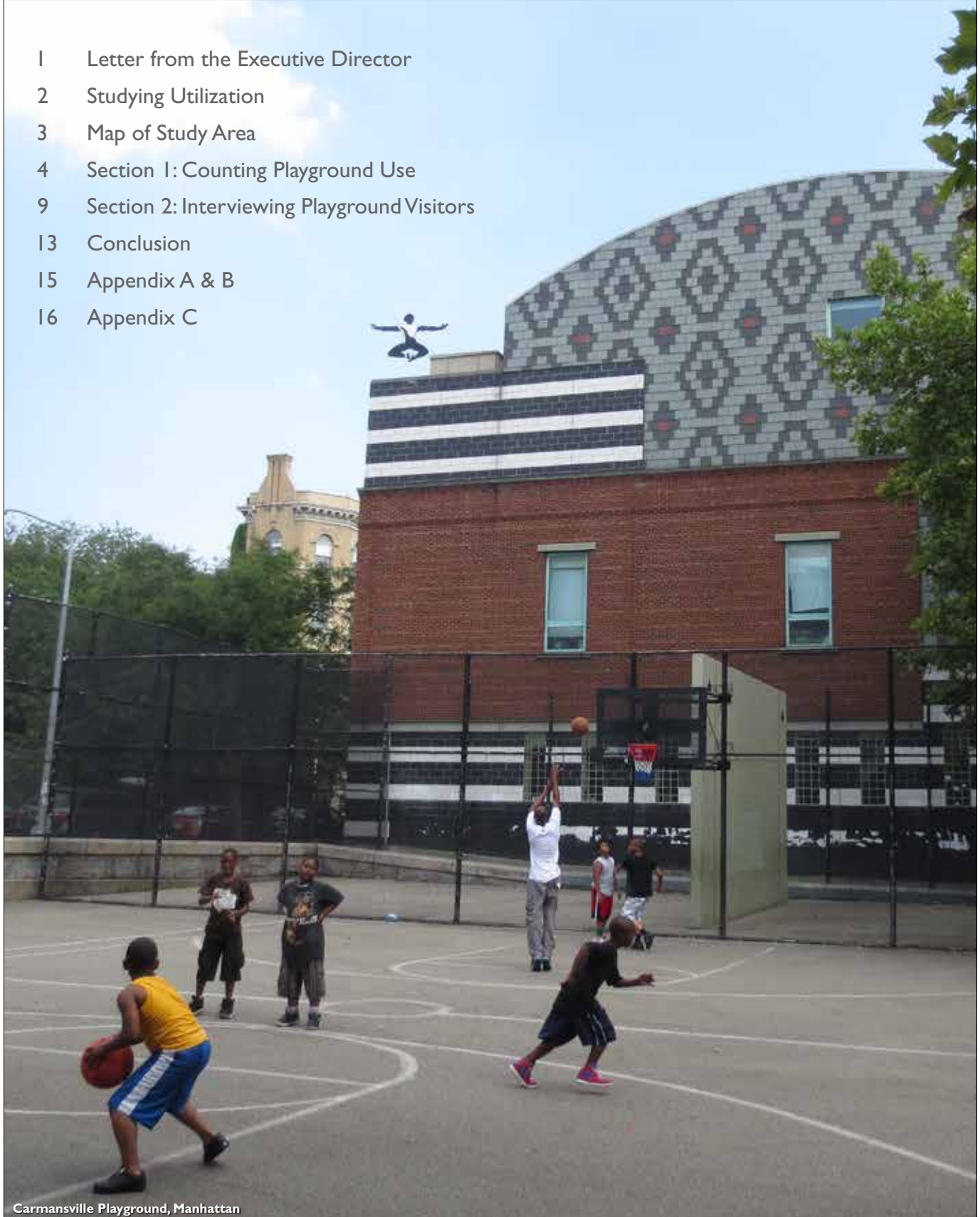


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Carmansville Playground, Manhattan

Letter from the Executive Director

Whether due to demographic shifts, rezonings that have transformed neighborhoods or new generational outlooks, the way New York City's parks and playgrounds are planned and maintained—but most significantly, how they are used—is in constant flux. How can the Department of Parks and Recreation keep up?

A good place to start is analyzing how New Yorkers use parks over time. This would provide the Parks Department with critical information about how to most effectively deploy staff—how many workers should staff which parks, and when?—and how to plan for and design spaces and programs that accommodate users' preferences.

In 2009, New Yorkers for Parks partnered with researchers at New York University (NYU) to develop a cost-effective and replicable method for counting users in New York City parks. We piloted the method in 10 playgrounds across the city, across the four seasons. This report presents the counting methodology developed by the NYU research team, as well as the results of a survey of playground users that was conducted at the same time.

The research team looked at who the users were, how both children and adults use playgrounds, and the extent to which they depend on these neighborhood playgrounds for outdoor recreation. Overwhelmingly, playground users reported that:

- playgrounds are a vital neighborhood resource;
- playgrounds are particularly important assets for lower-income households; and
- there are large disparities in users' assessments of playground upkeep and personal safety.

On the heels of a historic era of large park projects, it is critical that we now focus attention on small neighborhood parks and playgrounds, especially given their vast importance to residents. With tight budgets a near-certainty for the foreseeable future, we must ensure that we get the most out of the Parks Department's budget by allocating its resources as wisely as possible—and this can only be done if we understand how, where and when New Yorkers use their open spaces.

This holds true for urban public spaces not just in New York but throughout the country and beyond. Tracking utilization is daunting, but there are ways to do it economically and effectively, particularly in small spaces. And doing so will pay dividends in the long run, as decision-makers are equipped with data that will enable them to support open space initiatives with proven track records, and to deploy staff and budget dollars more efficiently to best serve the needs of park users.

Holly Leicht
Executive Director

Studying Utilization

Is crime in parks on the rise? Do public art exhibits increase park visitorship? Are maintenance dollars distributed equitably across parks, based on the number of visitors? The answer to these questions requires the reliable tracking of park use.

Libraries track book circulation, art museums track ticket sales, and recreation destinations such as state beaches and national parks track use based on parking lot receipts. But in the parks and playgrounds of New York City, free for all to come and go, tracking use is a trickier proposition.

