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Resident Support for a Landfill-to-Park Transformation

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EXECUTIVE SUMMARY: Globally, landfills are being transformed into other uses because land resources are scarce, property values are increasing, and governments seek to reduce urban blight and adaptively reuse space. Park planners and city managers are likely to find that gauging public perceptions of a landfill-to-park transformation and promoting such sites to potential visitors as highly challenging tasks, but important components of sustainability efforts. A landfill-to-park project currently underway is the transformation of the former Fresh Kills landfill in Staten Island, New York into Freshkills Park. Understanding supporters of and visitors to the park can inform the implementation of the transformation. The present research draws from consumer behavior, urban geography, and park studies to examine how residents' place attachment, familiarity with, attitude toward, intent to visit, and support for the site varies by proximity to and experience history with the site. A mail survey to a random sample of Staten Island households was implemented to study early adoption of a former landfill as a recreation site. The survey results showed those living close to the site were more familiar with the new park and had stronger intent to visit once opened, compared to those living further away; a finding consistent with past research. As hypothesized, residents with the least history with the site were found to be less familiar with the site and hold less place identification with Staten Island. Longtime residents, going as far back as the pre-landfill era, were most familiar with the area's parks and the Fresh Kills site and held the highest place identity with Staten Island. Support for the landfill-to-park transformation was generally positive across all respondent subgroups. Overall, this research shows that proximity and experience history were relevant in understanding area residents' familiarity with, attitudes toward, support for, and intent to visit the park site. This research is helping New York City planners and recreation managers reach local residents and connect them to the site. Urban park professionals can draw from this research by examining distance from park and length of residency to understand how low levels of support or intent to visit may be related to concerns about recreating at former landfill sites.

KEYWORDS: *Urban park development, sustainability, adaptive reuse, Freshkills, New York City*

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Urban decision makers who desire more parkland for social, environmental, or economic reasons may find themselves considering adaptive reuse of developed but abandoned or formerly contaminated land, including former military bases, brownfields, and landfills (Atkinson, Doick, Burningham, & France, 2014; De Sousa 2003, 2004, 2006; Harnik, 2010; Johnson, Glover & Stewart, 2009; Roberts, 2010, Siikamaki & Wernstedt, 2008). These former land uses could provide much needed land acreage in close proximity to urban residents and tourists (Harnik, 2010; Harnik, Taylor, & Welle, 2006) and play a role in establishing the identity of a sustainable city (Chiesura, 2004). Recently, several military bases were converted into large urban parks: the Presidio at the foot of San Francisco's Golden Gate Bridge in California and the Midewin National Tallgrass Prairie in Joliet, Illinois, south of Chicago. Landfill transformations have also been the focus of urban redevelopment projects over time, including Millennium Park in Boston, Massachusetts; Flushing Meadows-Corona Park in New York City, New York; and the World Cup Park in Seoul Korea.

This study was conducted to examine the impacts of proximity and experience history on local residents' place identity, familiarity with, attitude toward, intent to visit, and support for a landfill-to-park transformation. To examine residents as both promoters and beneficiaries of a new sustainable park, a consumer behavior approach drawing from the psychology and new product development/marketing literature was employed (Ajzen, 1985; Assael, 2004; Day, 1992; Rogers, 2005). The new product is a park under redevelopment, so people were asked about their familiarity with and support of the redevelopment plan and their intent to visit once the park opened. The overall study purpose was to assist park planners and managers to identify early adopters, and in doing so, develop a better understanding of likely park supporters and future users.

Freshkills Park as a Case Study

Urban growth is dependent on a city's attractiveness for new residents, tourists, and business development. Hence, communities will need to better locate new landfills (Merkhofer, Conway, & Anderson, 1997), as well as remediate former landfill (Efroymson, Nicolette, & Suter, 2004) and military sites (Davenport et al., 2007). The use of a sustainability approach for these types of transformation projects moves the economic base of an area from industrial and manufacturing to amenity and experiences. Cranz and Boland (2004) proposed urban planners should envision large-scale ecological

redevelopment projects using an open-space system view of urban parks that emphasizes connecting disparate recreation facilities and open space corridors. Cranz and Boland (2004) called these projects *sustainable parks* and Freshkills Park is one example mentioned.

The largest landfill-to-park transformation ever undertaken in the United States is currently underway at Freshkills Park, located on Staten Island in New York City. Landfill-to-park sites can demonstrate sustainable development with the conversion from post-product-consumption disposal and waste into a new use that provides social, economic, and environmental benefits (Cranz & Boland, 2004; Sugarman, 2009). These positive benefits come from the creation of improved large-scale urban green spaces for recreation, tourism, real estate, ecological services, and biodiversity.

New York City politicians, residents, and environmental groups were intent on the closure of the Fresh Kills landfill, followed by a large-scale restoration project, resulting in a *signature park*. Freshkills Park is a centerpiece project for the city and will add to its reputation as a sustainable city (New York City Parks Department, 2014). Once the park development is complete (projected for 2036), Freshkills Park will be two and a half times the size of NYC's Central Park and offers a wide array of recreational, cultural, and ecological amenities and programming for both residents and tourists. The City of New York (2007, 2011) anticipates housing attractiveness, inventory, and values to increase as the landfill takes on park-like qualities.

