees in grass[ed] areas. We are leaving grass[ed] areas to grow, so we are not mowing it all the time*" (ProLA-Ms).

One professional cited the positive benefits of UNP: " . . . the more naturalistic woodlands and having the grass to grow long . . . is going to bring higher biodiversity benefits. If it's done well, designed well, it can look fantastic" (ProAC-1). This potentially meets the aims of ecological efficiency and species diversity as well as minimising costs through less frequent grass cutting [86]. However, there were considerable negative outcomes of the UNP programme. Some professionals stated that UNP had not reduced the desired management costs despite staff cuts because of failures in management planning: "We've lost about ten staff through the UNP . . . . It didn't work as it didn't really happen and we learnt from that. We know realistically, the UNP doesn't necessarily save a lot of staff time, [because] it should have done because of the savings." (ProLA-Ms). This was reiterated by an academic: "I don't think it necessarily reduces management costs as much as perhaps [the] council would like it" (ProAC-1).

Perceptions of feasibility: Analysis of the perceptions shows similarities between those held by professionals and community groups both underlining the extent of cost and labour involved in maintenance practices (Figure 6). However, **professionals**' statements regarding the feasibility of urban park plantings reflect existing research findings (e.g., Hoyle et al., 2017 [57]) with professionals' perceptions that are varied and **dependent on governance and management structures** between local authorities and 3rd sector.

Overall, interviewees excluding ProSE were less likely to prefer plantings requiring high maintenance such as formal bedding plantings. Even though the professionals concurred with the perceived value of bedding plants, including attractive colours and the public's positive perceptions, there are two crucial factors that negatively affect the feasibility of FBP. Firstly, FBP requires intensive labour and cost: "*It was managed very intensively with formal bedding plants, like a Victorian-style [park] . . . the formal bedding planting needs [higher] maintenance than the naturalistic planting*" (ProAC-2). Secondly, the level of management provided was described as directly influenced by the amount of available funding:

> *When money is good and there's lots of money around, parks tend to be quite often very formal, don't they? The grass is mown. The flowerbeds are planted. Everything looks beautiful. That's very labour intensive and it costs a lot of money*. (ProLA-2)

The extent of people's involvement within current park management issue is an important factor which affect the feasibility of a planting practice. The involvement of local people in planting may help planting practices become more feasible in their parks (after van Dam et al., 2015 [87]). "*Perhaps people get people involved in the planting themselves. There's lots of things [park management practices] you can do, I think, to make it more acceptable [and feasible]*" (ProLA-Ms). It is clear that, as Beierle (2002) stated, user participation can contribute to cost-effectiveness, in part through involvement in decision-making (which could, potentially, lead to fewer complaints around UNP that the local authority highlighted) [88]. In addition, for different urban park plantings to be more feasible in parks, the importance of financial resources is again underlined: "*The problem is that consultation and careful design takes time, and it takes money, and it takes resources. The council doesn't have that. Unless they've got some money as part of the capital to do all that up front, that costs money*" (ProLA-Ms). It is worth noting that perceptions of feasibility are positive in the 3rd sector-managed park MFP, attributed to the time and skill management which is based on the flexible park management contract employed with the council.

The regeneration of this park in Sheffield is an example where having sufficient funding in place can provide unique management structures to make naturalistic types of planting more feasible, thereby saving money according to ProSE: " . . . *it is much easier to manage naturalistic landscapes, much easier, but you have to know how to do it. It is all about [doing the] right thing at the right time. If you do that, it is much cheaper and much easier*". This supports literature which highlights how management and maintenance skills are crucial for effective park management [25,83]. In this research, flexible contract systems with the council can help address the problems of deskilling staff that contracting out parks management can bring [19]:

> *The council [in] particular finds it very difficult, because they have a contract management system, which is very rigid and very deskilled and that is where they really struggle. We have something [that is the] very opposite, we have [a] very flexible contract system and very skilled contract staff system and it becomes much cheaper*. (ProSE)

This interviewee suggests that a different approach to management can sustain parks at a lower cost: "*It is skilled, it is a different knowledge set, it is something we actually have and lots of park managers don't have*" (ProSE).