There are expensive counting technologies that would be infeasible to implement over the more than 29,000 acres of parkland under the jurisdiction of the New York City Department of Parks and Recreation (the Parks Department).¹ There are low-tech counting methods that have been deployed in particular parks, notably Central Park and Prospect Park, in conjunction with larger efforts by those parks' conservancies to organize programming, demonstrate vitality, and plan for future use.² But the Parks Department does not have a consistent counting method to track patterns of use across the park system.³

1) For an overview of the pros and cons of automated counting technology, including light beam counters, body heat detectors and CCTV cameras, see "A Guide to Automated Methods for Counting Visitors to Parks and Green Spaces," <http://www.green-space.org.uk>

2) Columbia Professor E.S. Savas surveyed Central Park use on "typical" days during 1973, reported in his 1976 "A Study of Central Park," a document that helped to guide the early work of the Central Park Conservancy. Ten years later, CUNY Professor William Kornblum conducted a follow-up study of Central Park, finding that the majority of users preferred passive use of the park. The findings of his 1983 study were incorporated into the Conservancy's 1985 management and restoration plan (personal communication, Lane Addonizio, Associate Vice President for Planning Central Park Conservancy). Under the direction of Professor Kornblum, surveyors estimated the number of visitors to Central Park during Christo and Jeanne-Claude's public art installation, "The Gates," February 12 to 27, 2005. Methods and findings from the most recent survey of Central Park users (2011) can be found at www.centralparknyc.org/assets/pdfs/surveyreport_april2011.pdf. The Project for Public Spaces regularly observes the use of parks and public open spaces using a variety of ethnographic methods, as exemplified in their 2005 report, "Washington Square Park: User Analysis and Place Performance Evaluation," in which they documented park use patterns to guide renovation plans.

3) In 2007 NY4P partnered with the Citizens Budget Commission to produce *Making the Most of our Parks*, an analysis of the funding and operation of the New York City Parks Department. One of the findings was that Parks has no effective and objective measures of park use. As the report notes, "Better management requires improved information about park use and the unit cost of services."

Playground safety and upkeep depends on the hard work of many people, including playground associates, maintenance staff, and park enforcement patrol (PEP) officers dispersed across the five boroughs. With over 1,900 parks, including nearly 1,000 playgrounds, the Parks Department must deploy its limited resources strategically to serve the areas of greatest use and need. An accurate, low-cost, easy-to-implement count of park use—as it varies throughout the hours of the day, the days of the week, and seasons of the year—could guide that resource deployment.

Over the course of 2010 and 2011, New Yorkers for Parks (NY4P), in partnership with academic researchers from New York University (NYU), set out to assess the effectiveness of such a usership tracking method, investigating 10 playgrounds, two in each borough. *Understanding Playground Utilization* synthesizes two reports—one on study methods, the other on survey findings—produced by the NYU research team and presented to NY4P.⁴ Here, we present the research team's findings on the feasibility of implementing a low-cost, low-tech method for counting playground use. We also discuss playground use patterns observed in the 10 study playgrounds, and delve into playground visitor habits and opinions based on the results of a survey of playground users.

However, the Parks Department does track some forms of park use. The Parks Department uses clicker counters to track visitors to public pools, which have a single, controlled and monitored entrance. The Parks Department also maintains records of registration for gym memberships, enrollment in fitness courses, and court/field permits.

4) Methods report: "Measuring Playground Utilization in New York City: Description of Study Methods. A Report to New Yorkers for Parks." Diana Silver, Maggie Giorgio, and Tod Mijanovich, December 28, 2011. Survey results: "Measuring Playground Utilization in New York City: Results from Survey of Playground Users. A Report to New Yorkers for Parks." Diana Silver, Maggie Giorgio, and Tod Mijanovich, May 30, 2012.

Study Area



Playground Name	Neighborhood	Total population living within a 10-minute walk*	Children under 18 living within a 10-minute walk	Median Household Income of Community Board**
1 Matthews Muliner Playground	Morris Park, Bronx	14,808	3,765	\$47,585
2 People's Park	Mott Haven, Bronx	33,058	10,103	\$21,966
3 Maria Hernandez Park Playground	Bushwick, Brooklyn	31,891	7,948	\$35,702
4 Rappaport Playground	Borough Park, Brooklyn	35,333	11,208	\$40,111
5 Carmansville Playground	Hamilton Heights, Manhattan	41,400	8,630	\$40,855
6 Tompkins Square Park Playground	East Village, Manhattan	47,615	4,257	\$45,043
7 Captain Tilly Playground	Jamaica, Queens	15,566	3,504	\$59,586
8 Charybdis Playground	Astoria, Queens	8,824	1,237	\$50,882
9 Jennifer's Playground	Graniteville, Staten Island	4,944	1,201	\$59,602
10 Levy Playground	Port Richmond, Staten Island	6,538	1,899	\$59,602

*We estimate a 10-minute walk by measuring a 1/2-mile journey from park entrances along city sidewalks using GIS mapping software. The total population and youth population living within the buffer zone were obtained from the 2010 U.S. Decennial Census, SF1.

**2010 U.S. Decennial Census Median Household Income estimates for the New York Community Board in which the playground resides. Source: <http://infoshare.org>.

Counting Playground Use: Methods

The first task in designing a study of playground user-ship was to identify the universe of potential observa-tion sites. New York City's first public playground was built on the Lower East Side of Manhattan in 1903. Since then, hundreds of playgrounds have proliferated across the city.⁵ Over the past 110 years, social reformers, politicians, educators and recreation advocates have designed and built playgrounds based on various theories of children's social, moral and physical development. From "imagination playgrounds" in which large pieces of loose equipment are manipulated by children to create structures of their own making, to modest vest pocket playgrounds occupying small parcels of formerly abandoned city land, to more recent efforts to build Play-grounds for All Children, accommodating children with a range of physical abilities, playground design varies widely across the city. Given this variation, the 10 playgrounds in this study were intentionally selected, using a number of criteria to control for consistency and to assess the feasibility of data collection in controlled sites. Selected playgrounds contain a bathroom, have no more than two entrance points, and are not bisected by a major roadway.⁶ The map on page 3 shows the distribution of the 10 playgrounds and characteristics of the neighborhoods in which they reside.

In the "Description of Study Methods" report (see Appen-dix C), the NYU research team documents their protocol for implementing a playground usership study and managing field researchers. Among the conclusions of their report is that, with training and an adequate staff pool, it is feasible to use undergraduate and graduate students as field research staff.⁷

5) <http://www.nycgovparks.org/about/history/playgrounds>

6) Playground selection criteria: a) contained by a fence with no more than two unlocked entrances; b) smaller than three acres; c) accessible by public transportation; d) not bisected by active streets; e) open to the public for full days; f) contains an on-site bathroom; and g) not undergoing major capital renovation project.

7) Some considerations and lessons from "Measuring Playground Utilization in New York City: Description of Study Methods. A Report to New Yorkers for Parks." Diana Silver, Maggie Giorgio, Tod Mijanovich, 2011: Develop proto-cols for bathroom and food breaks; select alternate observation dates in case of inclement weather and have a communication strategy to confirm survey dates with field research staff; consider the cost of travel to remote observation locations; hire and train bilingual surveyors based on commonly spoken languages in the neighborhood surrounding the playground; conduct a training for field surveyors before they begin field work; and supply researchers with necessary materials (maps, letters of introduction, tally sheets, clicker counters).