Theoretical Orientation and Literature

From a marketing point of view, parks are a product to develop and promote (Ashworth & Voogd, 1994; Gold & Ward, 1994). Land managers, marketers, and park planners are likely to find gauging public perceptions of a landfill-to-park transformation as a difficult undertaking; and a landfill-to-park site as one of the more challenging sites to market and promote to potential customers or visitors (cf., De Sousa, 2003; 2004). Only a few studies (De Sousa, 2006; Johnson, Glover, & Stewart, 2009; Klenosky, 2004; Mowen & Confer, 2003) have been published in the tourism, marketing, recreation, park, or planning literature that examine familiarity with plans and places, perceptions, attitudes, and visitation behavior at parks and open space on restored brownfield and other post-industrial sites. A large-scale landfill-to-park, located in a major urban city, would be better examined using theories applied to urban places, parks, and tourism settings for understanding recreation and tourism demand. The theoretical approach employed in this research draws from new product adoption processes such as *AIDA* (attention, interest, desire, action) (Ajzen,1985; Assael, 2004; Day, 1992) as indicators of psychological and behavioral dispositions to a place where people could recreate.

A multidisciplinary social science approach from urban planning, marketing, and park studies can frame an array of needs and concerns of residents and park users and then translate them into marketing approaches for early stages of a park product. Cranz and Boland (2004) viewed a broader community of individuals serving as important promoters and stewards of a sustainable park project. As a complementary research approach, Mitchell, Wooliscroft, and Higham (2010) see sustainable marketing approaches as being central to modern-day product development and promotion. Target audiences for marketing, particularly for parks, would include residents who live near the site as early adopters of the new recreation facilities and experiences (Bauer, Gomez, & Tynon, 2013; Dwyer & Klenosky, 2004; Mowen & Confer, 2003). In addition to those proximate to the site, Cranz and Boland (2004) suggested community members who have a history with or interest in the site can benefit socially, environmentally and economically from the transformed site. The following presentation of relevant literature starts with two exogenous factors, proximity and experience history, and then a review of the new product adoption process and endogenous factors are presented.

Proximity

Proximity of housing to urban parks has been shown to have an association with visitation. In a study of intentions to revisit a small urban brownfield-to-park site in Ohio, Mowen and Confer (2003) found that the further visitors lived from the park, the less likely they were to visit the site again. Dwyer and Klenosky (2004) reported that increasing distance from an individual's residence to recreation sites in the Chicago area was associated with lower levels of visitation and participation. Cohen et al. (2007) found that park use at neighborhood parks in Los Angeles was strongly associated with residential proximity to the parks. Besides proximity, a similar measure is travel distance. Fesenmaier, Goodchild, and Lieber (1981) reported travel time was the best predictor in a model of park visitation in an urban setting.

Past research on proximity and park use is consistent in showing that those who live nearby are likely to visit because of easy access to the park from their home by road or sidewalk. For instance, in a recent study using both objective and subjective measures of distance, Walker and Crompton (2012) found that people living within 0.25, 0.5, and 0.75 miles of a park were significantly more likely to use that park than those living farther away. Walker and Crompton also reported respondents who perceived they had the ability to access a park on foot or by bicycle were 9% more likely to report using that park than people without nonmotorized transportation choices.

Experience History

The impact of past experience on future behavior has been a key focus of travel and tourism research (Court & Lupton, 1997; Petrick, Morais, & Norman, 2001; Sönmez & Graefe, 1998; Um, Chon, & Ro, 2006; Um & Crompton, 1990). For instance, Mazursky (1989) reported that personal experience exerted more influence on future travel behavior than information acquired from external sources. In recreation and park research, the impact of experience has been typically explored through the construct of experience use history (Hammitt, Backlund, & Bixler, 2004), which has generally referred to the number of past recreational visits or use of a site or set of similar sites. Empirical research in this area has been driven by the idea that experienced recreationists have greater knowledge and therefore a richer cognitive basis for evaluating resource settings and making future usage decisions (Manning, 1999; Schreyer, Lime, & Williams, 1984). In landscape and environmental planning, Ryan (2005) selected the term *environmental experience* to account for recreation being only one type of experience that a person may have with a natural area. The other experiences aside from active recreation use explored by Ryan includes driving by an area during one's commute, passively viewing an area from afar, serving as a volunteer at an area, or serving in a staff or administrative role.

Given that the site involved in the present research was originally a natural area that was subsequently repurposed as a landfill (that did not allow visitation or recreation use), and that is currently in the process of being transformed into a park, this study refers to a construct as experience history. The conceptualization of experience history distinguishes a continuum of experiences that a person might have with a landfill site that varies temporally, ranging from people who moved to the area most recently and after the master plan for the new park was developed, people who moved to the area between the closing of the landfill and the development of the master plan, people who lived in the area when the landfill was still active, and people who lived in the area before the landfill was opened.

For those with the longer experience levels, Mowen and Confer (2003) suggested that people might have two possible reactions. On the one hand, those who have witnessed the site's history may welcome the changes being made to transform what was once an inaccessible, environmental eyesore into a landscaped public space with usable recreation facilities and programming. Residents sharing this perspective would be expected to have relatively positive attitudes and strong visitation intentions. The alternative reaction is that those familiar with the site's history might have knowledge of, or at least be suspicious about, potentially hazardous materials and substances buried at the site over the years, leading to concerns about the potential health risks associated with visiting the site. As a

result, residents holding these beliefs would have less positive attitudes and weak visitation intentions.