6. Addressing a Lack of Resources for Urban Park Planting Management

With a shift towards low-maintenance practices in green space management [89], the types of plantings adopted in the parks affected by policy changes and ongoing negative impacts on budget cuts have shifted practice away from formal bedding to more naturalistic plantings, demonstrating that the changes in plantings can be influenced by cost, labour and the extent of maintenance/ongoing management [30]. Thematic analyses showed that there is the recurrent theme of a lack of resources, specifically labour and funding, in relation to the extent of maintenance. We examined this theme through the place-keeping analytical framework, to conceptualise planting management in Sheffield's district parks (Figure 7).

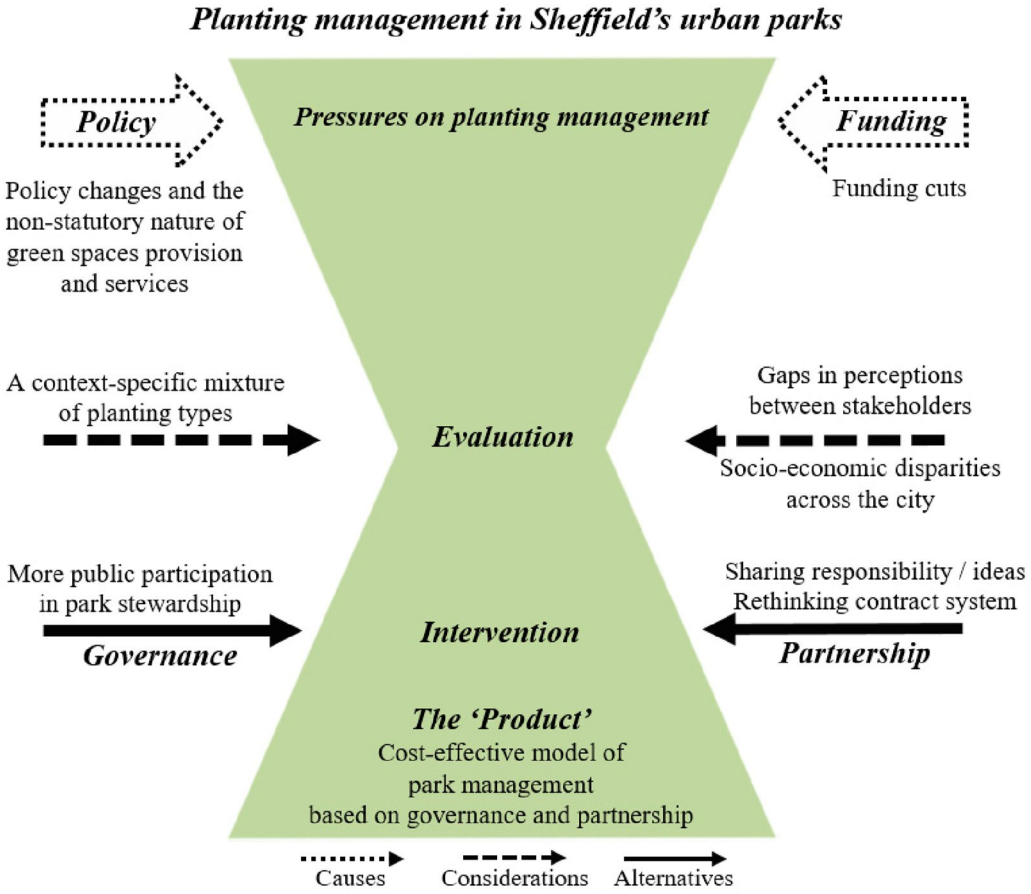

Figure 7. Conceptualising planting management in Sheffield within and beyond the place-keeping framework.