Study Playgrounds



Matthews Muliner Playground,
Bronx



People's Park,
Bronx



Maria Hernandez Playground,
Brooklyn



Rappaport Playground,
Brooklyn



Carmansville Playground,
Manhattan



Tompkins Square Park
Playground, Manhattan



Captain Tilly Playground,
Queens



Charybdis Playground,
Queens



Jennifer's Playground,
Staten Island



Levy Playground,
Staten Island

Usership Counting Methods

Trained undergraduate and graduate students from NYU counted playground use and conducted in-person interviews with playground users.⁸ Counts and interviews were conducted in the 10 study playgrounds on one weekday and one weekend day in each season.⁹ Surveyors observed spring, summer, and fall playground use from 9am to 7pm, and winter use from noon to 4pm.

Standing at playground entrances, surveyors counted 1) children and 2) adults 18 and over, tracking the child and adult counts with two separate tally clickers.¹⁰ When in doubt about an individual's age, surveyors were instructed to count the individual as an adult.

To count all users over the course of a field day, surveyors recorded tallies from each clicker on the half hour. These numbers were summed across the day to generate the total count of users on a given observation day (see Table 2). Surveyors counted unique visitors as they entered the playground,

regardless of the purpose of the visit; people passing through were counted equally with people using playground facilities. This counting method captures the physical impact of bodies in the park, in terms of crowding, the use of equipment such as drinking fountains, and other markers of use such as litter. Surveyors did not recount visitors who re-entered the park within a few minutes of exiting (e.g. people who stepped out and returned after a quick errand).

To understand periods of peak use, surveyors conducted a visual scan and recorded estimates of the total number of children and adults within the playground on the half hour. In playgrounds with surveyors positioned at both entrances, use estimates were averaged over the two sets of counts. This paints a picture of the number of visitors within the park at specific times throughout the day (see Appendix C, Table 4).

A note about interpreting the findings in this report: the findings pertain only to the 10 playgrounds in this study. These findings do not speak to use patterns or user opinions across New York City or playgrounds in general.

8) All field researchers were trained to count playground users and administer in-person surveys. Working in teams, researchers traded counting and surveying tasks on the hour.

9) Maria Hernandez Playground was closed during the fall observation period (both weekend and weekday observations) due to storm damage. Surveyors recorded use as zero, reflecting the actual condition of the park, closed to all users. Beginning at 11am on a fall weekend day, surveyors were blocked from entering People's Park by inebriated individuals; use during those hours was recorded as zero, reflecting the inability of visitors to access the park for play.

10) In playgrounds with two entrances, a surveyor was posted at each entrance in cases where both entrances were not visible from a single location, and based on expectations of high use in dense neighborhoods.



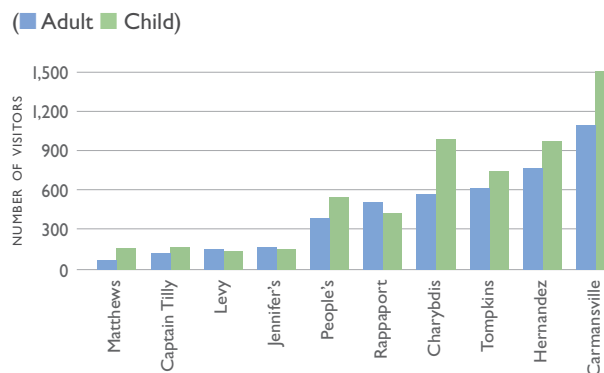
Tompkins Square Park Playground, Manhattan

Counting Playground Use: Findings

Surveyors noted the highest number of total users across the 10 playgrounds during the spring season (17,768), followed by summer (13,003), fall (5,815) and finally winter (906).¹¹ Table 1 represents the highest single day usership of a playground out of the eight total observation days. As we can see, there is a large disparity in the total number of visitors to Matthews Playground on its busiest day (235 visitors) compared to Carmansville Playground on its busiest day (2,581 visitors).¹² Some playgrounds in the study are much more heavily utilized than others. Table 2 provides a more fine-grained look at adult and child playground use in each of the 10 sites, across the seasons, on both weekday and weekend observation days. Appendix C, Table 4 shows patterns of peak use for each weekend and weekday, across the seasons, by playground. During the spring, summer and autumn, playgrounds were most heavily utilized during the afternoon hours. However, this observation is not uniform across all spaces and seasons.

There is variation among playgrounds in seasonal highest use, weekend versus weekday visitor numbers, and popular times of day. This could be due to a number of factors, such as the weather, scheduled programming, or other neighborhood events. While alternate survey dates were selected and used during each season to avoid surveying during inclement weather, the study does not control for weather conditions. For example, of the 5,815 total visitors observed in the autumn across the 10 playgrounds on one weekday—a dreary gray day—and one weekend day, 83% were observed on the

Table 1: Adult and child playground use: Highest single day total usership



Source: Based on data collected by NYU research team.

weekend day. There could be many causes of this difference, and we cannot make broad statements about the popularity of all fall weekends for playing in the park.

Patterns of use could also depend on programming and use by groups such as preschools and summer camps. NY4P research staff returned to People's Park throughout the summer of 2013 to conduct an assessment of Mott Haven open space as part of a separate study.¹³ Our research team noted heavy summer weekday use of the playground by organized summer camp groups, while observing much lighter use in other Mott Haven playgrounds without camp activities. While usership counts for a single weekday and weekend day per season may not reflect average seasonal use, they are the true observations of potential use scenarios.

11) The NYU research team used the following method to obtain an estimate of utilization across the winter days, when actual observations periods were limited from noon-4pm: "Researchers regressed past seasonal morning and evening count data for each playground with count data for the winter afternoon data collection to estimate full-day utilization for each of the winter days." "Measuring Playground Utilization in New York City: Description of Study Methods. A Report to New Yorkers for Parks." Diana Silver, Maggie Giorgio, Tod Mijanovich, 2011.

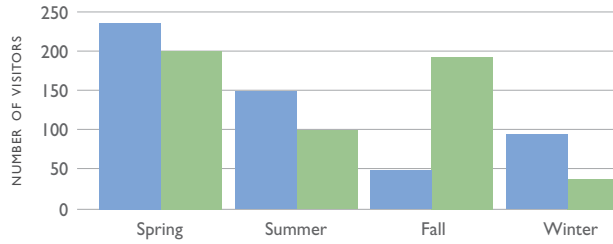
12) Study playgrounds are comparable in size and amenities. Other factors, such as population density of the surrounding neighborhoods or the broader organizational ecology of the neighborhood, might contribute to the disparity in overall use at the 10 playground sites.

13) <http://www.ny4p.org/research/osi>

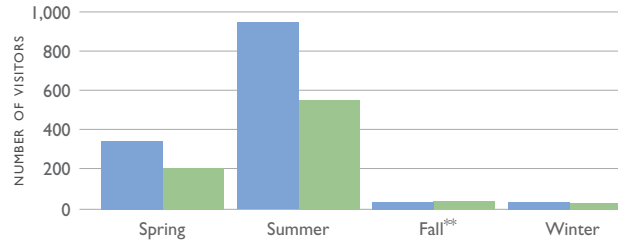
Table 2: Utilization by season, day of week and playground (■ Weekday ■ Weekend)

Notes: Scales differ by playground. Total winter counts reflect imputed data for some hours.