Stages of the New Place-Product Adoption

Predicting consumer response to a new place-product requires researchers to identify possible market segments often based on geography, demographics, knowledge, or familiarity with the new product, and interest or attachment to the product in question (Lai, Sorice, Nepal, & Cheng, 2009). In addition, marketing research is used to identify when these new customers might surface and how often they may repurchase or revisit. In Day's (1992) sequential model of decision making (i.e., Attention-Interest-Desire-Action or *AIDA*), consumers must first become aware of or familiar with a place-product–showcasing the initial role of experience history or new information in decision making (Vogt & Andereck, 2003; Vogt & Stewart, 1998). The next phases involve developing an interest to learn more about the place-product, then developing a desire to consider purchasing (visiting), and finally the action of a behavior (or visiting in the case of a park). Similar to the Theory of Planned Behavior (Ajzen, 1985), the elements of the *AIDA* model provide a framework for understanding the phases or pathways of the cognitive processes that stimulate behavioral reactions. At the core of both the *AIDA* model and Theory of Planned Behavior are the phases in which an individual considers: what they know or are familiar with, their commitment, identity, or emotions toward a place, their cognitive reaction to that knowledge or attitudes, and then their disposition to act or develop visitation intentions. A complementary approach to considering new customers and the stages of new product consumption is Rogers' (2005) notion of product diffusion. Rogers framed product introductions by characteristics of early adopters. People who desire new innovations, are less dependent on social norms or advertising campaigns, or are risk takers, tend to be early adopters of products.

Familiarity

For residents or tourists to consider a park visit, they first must be familiar with the place. Spotts and Stynes (1985) advanced a conceptual model of familiarity based on the amount of information an individual has about a particular recreation site or system of related sites. Empirical results reported by Spotts and Stynes (1984; 1985) showed familiarity or awareness of a particular park site tends to decline with increasing distance to an individual's home, those that have lived in a community longest tend to be more aware of a park site's existence compared to those who are newer to the community, and those that have lived at multiple addresses in a community tend to be aware of more parks compared to those who have not. In the context of the present investigation, a similar pattern of results is expected. People who live closest to the park site or who have lived in the area longest, including while the landfill was still in operation, should have the highest levels of familiarity with the park site and the landfill-to-park plans.

Place Attachment

The concept of place attachment has been advanced in park science to characterize the emotional and symbolic bonds or attachments that people form with places, landscapes, and recreation settings (Kyle, Bricker, Graefe, & Wickham, 2004; Smaldone, Harris, Sanyal, & Lind, 2005; Williams & Vaske, 2003). Place attachment is conceptualized as two distinct but related components: place dependence (the functional importance of a place in supporting specific recreation activity goals), and place identity (the emotional or symbolic importance of a place in a person's life) (Williams & Vaske, 2003). Research on place attachment has explored a wide range of influences on resource usage and site visitation (Kyle et al., 2004; Moore & Graefe, 1994; Williams & Vaske, 2003).

Prior research has shown individuals living nearest to a site will have more opportunity to experience it and as a result may be more likely to develop emotional attachments to it (Hailu, Boxall, & McFarlane, 2005; Moore & Graefe, 1994), including places with personal special meaning (Smaldone et al., 2005). Other research has found people most

familiar with a park site tend to have the highest levels of place attachment with that site (Williams & Vaske, 2003). Since this study considers a currently undesirable place such as a landfill undergoing transformation, place attachment may be strongest for people living some distance from the park site and lowest for those living closest. People who have lived in the New York City borough of Staten Island prior to the opening of the landfill may hold the strongest levels of place attachment compared to those that have moved into the area since the landfill was established.

Problem Statement and Hypotheses

This present study sought to relate select geographic and temporal measures to potential visitors' decision-making factors for a landfill-to-park project. Similar to past research on recreation behavior (Bright, 2003; Young & Kent, 1985), this study examined how indicators of these psychological and behavior phases vary for people who lived nearby or were part of the history of the landfill and its transformation. Geography was considered as distance from home to site, and time was explored via an experience history construct based on how long a person lived in the area (Staten Island, a borough of New York City) in relation to stages in the site's development.

The hypotheses to test *proximity, included*:

> Residents who live close to the site would hold lower place identity with Staten Island (because they lived with a nearby landfill) (H1), be equally familiar with the area's parks (H2), be more familiar with the landfill-to-park transformation plan (H3), hold a more positive attitude toward the site as a park (H4), be more likely to visit (H5), and be more supportive of the landfill-to-park transformation (H6), compared to residents who live further away.

The hypotheses to test *experience history*, included:

> Recent residents would hold lower place identity with Staten Island (H1), be less familiar with the area's parks (H2) and the transformation plan (H3), hold equally positive attitudes toward the site as a park (H4), be equally likely to visit (H5), and be equally supportive of the landfill-to-park transformation (H6), compared to the longest time residents.

Method

Overall Design

The research method used to study potential visitors to Freshkills Park involved a mail survey sent to a randomly selected sample of Staten Island households as a means of describing and modeling population estimates for resident support. The survey was developed with input from staff and researchers at the New York City Department of Parks and Recreation, United States Department of Agriculture–Forest Service, and feedback from collaborators at the College of Staten Island. The survey was also informed by findings from focus groups held with selected potential local visitor groups with different experience histories with the site. These exploratory focus groups were conducted to understand perceptions of the site and the ensuing transformation project. The qualitative focus groups and the quantitative, large-scale survey were meant as companion studies that form a larger overall research project on the relationship of Staten Islanders to Fresh Kills. A formal pilot test was not conducted due to budget constraints. However, study team members and project consultants, including several Staten Island residents, reviewed the survey. Feedback was provided on item wording and readability, resulting in minor grammatical changes.

The survey was designed as a 12-page booklet based on consumer behavior decision-making models and adapted for place-product examination. Adaptation included using general context questions asked about Staten Island (SI) (place identity to SI; familiarity and satisfaction with SI parks) and specific context questions related to the site under study

(familiarity with, attitude toward, and intention to visit the future park). The specific context questions were asked prior to and following a two-page informational insert within the questionnaire that described the history of the site and plans for its redevelopment (Figure 1). The insert included graphics and text to provide information about the site plan and its implementation. Both the site plan graphics and text are representative of information that New York City Department of Parks and Recreation and its consultants have produced for residents and stakeholders.