Figure 7 shows how perceptions held by community groups and professionals were strongly affected by current phenomena around negative impacts of policy changes and funding cuts, namely the non-statutory nature of green space provision: "*We should make our green spaces a statutory provision. If we became a statutory provision by the government, central government, then we would be more protected but we're not. Our green spaces can be taken away because as money goes down in councils, there is less money for the non-statutory departments.*" (ProLA-2). Our study reflects on this in relation to the different perceptions of urban park plantings held by stakeholders. Residents' perceptions differ according to socio-economic/socio-demographic characteristics in relation to the acceptability and feasibility of plantings in urban parks, indicating that the local context is important in understanding the propensity of people to get involved in landscape management. What might "work well" in a park in one part of the city will not necessarily "work well" everywhere else. Further, the interviews illustrated differences in perceptions of plantings between local authority and non-local authority respondents particularly the 3rd sector social enterprise. However, this study revealed that changing governance arrangements through the involvement of more stakeholders, partnership, sharing responsibility and ideas may have the potential to lead to interventions which address gaps in perceptions and the ongoing funding crisis in park management. Recent funding programmes such as the Future Park Accelerator Fund demonstrate the variety of potential interventions [90]. It can be argued from these findings that the focus for planting practices should be on assessing these perceptions along with the feasibility of people's involvement in covering intensive maintenance work in parks. Importantly, the structure of park management in particular contract systems may be rethought, given the relatively high proportions of respondents who expressed an interest in getting involved in parks management across the parks examined here. This might involve rethinking what stewardship means for the 21st century park, and potentially challenging the status quo of who currently manages parks (after Mathers et al., 2015 [53]). This could be a reconfiguration of the responsibilities of, and relationships between, stakeholders from different sectors. Newly emerging models of stewardship call for non-governmental park management structures which explore the transfer of governance arrangements to different sectors taking more responsibility where the local authority is involved as a "silent" land "facilitator" partner (after Smith et al., 2014 [91]).

Strong stewardship parks run by non-governmental sector (a 3rd sector social enterprise here) lead to positive perceptions of urban park plantings and result in stronger governance processes in parks where

residents are more willing to get involved and potentially share responsibility. In this case, involvement in park management itself can be valuable and build up potential capacity in terms of resources, i.e., funding and manpower. This can induce the general public to better understand why park plantings have been changing to more naturalistic including long grass and what such resources are required to properly manage such plantings in parks. Such understandings based on strong stewardship-based structure may lead to cost-effective park management which can respond flexibly to policy and funding changes which jeopardise resources, e.g., a loss of labour and skills for a local authority partner, thereby enhancing a group's and a park's resilience. For these reasons, strong stewardship approaches to park management based on an understanding of inter-dimensions, namely policy, funding, governance, partnership, evaluation and maintenance, can be the case which guides sustained management in parks.

7. Concluding Remarks about Urban Park Plantings in Sheffield

The policy changes in the context of park management have led to local authorities conducting limited management tasks in parks in the current era of austerity [60]. This means that the provision of abundant features in parks including extensive bedding plant display is a superseded practice. In the 21st century, this study shows that budget cuts are negatively affecting park management with a focus on finding low-maintenance plantings, marking a shift from formal bedding to more naturalistic plantings. This may mean less formal bedding plantings in our parks than other planting types while funding is limited. Interestingly, our results highlight that the acceptability of urban park plantings varied where stakeholders' perceptions differ, according to local contexts and socio-economic and demographic characteristics of residents and management decision-makers both government and non-government. However, this study importantly points to the level of feasibility which depends on financial and human resources to manage urban park plantings. The place-keeping analytical framework this study adopted showed potential for urban park planting management to focus on encouraging people to get involved in park stewardship managed by non-government sectors, where the local authority retains land ownership but steps back from park management. Therefore, the frameworks claim that stewardship based on flexibility in contracts and governance arrangements may lead to cost-effective and potentially self-sustaining park management which benefits from residents and other stakeholders engaging in park management because they find different urban park plantings to be more acceptable and feasible.

We acknowledge that there are limitations of the study, around the extension of research scope in park management, meaning that we were able to explore parks in one city only (Sheffield) and one non-state park management (social enterprise model). This paper reports on part of a broader doctoral study which tests a wider range of potential park management practices [92]. For this reason, we could not investigate different cities across the UK and newly emerging park management structures such as asset transfer, park endowments, trusts and others. Therefore, we recommend that future research extend the range of geographical characteristics across the UK and beyond to explore different forms of park management structures through an understanding of potential approaches based on the dimensions based on place-keeping analytical frameworks.

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