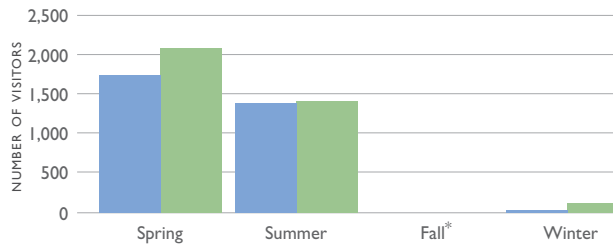
Matthews Muliner Playground



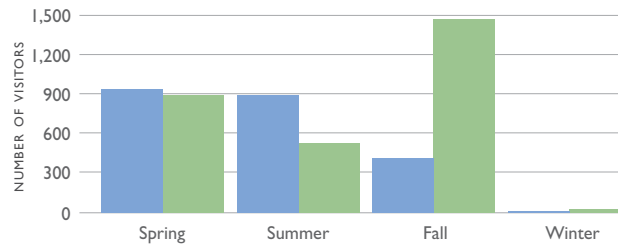
People's Park



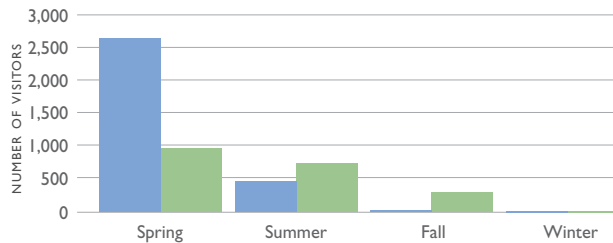
Maria Hernandez Park Playground



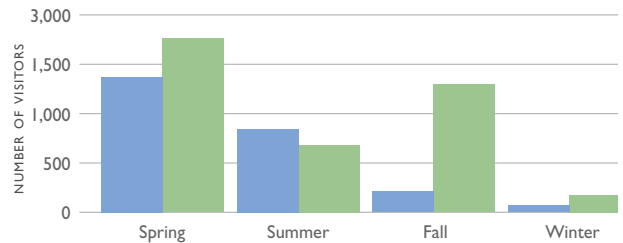
Rappaport Playground



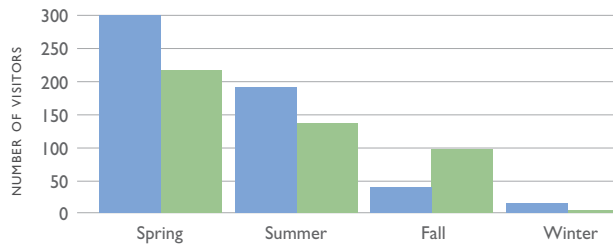
Carmansville Playground



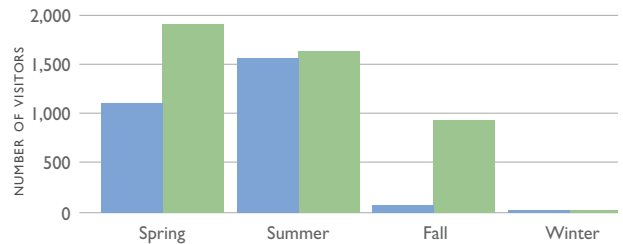
Tompkins Square Park Playground



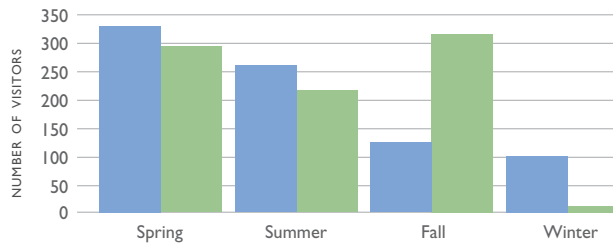
Captain Tilly Playground



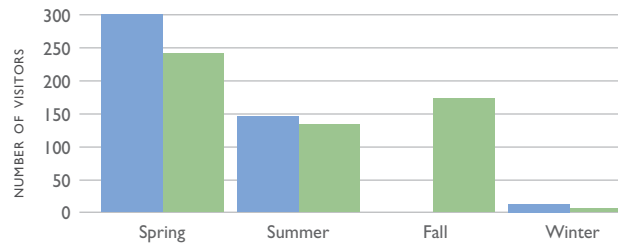
Charybdis Playground



Jennifer's Playground



Levy Playground



Source: "Measuring Playground Utilization in New York City: Description of Study Methods. A Report to New Yorkers for Parks." Diana Silver, Maggie Giorgio, and Tod Mijanovich, December 28, 2011.

*Playground closed due to storm damage. **Surveyors were blocked from entering playground due to inebriated individuals after 11am on fall weekend day.



Maria Hernandez Park Playground, Brooklyn

Interviewing Playground Visitors

To understand the habits and opinions of playground visitors, field researchers spoke directly with adults in the 10 study playgrounds. 2,316 adults ages 18 and over were approached to participate in a five-to-seven minute survey on a voluntary basis. Field researchers ultimately spoke with 1,627 people, for a response rate of 70%.¹⁴ The survey—designed, administered, and analyzed by the NYU research team—received approval from New York University’s Committee on Activities Involving Human Subjects in May 2010. Key interview findings were reported to NY4P by the NYU research team in their report, “Measuring Playground Utilization in New York City: Results from Survey of Playground Users.”¹⁵ The following section presents results from that analysis.

Adult users accompanying children (n=1,396) were asked questions about their own playground use and opinions, as well as the children’s playground use.¹⁶ All analyses of children’s playground use are based on information reported by an adult caretaker. Adults without children also participated in the survey; while many New York City playgrounds limit use to children and adult caretakers, several playgrounds within the current study have amenities such as handball and basketball courts that are open to adults and children alike.

Table 3 presents characteristics of adults with whom field researchers spoke in the 10 playgrounds across the city. Survey responses are reported across all days of survey administration (unless differences by season are specifically noted).

Table 3: Characteristics of adults in playground survey (n=1,627)

Sex	
Female	65%
Male	35%
Race/Ethnicity	
Black	17%
White	32%
Hispanic	38%
Asian	8%
Other	5%
Household Income	
\$0-\$20,000	26%
\$20,001-\$40,000	24%
\$40,001-\$60,000	18%
\$60,001-\$80,000	14%
>\$80,000	18%
Age	
18-25	15%
26-35	37%
36-45	30%
46+	19%

Totals may exceed 100% due to rounding

Source: “Measuring Playground Utilization in New York City: Description of Study Methods. A Report to New Yorkers for Parks.” Diana Silver, Maggie Giorgio, and Tod Mijanovich, December 28, 2011.

14) Survey response by season: spring—680; summer—595; fall—325; winter—27. Total survey response: 1,627. Field researchers recorded refusals on the survey instrument.