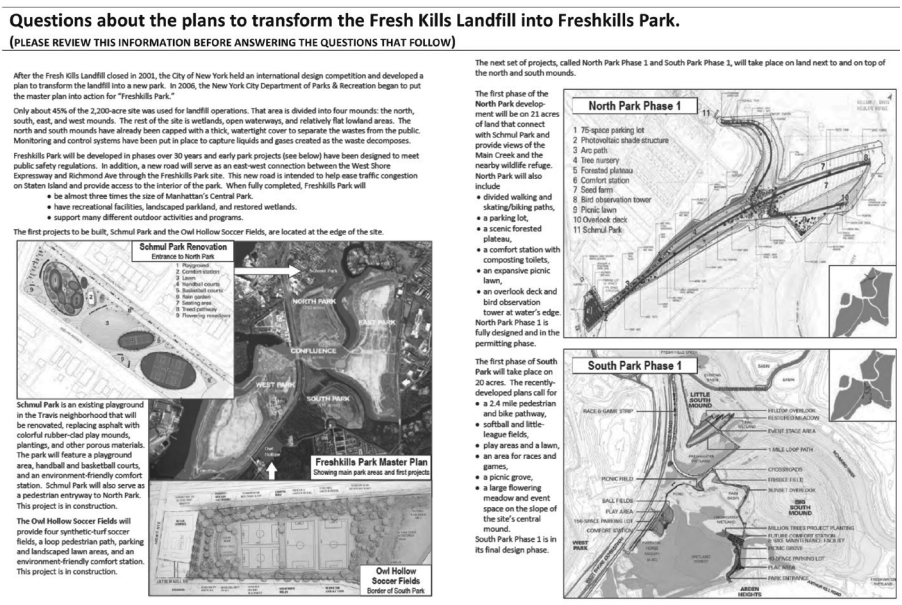

Figure 1. Information Intervention Used in the Survey

Study Site

The study site was located on Staten Island, New York. The island is 58 square miles and has 8,030 persons per square mile. Staten Island is part of the New York-Northern New Jersey-Long Island, NY-NJ-PA Metro area. The island has over 170 parks, more than 12,300 acres of protected parkland, and a variety of recreation facilities (marina, beaches, trails), tourism services, historic sites and outdoor restaurants that attract land and water visitors. Residents and tourists can access the island by ferry, highways and bridges, or a small airport.

At the time the survey was conducted, 177,485 housing units and 163,675 households resided on Staten Island (United States Census Bureau, 2012), 69% were homeowners, and 94% had lived in their homes for over one year. For the population of 440,803, the race composition was 64% white only, 12% African American, 15% Hispanic, 8% Asian alone, and 1% other. Compared to other New York City boroughs, the population of Staten Island tends to have a greater proportion of whites, a lower proportion of African Americans, and similar proportions of Hispanics and Asians.

Measurement

This study featured two independent variables: proximity of a household to the site, and experience history based on the length of time living in Staten Island corresponding to specific stages in the site's land use history. The dependent variables were based on

measures used in prior consumer and park visitation research, including place attachment, familiarity, satisfaction, attitude toward, and support. These variables were framed in the broad geography of Staten Island and the specific site of Freshkills Park. Demographic questions were asked to compare the sample to the population for representation and to understand the socioeconomic characteristics of respondents.

Proximity was defined in terms of the three geographic bands used to select the study sample. The bands were based on distance from the approximate geographic center of the Freshkills site to the mailing address of each household. A straight-line distance was used, rather than driving distance, because the landfill could be seen and smelled from a distance and the roads used to access the landfill were likely to change as the site was developed. The three bands were also validated by the New York City Parks Department. Band one, labeled nearby, were residents who lived less than two miles from the site; band two, or medium, were residents two to four miles from the site; and band three, or far, were residents living more than four miles from the site.

Experience history with the site was measured by asking respondents how many years they lived on Staten Island. The responses ranged from 1 to 88 years; and were coded based on the site's history (Figure 2). Residents who were new to the island were labeled recent and they would have made the decision to locate in the area within one to five years of when the master plan for the landfill site was being developed, residents who moved onto the island six to ten years earlier between the closing of the landfill and the development of the master plan were labeled post-close, residents who lived in the area between 11 and 62 years when the landfill was active were labeled as active landfill, and residents who lived in the area for more than 63 years, before the landfill was opened, were labeled pre-landfill.

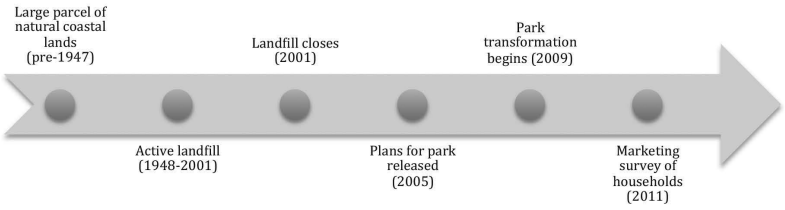

Figure 2. Timeline of the Site's Transformation

The dependent variables were selected from the literature as indicators of psychological and behavioral disposition to a product or place. All variables used a five-point scale with labels and numbers suggesting equal distance or interval scaling. Place attachment and sense of place have been positively related to site visitation (Hailu et al., 2005; Johnson et al., 2009; Klenosky, LeBlanc, Vogt, & Schroeder, 2008; Williams, Patterson, Roggenbuck, & Watson, 1992). Three items from the place identity subscale of Williams and Vaske's (2003) place attachment measure were included to assess attachment to Staten Island, using a five-point partially labeled scale ranging from strongly agree (+2), neutral (0), and strongly disagree (-2). Place dependence was not included in the study because the focus was on residents' attachment to the borough as a place to live, not a place in which to recreate.

Familiarity with the parks and outdoor recreation areas on Staten Island, the site when it was an active landfill, and the park development plans were measured using a five-point fully labeled scale ranging from not at all familiar (0) to extremely familiar (4) (Fridgen, 1987). All familiarity items were assessed prior to the information insert.

Satisfaction with the island's parks and outdoor recreation was measured prior to the insert, using a single item five-point fully labeled scale ranging from not at all satisfied (0) to extremely satisfied (4) (Andereck & Caldwell, 1994). Satisfaction was measured with a single item, though it should be noted that parks and outdoor recreation sites on the island

are managed by several different agencies, including New York City Department of Parks and Recreation and the National Park Service.

Attitude toward visiting the park once it is open to the public was measured with a single five-point item. The scale was labeled at its anchors–extremely positive (+2) and extremely negative (-2) (Klenosky, Vogt, Schroeder, Fisher, & Marshall, 2010). Intent to visit the park once open was measured with a fully labeled five-point scale ranging from definitely would visit (+2), not sure (0), to definitely would not visit (-2) (Klenosky, Vogt, & Andereck, 2003). Attitude and intent were measured after the park information was presented.

A final measure of interest to park planners, marketers, and public officials is the level of support for the site plan. Support items were measured with a fully labeled scale ranging from strongly support (+2), neither oppose nor support (0), to strongly oppose (-2) (Jurowski, Uysal, & Williams, 1997). Site support was measured prior to the information insert. General support for similar landfill-to-park development projects was measured after the insert.

Sampling

The survey was administered following Dillman's (2000) Tailored Design Method to a sample of 3,300 households. The sample was drawn using a stratified sampling approach based on the three geographic bands (i.e., nearby, medium, far) defined by the approximate geographic center of the Fresh Kills site. Residents of New Jersey or other New York boroughs (non-Staten Island residents) were not included in the population or sample as a way to delimit the study to residents who were mostly likely to be the early adopters of the Freshkills Park.

Residents living farthest away from the site were undersampled proportionately because this population band was large (from 51.3% population to 40.0% sample) and residents living near the site were oversampled (from 10.9% population to 25.0% sample), since the population was smaller and because park administrators were highly interested in assessing the views of residents living near the site. Also, past experience and discussions with colleagues led us to predict that residents living nearby to the site would be more likely to respond to the survey; and residents farthest away the least likely to respond (Table 1). The design was intended to ensure at least 250 respondents in each band so that small sample size would not be a concern for categorical independent variables.

Table 1

Sampling and Response Rates by Band

	Estimated Population by Band		N in Sample by Band		Survey Response by Band		
Band	Count	%	Count	%	Bad Addresses	Refusals	Overall Response Rate
Less than 2 miles from site	48,084	10.9	825	25.0	8	8	30.9%
Between 2 to 4 miles from site	166,488	37.8	1,155	35.0	17	5	36.1
Over 4 miles from site	226,231	51.3	1,320	40.0	51	8	33.0
Total	440,803	100.0	3,300	100.0	76	21	31.9%

Various modes of selecting households were considered. In the past, a representative sample could be achieved using a sampling frame drawn from listed "landline" telephone numbers (LLBS) (Link, Daily, Shuttles, Bourquin, & Yancey, 2008). This type of sample included the name and address of the household, enabling researchers to personalize mailings, and consequently achieve higher response rates. The growth and popularity of cellphones and the emergence of *cellphone-only-households* (CPOs) (and number portability) have led to increasing concerns about potential sample coverage and data biases for LLBS (Link, Battaglia, Frankel, Osborn, & Mokdad, 2008). A sample based on addresses (ABS) rather than telephone numbers could overcome these biases (Link et al., 2008). In ABS, a random sample of residential addresses is drawn using the United States Postal Service address database, and addresses are cross-listed with additional databases (e.g., phone records, magazine subscription databases) to acquire residents' names. This method typically results in a 75% to 85% name match rate and includes elusive CPO households in the final sample. Using this approach, the sample obtained for the present study had an 89% name match rate.

Survey Administration

Following a modified Dillman technique (2000), the survey was administered using three mailings: first mailing of the survey and cover letter with a $2 incentive, second mailing of a follow-up reminder postcard (sent two weeks after the initial mailing), and a third mailing with a second copy of the survey and cover letter (sent to nonrespondents four weeks after the initial mailing). The overall response rate across the three mailings was 32%; with sample band response rates ranging from a low of 31% to a high of 36% (Table 1). In total, 1,006 completed surveys were returned. The nearby band had 272 responses, the middle band had 386 responses, and the distant band had 348 responses.

Analyses were conducted to determine whether weights should be applied to the dataset and to check for nonresponse bias. The proportion of respondents from each sample band relative to the total number in the original sample was compared to the proportion of the population in each band relative to the total population on Staten Island. Results indicated overrepresentation of those in Band 1 (< 2 miles from site) and underrepresentation in Band 3 (4+ miles from site). These over- and underrepresentations were slight and resulted in minor variations between the unweighted and weighted findings; thus no adjustments were made.