15) A Report to New Yorkers for Parks, Diana Silver, PhD MPH, Maggie Giorgio MPH, and Tod Mijanovich PhD. May 30, 2012. The NYU research team has also published an analysis of research findings from the survey of playground users in a peer-reviewed academic journal article, “Utilization Patterns and Perceptions of Playground Users in New York City.” Silver, Diana; Giorgio, Maggie; Mijanovich, Tod. *Journal of Community Health*, published online October 11, 2013.

16) Pre-testing revealed that adults with children were more willing to participate when approached after having entered the playground and situated children into an activity. Adults without children were approached on entrance to the playground or after having completed an activity.

Key Interview Findings

1. Playgrounds are vital neighborhood resources.

Playground visitors overwhelmingly reported that the 10 playgrounds in the study are tremendous local resources for outdoor play and activity. Of 1,627 adult respondents:

- 79% use the playground at least once a week.
- 75% live in the neighborhood in which the playground resides.
- 75% walk to the playground.
- 67% spend less than 10 minutes travelling to the playground.
- 70% report knowing other adults who use the playground.

When researchers spoke with adult caretakers (n=1,396) about their children's use of the study playground, almost 2/3 reported that the playground is the primary place their child plays outdoors. 10% of caretakers report that their child never receives gym class in school, and 13% report that their child receives gym class only once per week, making the playground a crucial resource for active recreation. Of 1,396 adult caretakers:

- 81% report that their child lives in the neighborhood.
- 81% report that their child uses the playground at least once per week, and 64% report that their child uses the playground more than once per week.
- 64% report that the study playground is the main place their child plays outdoors.

When the research team looked at the odds that respondents report being frequent park users (visiting at least one time per week), they found that proximity predicts use.¹⁷ Respondents who travelled for 10 minutes or more to the playground had lower odds of being frequent users compared to those who travelled less than 10 minutes, and children who live in the neighborhood of the playground have much higher odds of being frequent playground users than children who live outside the neighborhood.¹⁸ The research team observed this finding regardless of the playground in which they conducted the interview. Adult caretakers who report that they know other neighbors who use the playground were more likely to report that the playground was “the main place” their child plays outdoors (see Appendix B for unadjusted responses by playground).

Altogether, this paints a picture of neighborhood parks being heavily relied upon and used with frequency by local residents as a primary source of outdoor recreation.

2. Neighborhood playgrounds are particularly important assets for adults and children from lower-income households.

On average, respondents report frequent use of the 10 study playgrounds. These playgrounds were particularly critical resources for adults and children from the lowest-income

17) The NYU research team ran multi-variable logistic regression models with fixed effects for playgrounds sampled, controlling for respondent demographic characteristics. For each outcome-predicting adult and child frequency of use and children's use of the playground as the primary location for outdoor play-researchers built three increasingly complex models. In the first models, they predicted the outcome examining only the race of the respondent or the child. In the second set of models, they controlled for other characteristics of the respondent and/or child (for frequency of use, controls include adult sex, travel time to playground, travel mode, child residence in the neighborhood, and household income; for the main place a child plays controls include travel time, household income, school attendance, whether the child receives daily gym class, and whether the child's caretaker knows other adults in the neighborhood). In the third set of models replicate the second models, while controlling for the playground sampled. Models are reported in “Results from Survey of Playground Users.” Frequency of adult use models, n=1,187. Frequency of child use models, n=1,047. Main place child plays models, n=989.

18) Controlling for the child's enrollment in school and travel time to the playground, as well as race and family income.

households.¹⁹ Adults from households earning more than \$80,000 per year have approximately half the odds of reporting frequent playground use compared to adults from households earning \$20,000 or less per year.²⁰ And, compared to the lowest income adult caretakers, those earning more than \$60,000 per year have lower odds of stating that the playground is the main place their children play outdoors.²¹ The research team observed this pattern both within and across playgrounds. Another way of saying this is that “even among users of the same playground, holding other individual factors constant, those with lower household incomes were more likely to depend on these playgrounds for their child to play outdoors.”²²

3. There are large disparities in users’ assessments of playground upkeep and personal safety.

As with responses about playground use, there are several ways to examine visitors’ opinions about the cleanliness and safety of the study playgrounds. First, the research team looked at the survey results for all adults in all playgrounds across all seasons. More than one quarter of respondents found the cleanliness of their playground to be fair or poor, and 20% gave low marks to the maintenance of playground equipment. 27% of respondents said they feel less than very safe travelling from their home to the playground, and 32% feel less than very safe within the playground (see Appendix B for a breakdown of responses by playground).

Table 4: Perceptions of park upkeep*

How would you rate the cleanliness of this park?

Excellent	26%
Good	46%
Fair/Poor	29%

How would you rate the maintenance of the equipment in this park?

Excellent	31%
Good	50%
Fair/Poor	20%

*n=1,627 adults

Perceptions of safety

How safe do you feel traveling to this park from home?

Very safe	73%
Less than very safe	27%

How safe do you feel when you’re in this park?

Very safe	68%
Less than very safe	32%

*n=1,627 adults

Source: “Measuring Playground Utilization in New York City: Description of Study Methods. A Report to New Yorkers for Parks.” Diana Silver, Maggie Giorgio, and Tod Mijanovich, December 28, 2011.

19) Self-reported annual household income of \$20,000 or less.

20) This finding does not vary significantly across the 10 playgrounds.

21) Model controls for child’s race, travel time to playground, child’s school attendance, gym class, and whether the adult caretaker knows neighbors who use the playground.

22) “Measuring Playground Utilization in New York City: Results from Survey of Playground Users. A Report to New Yorkers for Parks.” Diana Silver, Maggie Giorgio, and Tod Mijanovich, May 30, 2012, page 9.

The research team explored the likelihood that a person would have an excellent estimation of playground upkeep, taking into account individual characteristics and the playground in question. Some of the study playgrounds are perceived as cleaner and better maintained than others by their users. This difference in perception exists regardless of the race of the respondent, while women are less likely than men to rate maintenance and cleanliness as good or excellent.²³

The research team also explored differences in perception of safety travelling to and within the 10 playgrounds, asking if perceptions varied by race, sex, or income, as well as the playground being surveyed. There are significant differences in perceptions of safety travelling to some playgrounds compared to others. This is not related to the race or sex of individuals who visit different playgrounds, but rather reflects a difference in the particular neighborhood contexts of the 10 playgrounds. While there were no significant differences between men and women in their perceptions of safety travelling to any one of the 10 playgrounds, within the same playground women have lower odds than men of feeling very safe, regardless of race or income.²⁴ Within the study playgrounds, individuals of different races and incomes are just as likely to report feeling safe; but, some of our 10 playgrounds are perceived as safer than others by their users, even taking into account different characteristics of individual users.