Nonresponse bias was examined comparing first (n = 782) and second wave (n = 210) survey respondents on demographic and study variables. This approach to assessing non-response bias is based on the view that respondents can be ordered on a continuum based on the amount of effort required to obtain a completed survey; and that those requiring the most effort (in this case, those requiring a second survey mailing) could be treated as proxies for actual nonrespondents (King et al., 2009). Based on this perspective, first and second survey wave respondents were compared on the following study variables: sample band membership, gender, age, years as a Staten Island resident, highest level of education, employment status, annual household income, and likelihood of visiting Freshkills Park once it is open to the public. In all cases, no significant differences were observed across the two survey mailings; suggesting that nonresponse bias does not appear to be a significant problem.

Statistical Analysis

Descriptive analysis was conducted to examine the size of the proximity and experience history segments, and to examine frequency distributions of the data. Multivariate general linear models were used to evaluate the impact of proximity to the site and experience history as predictors of the study measures. Four separate models were estimated with two main effect terms. The four models combined similarly framed dependent variables together. The first set included the three items focused on place identification with Staten Island and the second set included the two items related to Staten Island parks. The third set included four items focused on the Freshkills Park site; and the final set included two items examining support for the project and landfill-to-park transformations in general. MANOVA estimation is most powerful when dependent variables are not strongly correlated. Reliability values of the four sets of variables were 0.90, 0.60, 0.53, and 0.77, respectively from sets one to four, with the highest internal

consistency in the three place identity items. Due to small cell sizes that arose when the two factors proximity and experience history were cross-tabulated, only the main effects of the two independent variables were included in the MANOVA analyses, not interaction terms.

The test for homogeneity of variance (or homoscedasticity) was conducted to make sure sample variance differences were unlikely to have occurred based on random sampling (within stratum of proximity) from a population with equal variances. Levene's test of homoscedasticity was used as the main test for answering a stand-alone question whether the sub-samples in the study population had equal variances. Wilks' Lambda was used to determine the influence of main effects on the dependent variables in the models. Within the MANOVA analysis, univariate ANOVA analyses were used to examine the impact of the study factors on each dependent measure and post-hoc Bonferroni analyses were used to test for significant category group differences. For both the F-tests and group differences tests, a probability level of 0.05 was applied to determine statistical significance.

Results

Respondent Profile

Respondents were most likely to be White Non-Hispanic (76.8%), followed by White Hispanic (9.7%), Asian/Pacific Islander (5.5%) and Black-Non-Hispanic (4.9%). Whites responded at a higher rate than the proportion in the Staten Island population for the 2010 Census; other races responded at a lower rate than the White population, with African American being the most underrepresented in the results. Adult (18 years and older) respondents were equally divided between males and females; most (53%) were between the ages of 45 to 64 years old, with just over one-fourth (26%) younger than 45, and another one-fourth 65 or older.

The majority (72%) of respondents had at least some college experience. Three-quarters of respondents were either employed full time (43%) or retired (32%). Less than 7% of the respondents identified themselves as either homemakers, part-time employees, or self-employed. Few respondents were unemployed or students. The highest number of respondents (38%) reported a household income between $50,000 and $99,999, followed by those earning over $100,000 (29%), those earning $25,000 to $49,999 (19%) and those earning less than $25,000 (14%). Respondents were less likely than the population to have incomes of over $100,000, and were more likely than the population to have incomes in any of other three ranges (less than $25,000; $25,000-$49,999; $50,000-$99,999) as compared to the American Community Survey (United States Census Bureau, 2013).

The majority of households were comprised of four or less people, with the highest percentage of respondents (30%) living in households comprised of two people. The percentage of residents living in households larger than four was substantially less. Two-thirds of respondent households reported having no children under the age of 18. The highest percentage of respondent households without children was households comprised of couples (28%). The percentages of households comprised of three or more adults without kids and households of singles without kids were fairly similar at approximately 18% to 20%, respectively. Of those households that included children, the highest percentage was households with three or more adults (23%). The percentage of households of couples with children (9%) and households of single adults with children (2%) was low.

Residents living two to four miles away from the site formed the largest group (38%) in the sample, followed closely by those living the farthest (35%) and nearby (27%) as shown in Table 2. The largest experience history group was residents who began living there when the landfill was active (77%). The other three groups were much smaller in size but represent those who have a short or long history with the site. Overall, residents were familiar with Staten Island parks with 97% indicating some level of familiarity.

Table 2

Descriptive Statistics of Sample

Independent Variables: Proximity and Experience History	%
Distance from home to site (miles) (n=1,006)	
Nearby (less than 2 miles)	27.0
Medium (2–4 miles)	38.4
Far (more than 4 miles)	34.6
Experience of living near site (years) (n=972)	
Recent (1–5 years)	5.7
Post landfill close (6–10 years)	10.3
Active landfill (11–62 years)	77.3
Pre landfill (63–88 years)	6.7

Multivariate Results

Four MANOVA equations were estimated using two variables, proximity and experience history, as main effects. Hypothesis one stated that the newest residents would identify with Staten Island as a place less than the longest residents, and the residents who lived close to the site would identify with Staten Island less than more distant residents. Data supported that place attachment varied along experience history, but not proximity. The first equation tested three place identity items and revealed a main effect for experience history, Wilks = 0.94, $F(9, 2144) = 6.3$, $p < 0.001$, but not for proximity, Wilks = 0.99, $F = (6, 1762)$, $p > 0.05$. Univariate tests indicated all three place identity items differed significantly across experience groups (Table 4) $F(3,883) = 12.3$ (attached to), 17.3 (identify with), and 11.2 (think about); with p levels all <0.001. Post-hoc tests showed the pre-landfill group was significantly higher on place identity than the other three experience groups. Even though proximity was found not to be a significant main effect, one place identity item (think about) was found to be significantly lower for those who live nearby the Fresh Kills site compared to those who live more than four miles away ($F = 3.3$, $p < 0.05$) as shown in Table 3.

The second equation tested hypothesis two for familiarity with Staten Island parks and outdoor recreation for the main effects of proximity and experience history. Hypothesis two stated that distance would not differentiate proximity groups, and the newest residents would be less familiar with Staten Island parks than longer term residents. The main effects were both found to be significant: for proximity, Wilks = 0.99, $F(4, 1866) = 2.6$, $p < 0.05$, and for experience history, Wilks = 0.95, $F(6, 1866) = 7.8$, $p<0.001$. Univariate tests indicated that familiarity with park areas was the only item significantly different across both the proximity $F(2,944) = 4.0$, $p < 0.05$ and the experience history $F(3,944) = 11.4$, $p < 0.001$ groups. As shown in post-hoc results in Tables 3 and 4, those who lived farthest from Fresh Kills (mean = 2.1) and those who lived on the island the longest or at least since 2001 (mean 2.2 or 2.1) were the most familiar with the parks. Additionally in this equation, satisfaction with parks and recreation on Staten Island was found to be similar across proximity and experience history and rated at the midpoint of a satisfaction scale. Hypothesis two was supported with the data showing that newer residents would be the least familiar with the area's parks.

Table 3

Relationship between Proximity as a Main Effect and Key Measures

	Nearby	Medium	Far	Statistic
Place attachment to Staten Island (SI)				
Attachment to[a]	0.7	0.8	0.9	F=1.7
Identify with[a]	0.6	0.7	0.8	F=1.1
Think about[a]	0.4B	0.5AB	0.7A	F=3.3*
Measures on SI parks and recreation				
Familiarity with[b]	1.9B	2.0AB	2.1A	F=4.0*
Satisfaction with[c]	1.9	1.9	2.0	F=1.0
Measures on Freshkills Park (FKP)				
Familiarity with landfill site (pre-2000)[b]	2.3A	2.3A	2.0B	F=6.5**
Familiarity with landfill-to-park plans[b]	1.5	1.4	1.3	F=2.0
Attitude toward FKP once open to public[d]	1.1	0.9	0.9	F=3.0
Intent to visit FKP once open[e]	1.2A	1.0AB	0.9B	F=4.2*
Support for Landfill-to-Park development				
Freshkills Parks[f]	0.8A	0.7AB	0.6B	F=3.7*
General (for other similar sites)[f]	0.9	0.8	0.9	F=2.1

[a]Scale +2 strongly agree to -2 strongly disagree
[b]Scale 0 not at all familiar to 4 extremely familiar
[c]Scale 0 not at all satisfied to 4 extremely satisfied
[d]Scale +2 extremely positive to -2 extremely negative
[e]Scale +2 definitely would visit to -2 definitely would not visit
[f]Scale +2 strongly supported to 2 strongly opposed
Capital letters that are different from each other on mean values denote significantly different means tested in Bonferroni post-hoc analysis.
*$p < 0.05$, ** $p < 0.01$

The third equation tested items related to the stages of the new place-product adoption process: familiarity (site, plans), attitude toward the new park, and intent to visit. Hypothesis three stated that the residents who live close to the site would be more familiar with the landfill-to-park transformation plan than residents who live farther from the site; and residents who recently moved to the area would be less familiar with the plan than those with longer residency. Hypothesis three was supported for the experience history main effect only. On proximity, hypothesis four, which stated residents who live nearby would hold more positive attitudes than those who live far away, was not supported by the data. On experience history, hypotheses four and five, which stated that residents who varied in their experience history would hold equally positive attitudes toward the future park and intent to visit the park was supported by the data. Hypothesis five stated that residents who live nearby would be more likely to visit the park once opened than residents who live farther away was supported with the findings (as shown in Tables 3 and 4). Overall, the two main effects were both found to be significant: for proximity, Wilks = 0.98, $F(8, 1818) = 2.4$, $p < 0.05$, and for experience history, Wilks = 0.81, $F(12, 2405) = 16.6$, $p < 0.001$. Univariate tests indicated similar results on one of the familiarity measures (the site as a landfill). Specifically on familiarity with the landfill site, both proximity $F(2,912) = 6.5$, $p < 0.01$ and experience history $F(3,912) = 67.9$, $p < 0.001$ were significant main effects; and on intent to visit, only proximity $F(2,912) = 5.0$, $p < 0.01$ was significant. For familiarity with the site's transformation plan, only experience history was significant $F(3,912) = 14.6$, $p < 0.01$. For attitude toward the park once it is opened to the public, neither proximity nor experience history was significant.

Table 4

Relationship between Experience History as a Main Effect and Key Measures

	Recent	Post-close	Active Landfill	Pre-landfill	Statistic
Place attachment to Staten Island (SI)					
Attachment to	0.4C	0.6BC	0.8B	1.5A	F=12.3***
Identify with	0.2C	0.4C	0.7B	1.4A	F=17.3***
Think about	0.3B	0.3B	0.5B	1.3A	F=11.2***
Measures on SI parks and recreation					
Familiarity with	1.6B	1.7B	2.1A	2.2A	F=11.4***
Satisfaction with	1.7	2.0	2.0	2.0	F=1.7
Measures on Freshkills Park (FKP)					
Familiarity with landfill site	0.9B	1.0B	2.4A	2.6A	F=67.9***
Familiarity with landfill-to-park plans	0.8B	1.0B	1.5A	1.4A	F=14.6**
Attitude toward FKP once open to public	1.0	1.2	0.9	0.9	F=2.2
Intent to visit FKP once open	1.0	1.3	1.0	1.0	F=2.0
Support for Landfill-to-Park development					
Freshkills Park	0.4	0.8	0.7	0.8	F=2.3
General (for other similar sites)	0.7	1.0	0.8	0.8	F=1.5