The research team asked respondents who felt less than very safe to explain why they felt that way using their own words. 25% cited general concerns with the security of the playground and the surrounding neighborhood. 21% cited incidents of violence—primarily fights—and the presence of substance abusers. The research team also asked all respondents what measures, if any, they would take to improve the playground. On this open-ended question, 17% of respondents explicitly requested improvements to playground safety and security.

Table 5: What would you change about this park?*

Improve maintenance/cleanliness	35%
Add/update recreational facilities and park amenities	32%
Increase safety	17%
Add programming & activities for users of all ages	7%
Extend hours for park and facilities (e.g. bathrooms)	6%
Enforce park rules	2%
Other	1%

*n=1,033 adults

Source: Based on data collected by NYU research team.

23) Assessment of cleanliness models, n=1,260. Assessment of maintenance models, n=1248.

24) Assessment of travel safety models, n=1,042. Assessment of safety within playground models, n=1,045.

Conclusion

Over the past decade, New York City has experienced an unprecedented expansion in parks. \$275 million has been committed to the renovation of eight “PlaNYC regional parks,”²⁵ destinations with major recreational facilities such as the outdoor Olympic pool in McCarren Park, Brooklyn, and an indoor track-and-field house in Ocean Breeze Park, Staten Island. Together with attractions such as the High Line and Central Park, New York abounds with beloved and iconic park attractions for residents and visitors alike. But we must not forget our everyday spaces, the smaller playgrounds and parks across the city, which serve as neighborhood epicenters for many children and their caretakers. These spaces make the city more livable, they provide common ground for neighbors to meet, and they encourage the physical activity that children need for healthy emotional and physical development. The current study suggests that the 10 playgrounds we observed are vital neighborhood resources. Park administrators, public officials, advocates and everyday users can track the use of such spaces and deploy utilization data to support well-maintained, adequately programmed, safe and accessible play spaces.

The Benefits of Counting Parks Users

Matching Services to Users

Parks administrators can deploy counting and surveying methods to better understand park usership. Each method can answer a specific set of questions. Research suggests that active programming promotes children’s playground use.²⁶ Counting usership patterns can suggest down times when programming

could be used to draw additional users into the park, as well as peak times to capture existing users. Before-and-after user counts can serve as a monitoring tool, showing the impact of programming, renovations or staff changes on usership. Counts can also show if the population of park visitors is comparable to the surrounding neighborhood population. These observations may lead to targeted outreach to attract underserved groups, or to a consideration of how current park design serves constituents of different ages and cultural backgrounds.²⁷ For example, following the placemaking maxim that the presence of women is an indicator of a healthy public space,²⁸ staff in Manhattan’s Bryant Park use clicker counters to track the ratio of female to male visitors throughout the day.²⁹ In New York City, a reliable counting method could be used to answer many park management, planning and policy questions, such as assessing the success of ongoing small-scale open space initiatives, including Bloomberg administration programs like PlaNYC Schoolyards-to-Playgrounds and Department of Transportation Public Plazas. Tracking the use of these spaces and projects, a realistic endeavor because of their modest size, could help inform their expansion and evolution. In parks departments across the county, surveys can guide long-term planning for unique park spaces and park systems as a whole. There will always be competing demands on space, and parks departments can use surveys to understand the needs and preferences of their constituents.

25) <http://www.nycgovparks.org/greening/planyc/regional-parks>

26) “What Brings Children to the Park? Analysis and Measurement of the Variables Affecting Children’s Use of Parks.” Anastasia Loukaitou-Sideris and Athanasios Sideris. *Journal of the American Planning Association*, Winter 2010, pp.89-107.

27) For a discussion of usership counting methods and the questions they can address, see Chris Walker, “Understanding Park Usership,” The Urban Institute & The Wallace Foundation, 2004.

28) For a discussion, see William H. White, *City: Rediscovering the Center*, New York: Doubleday, 1988.

29) Ralph Gardner, Jr. “Bryant Park’s Sex Engineer,” *The Wall Street Journal*, May 10, 2010.

Safety

New Yorkers typically walk to their parks, navigating through the city's neighborhoods. Across the neighborhoods in this study, respondents had different assessments of their personal security travelling to their neighborhood playground. The PlaNYC goal that every New Yorker live within a 10-minute walk of a park is a good first step, but all New Yorkers should feel safe while on that 10-minute journey. If public health campaigns promoting parks and recreation centers as places to "Shape Up" and programs such as Walk NYC are to be successful,³⁰ residents must feel comfortable getting to their parks. Parks and playgrounds are part of the larger social context and physical environment of the neighborhoods in which they reside, and coordination among the Parks Department, NYPD, and the Departments of Sanitation, Education, City Planning and Transportation can ensure they are truly accessible neighborhood resources. As the NYU research team notes in their published research, efforts to promote playground use and physical activity must address safety and maintenance not only within playgrounds, but in the neighborhoods around them as well.³¹

Maintenance

Playground users in the current study perceive differences in cleanliness and maintenance across the 10 playground sites. The Parks Department conducts an independent maintenance assessment of parks and playgrounds and makes this data publicly available via each park's page on the Parks Department website.³² With this information, park users can work with their local park administrators and elected officials to ensure that their neighborhood playground receives the maintenance attention it deserves.

30) <http://www.nycgovparks.org/programs/recreation/shape-up-nyc>; <http://www.nycgovparks.org/programs/recreation/walk-nyc>

31) "Utilization Patterns and Perceptions of Playground Users in New York City," Silver, Diana; Giorgio, Maggie; Mijanovich, Tod. *Journal of Community Health*, published online 11 October 2013.

32) For example, <http://www.nycgovparks.org/parks/carmansvilleplayground/inspections>

Tracking Crime

In the third quarter of 2011, there was one reported grand larceny in Van Cortlandt Park. There were six reported grand larcenies during the same quarter the following year.³³ How do we account for this increase? Perhaps security has become more lax or park visitors are taking fewer safety precautions. Or perhaps there was an increase in the number of visitors to match the increase in the number of crimes, i.e. the number of crimes increased but the crime rate remained the same. In New York City, we currently do not collect consistent, systematic counts of park use and thus cannot evaluate crime rate trends in parks. An accurate count of park usership could help answer such questions.

Supporting Advocacy

There are low-cost, easily replicable methods for counting park usership. It is possible to recruit and train college students to work as surveyors, and clicker counting can be feasibly implemented in playground spaces. Advocates who want to document the popularity of programming, the need for additional equipment in heavily used spaces, or the before-and-after effects of changes in park management or design can make a case for their cause by employing counting and surveying methods.