Note: Scales see Table 3.
Capital letters that are different from each other on mean values denote significantly different means tested in Bonferroni post-hoc analysis.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

The fourth MANOVA test included two support statements: support for the development of the site and support for landfill-to-park development projects in general. Hypothesis six stated that nearby residents would be more supportive of the landfill-to-park transformation compared to those who live farther away; and residents who varied in their experience history would hold similar levels of support for developments and projects related to the site. Hypothesis six was accepted for proximity influencing support, and accepted for experience history not influencing support levels. The proximity main effect was found significant, Wilks = 0.99, $F(4, 1858) = 3.6$, $p < 0.01$, not experience history, Wilks = 0.99, $F(6, 1858)$, $p > 0.05$. Univariate tests indicated that support for the development of the site was the only item significantly different across proximity groups $F(2,930) = 3.7$, $p < 0.05$, with residents who live nearby the most supportive as indicated in post-hoc testing.

Discussion and Implications

Proximity and experience history were both relevant factors in understanding residents' ratings of some measures about Staten Island parks and some measures about Freshkills Park. The hypotheses tests conducted in this study suggest that experience history segments within the New York City borough of Staten Island were found to be relevant in understanding place attachment, but less relevant when considering support for landfill-to-park developments. Residents' attachment to Staten Island did not differ between proximity groups, but support for the Fresh Kills redevelopment was strongest

for those living near the site compared to those who lived over four miles away. For intent to visit, residents who live within a two-mile radius of the site were most likely to visit Freshkills Park, compared to residents living two miles away or more.

The findings about the influence of proximity were in line with past research that those who live near a site will likely be familiar with the site and likely to use it (e.g., Cohen et al., 2007; Dwyer & Klenosky, 2004). The findings about the influence of experience history primarily on place attachment and familiarity supports past research that those with longer and deeper experiences will identify with a place. Mowen and Confer's (2003) postulated that longtime residents may have two reactions: positive if they want an area returned to its original use, or negative if they are concerned about health risks, but this was not supported. Instead, regardless of experience history, residents were found to be equally supportive of Freshkills Park.

Going forward, park planners and place marketers expect that a sustainable park of the magnitude of Freshkills will create a more positive image of Staten Island held by residents and outsiders. Toward that end, surprisingly, newer residents were not as familiar with the plans or efforts at the site given their recent decision to move to Staten Island. The site is very visible, however, where to find information about plans for the site may not be available in places where new residents look for information. Realtors, apartment lessors, and community posting boards in everyday places such as grocery stores and coffee shops may be key dissemination points. Nearby or onsite information could also inform nearby residents and those passing by. As expected, long-time residents showed that they have strong bonds with Staten Island by living through eras of the island with and without a landfill. Both new residents and long-time residents have important roles to play in the transformation of the Fresh Kills site, and thus customized experiences and opportunities to engage in the site and project can be tailored by park planners, land managers, and marketing staff.

Specifically, the findings of this study can help those involved in park planning and promotion to target local residents as early adopters or likely park visitors by designing communication and community engagement plans that enhance place attachment, visitation, and citizen support. Social science research that examines the presumption, "if they build or plan it, they will come" is evolving. An application of the findings is designing facilities, programs and messages that attract various segments. Long-time residents may be more interested in the history of the site and personal connections to it. Storytelling about personal ties to the site may be one useful communication approach to draw visitation and support from older residents. Nearby residents may be more attracted to the park with messages about daily activities or easy access. Using *slice-of-daily-life* marketing messaging with actual Staten Island residents shown leaving their homes and entering the park may be most effective in generating visitation. The work of Svendsen and Campbell (2008) on urban ecological stewardship networks also provides guidance on additional social approaches to engage residents. The Freshkills Park Alliance is an example of one such civil society organization working to cultivate a base of supporters who are involved with the redevelopment of the site. People who participate in the website, blog, or visit the physical site are likely to generate word-of-mouth (both in person and online) that will further increase familiarity with the site, promote experiences at the site, and encourage visitation. This study estimated over 60% of the respondents would probably or definitely use a Freshkills Park website or an e-newsletter to learn more about the park, with the newest residents more likely to use Freshkills Park produced information than long-time residents.

Conclusion

The Fresh Kills transformation from landfill to park is an example of a sustainable park effort that can potentially change the image of Staten Island as a more attractive destination that houses an important environmental site and a flagship urban park. This study was designed on the premise that local residents would be the early adopters or

visitors to Freshkills Park. Other regional residents and tourists are additional markets that may be drawn to the site creating larger economic benefits for local communities and businesses. As sections of the park are opened to the public, destination marketing organizations, such as the local convention and visitor bureau, local chamber of commerce, and the broader NYC tourism and commerce agencies, will likely promote the park site to additional markets.

Future marketing research to understand additional park visitor segments should expand the geographic analysis of the site to more distant potential visitor markets. Also, a future study of recent homebuyers and residents can evaluate the consideration of the park site on location decision making. Content analysis studies of promoters using websites, blogs, Facebook postings, and media stories will enable further monitoring of public interest in Freshkills Park. On-site visitor studies at the site once opened, coupled with ecological surveys, will provide evidence of realized social, environmental, and economic benefits (and costs) of the site.

In closing, the present marketing analysis of residents is a fundamental step in enhancing social support for a large-scale sustainability project like Freshkills Park. A landfill is an example of a place where people would be least likely to travel to or engage in leisure and recreation activities. Transforming a landfill as large as Fresh Kills into a park is an important demonstration of a human solution to a human made problem–one that can support both human and ecological health.

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