33) <http://www.ny4p.org/advocacy/crime/crime-vancortlandt.pdf>

Appendix A & B

Appendix A

Name	Neighborhood	Playground Acres	Recreation Features within Playground
Matthews Muliner Playground	Morris Park, Bronx	1.02	Play area, basketball courts, handball courts
People's Park	Mott Haven, Bronx	1.39	Play area, basketball courts, handball courts, baseball field
Maria Hernandez Park Playground	Bushwick, Brooklyn	0.6	Play area
Rappaport Playground	Borough Park, Brooklyn	1.15	Play areas, hockey rink, basketball & handball courts
Carmansville Playground	Hamilton Heights, Manhattan	0.57	Play areas, handball courts, basketball courts
Tompkins Square Park Playground	East Village, Manhattan	0.3	Play area
Captain Tilly Playground	Jamaica, Queens	0.1	Play area
Charybdis Playground	Astoria, Queens	0.5	Play areas
Jennifer's Playground	Graniteville, Staten Island	1.6	Play area, basketball courts, recreation center
Levy Playground	Port Richmond, Staten Island	0.49	Play area, basketball courts

Appendix B

How safe do you feel traveling to this park from home? (Percentage (%) overall and by playground)

	All Parks	Matthews	People's	Hernandez	Rappaport	Carmansville	Tompkins	Jennifer's	Levy	Tilly	Charybdis
Very Safe	73	84	45	50	80	69	83	83	72	64	90
Somewhat Safe	23	15	50	43	17	29	15	17	22	30	8
Somewhat Unsafe	2	0	4	7	2	2	2	0	5	4	1
Very Unsafe	1	1	1	0	1	1	1	0	1	2	1
Number of people surveyed (n) =	1,608	95	204	115	111	163	352	130	86	106	246

How safe do you feel when you're in this park? (Percentage (%) overall and by playground)

	All Parks	Matthews	People's	Hernandez	Rappaport	Carmansville	Tompkins	Jennifer's	Levy	Tilly	Charybdis
Very Safe	68	76	43	44	74	70	76	75	70	57	82
Somewhat Safe	27	21	48	39	23	27	23	23	22	34	15
Somewhat Unsafe	3	2	5	14	2	2	1	2	6	7	2
Very Unsafe	1	1	3	3	1	1	<1	1	2	2	1
n =	1,607	95	205	115	112	162	351	130	86	105	246

How would you rate the cleanliness of this park? (Percentage (%) overall and by playground)

	All Parks	Matthews	People's	Hernandez	Rappaport	Carmansville	Tompkins	Jennifer's	Levy	Tilly	Charybdis
Excellent	26	45	16	12	26	13	30	54	24	4	30
Good	46	48	56	39	44	41	54	40	51	31	38
Fair	22	4	25	41	19	34	12	5	24	46	25
Poor	7	2	4	8	12	13	4	2	2	20	7
n =	1,594	95	203	108	112	158	352	130	85	107	244

How would you rate the maintenance of the equipment in this park? (Percentage (%) overall and by playground)

	All Parks	Matthews	People's	Hernandez	Rappaport	Carmansville	Tompkins	Jennifer's	Levy	Tilly	Charybdis
Excellent	31	42	22	12	21	13	44	55	19	9	39
Good	50	54	60	54	56	41	47	39	60	50	46
Fair	17	4	15	31	19	39	8	5	19	30	14
Poor	3	0	2	3	5	7	1	2	2	10	1
n =	1,595	96	204	108	112	158	351	130	86	107	243

Is this the main place where the (child/children) play or run around outdoors? (Percentage (%) overall and by playground)

	All Parks	Matthews	People's	Hernandez	Rappaport	Carmansville	Tompkins	Jennifer's	Levy	Tilly	Charybdis
No	36	30	25	28	27	40	40	43	51	34	36
Yes	64	70	75	72	73	60	60	58	49	66	64
n =	1,375	82	175	112	51	114	343	120	57	93	228

Source: Based on data collected by NYU research team.

Appendix C

Measuring Playground Utilization in New York City: Description of Study Methods

A Report to New Yorkers for Parks

Diana Silver PhD MPH, Maggie Giorgio MPH, and Tod Mijanovich PhD

New York University, December 28, 2011

About this report

This study was conceived of, and executed as a collaborative project between investigators at New York University and senior staff of New Yorkers for Parks, and was funded by New Yorkers for Parks (NY4P). This study could not have been implemented without the assistance and leadership of Alyson Beha, and initial direction of Cheryl Huber of NY4P. In addition, the authors are grateful to Renan Orellana and Jacqueline Rodriguez, for their assistance in translating text, and coding and processing data. The authors are also grateful to the Institute for Education and Social Policy at New York University for their administrative oversight and intellectual guidance.

The results and findings presented in this report reflect the views of the authors, and they are responsible for any errors it contains.

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INTRODUCTION

This study examined the feasibility of reliably measuring utilization of New York City playgrounds over the course of a year. This report discusses the methodology researchers used for designing the study, training staff and collecting data. It also presents findings regarding utilization of the selected playgrounds. Investigators examined whether utilization of playgrounds would vary by borough, by neighborhood, by season, by weekend vs. weekday, and over the course of the day.

STUDY DESIGN AND METHODS

Sample Selection: To test the feasibility of measuring utilization of playgrounds, investigators sought to construct a sample that would reflect some of the diversity of NYC playgrounds, but that would allow for a reasonable test of the methodology for measuring utilization. The Department of Parks and Recreation (DPR) defines a diverse group of properties as playgrounds: these may include "play areas" connected to open fields; some areas with or without traditional play equipment; "play areas" connected to open, unstructured fields or programmed athletic fields; and sites with amenities for younger or older children, adults, or all ages. For this study, playgrounds were selected for possible inclusion in this study if they met the following criteria a) they had no more than two entrances (so that utilization could be properly counted); b) they were easily accessible by public transportation; c) they were no more than 3 acres; d) they were not bi-sected by active streets; e) they were open to the public for full days and; f) they contained an on-site bathroom. The study design team also compiled information regarding plans

for capital improvements or other disruptions, and 2000 census data regarding area median income and languages spoken. From this list of playgrounds (n=24), two playgrounds were selected from each borough for inclusion in the study. Thus, 10 playgrounds, across all five New York City boroughs were selected as study sites.

The research team collected data to a) understand utilization patterns of NYC neighborhood playgrounds, including differences among playgrounds and seasons, as well as peak periods during each day, and b) assess differences in playground users' usage patterns and perspectives of facilities by borough and income group.

Researchers selected a single weekday and weekend-day in each of four seasons for data collection. Alternate days in case of rain were also selected, and had to be utilized in all four seasons. Study days for spring, summer and fall lasted from 9am- 7pm; during the winter season, data collection activities were limited to 12-4pm because of weather conditions, and data collection across playgrounds was staggered by borough across two days.

Data Collection Tools: The research protocol called for counting users throughout the day and for surveying users regarding their perceptions of the playground.

- **Counting users:** Staff were placed at each entrance to the playground with two sports tally counters. One counter was used to record the number of children (including infants) entering the playground. The second recorded the number of adults (18 and over) entering. Staff were instructed that if they were unable to determine if the person entering was over 18 or not, they were to count the person as an adult.
- At each half hour, counters were instructed to write down the tally number of children and of adults on a tally sheet. After completing this, staff were instructed to observe

how many people (children and adults) were in the playground at that half hour and to write their estimate of that number on the tally sheet. These estimates were used to determine peak periods of use.

- *Assessing perspectives of playground users:* A short, 5-7 minute survey instrument was developed to understand the experiences and preferences of playground users. Survey items include travel time and self-reported use patterns, perceptions of safety, maintenance and cleanliness of the playground, and demographic information. Skip patterns in the survey allowed researchers to capture basic demographic information about all adult users, and to allow for understanding differences in responses among parents, non-relative caregivers, and adults unaccompanied by children in the playgrounds.

Pre-test: Procedures for counting and use of the tally recording sheets were pre-tested in three playgrounds for a two-hour period. The survey was pre-tested during this same period as well. Researchers translated the survey into Spanish. The translated survey was pre-tested with users in two playgrounds prior to the first survey date; revisions to the initial translation were incorporated into the final version.

Data collection protocol: Staff members tasked with counting users were stationed at an entrance to the playground. If both entrances were not visible from each other, or if utilization was assumed to be high due to the density of the neighborhood, staff were stationed at both entrances. All users were to be counted as they entered the playground. Staff were trained to record adults and children entering the playground. If staff were unsure if those entering the park were children or adults (i.e. adolescents), they were instructed to count them as adults. Staff were also instructed to count all those entering the playground, even if people were using the playground as a shortcut through to a side street. However, people leaving the playground and re-entering it within a few minutes (having stepped into nearby stores or another short errand) were not re-counted as they entered. On the half hour, staff recorded the total number of those individuals who had entered the

playground during that period. As they recorded this number, they also counted the total number of users in the playground at that time. These half-hour counts allow researchers to understand the flow and use patterns throughout the day.

Staff members tasked with conducting the survey were instructed to approach users after they had entered the playground. During the pre-test period, researchers observed that parents and caregivers often entered the playground with children eager to get to the equipment, and were more reluctant upon their first moments in the playground to agree to participate in the survey. Similarly, once parents and caregivers had decided to leave the playground, many were reluctant, during pre-test, to stop and respond to the survey. Thus, the protocol for approaching users included instruction to approach adult users after they had settled the children they accompanied into an activity. Adult users without children were to be approached either as they entered or as they completed activities within the playground (such as use of basketball or handball courts). Staff were instructed to record refusals on the survey instrument.

All playground research staff were instructed that they would receive a text message at 7am indicating whether the study would proceed as planned on the chosen day. Each playground's group of research staff were instructed to send a text picture of their team to the project manager at 9am, and as they left at 7pm. In addition, the project manager and other senior research staff visited each playground during the day to check on the teams. Staff were instructed that they should come prepared to engage in data collection for the entire period of time they were there. They were told to bring food for their lunch and for snacks, and to use the bathrooms in the playgrounds during the spring, summer and fall months. During the winter data collection activities, staff were advised that the bathrooms might be locked (which they were), but that they would be able to leave to find a bathroom when the research staff visited.

Only those users over the age of 18 were interviewed as part of this project. This study received approval from New York University's Committee on Activities Involving Human Subjects in May 2010.

Staff Training and Recruitment: Undergraduate and graduate students from New York University were recruited from a variety of list-serves to participate in each season's data collection activities. Advertisements for staff were placed on the list-serve three weeks before data collection was to begin. Advertisements indicated that participants would be reimbursed for public transportation costs, and paid minimum wage for participation in the study. During the fall and winter data collection activities, staff for the Staten Island sites were offered a slightly higher hourly wage, and reimbursement for car fare from the ferry to the playgrounds. All staff participating were trained to be both surveyors and counters, and teams traded off roles on the hour in these playgrounds. Staff who were bilingual in Spanish and English were recruited for the sites where the nearby population included a significant number of Spanish speakers. Researchers matched participating students to playgrounds by assumed language needs of the playground users and by the students' addresses, so that students could minimize travel time to the sites.

The two hour training included an orientation to the general purpose of the study, training in the counting procedures, a description of the surveying protocol, and a practice session for interviewers to use the survey and identify areas of difficulty or need for further clarity. PowerPoint slides from the training sessions have been provided separately to New Yorkers for Parks. Attendance at the training session was mandatory for all staff wishing to participate. Trainings were scheduled the day before the study day to ensure that staff would recall instructions. In addition, a list of instructions was provided to students as part of their survey materials.

At the training, in addition to learning about the roles they would perform, students were also provided with study materials. These included: 100 surveys per playground (English and Spanish), clipboards for each member of the team, an instruction sheet that summarized responsibilities, a letter of introduction to users from New Yorkers for Parks, tally sheets and two counters for each entrance. In addition, each member of the team was provided with a map of the playground and the phone numbers of other members of their playground's team. Staff were also provided with a New Yorkers for Parks

tee-shirt, a lanyard with a New Yorkers for Parks laminated business card, and a tote bag for their materials. They were instructed to wear their tee-shirts and lanyards for data collection. At the end of each seasonal data collection period, data collectors met with a member of the research team to debrief. Notes regarding these debriefing sessions were used to refine training materials and to clarify issues of missing data.

Analytic Strategy

Count Data: Count data for each day of data collection were recorded and entered into a spreadsheet, with the exception of the winter data collection activities. As noted, staff were stationed in the playgrounds for a portion of the winter days (12-4 pm) only. To estimate utilization of the playground for full winter days, researchers imputed data to arrive at an estimate for hours that were unobserved. Data were imputed by using estimates from the other seasons to understand the relationship between morning and afternoon utilization for each playground, and adjusted for the observed count during the winter afternoon activities. Specifically, to develop the estimate, researchers regressed past seasonal morning and evening count data for each playground with count data for the winter afternoon data collection to estimate full day utilization for each of the winter days. This method of data imputation is well-recognized in scholarly literature. The hours of the highest and lowest utilization was also calculated for each playground, for each season and day.

During the fall data collection period, research staff discovered that one of the Brooklyn playgrounds (Maria Hernandez) had been closed due to severe damage resulting from a wind storm. In addition, on one of the fall data collection days, researchers and residents were unable to use one of the playgrounds (People's Playground) because several inebriated individuals blocked the entrance to the playground and verbally harassed those seeking to enter the playground. Staff observed the playground from the school entrance across the street for several hours.

In both these cases, staff recorded zeroes for those entering the playground and for the half hour estimates for these playgrounds. These zeroes were treated as "true zeroes", meaning that these playgrounds were not used during these

periods. Thus, the overall totals for fall data collection reflect actual usage.

To arrive at half hour estimates of the total number of people in the playground where two staff were counting (and where entrances may have been relatively far from one another), researchers averaged the estimates of the two counters.

Survey Data: Survey data were entered and analyzed in a statistical software package, STATA 11.0. Over the four seasons, 2,316 people were approached by surveyors, with 69% of those agreeing to participate. Exit interviews with staff revealed that they did not approach adults who seemed inebriated, homeless or mentally unstable. Staff noted that during crowded periods, they were often unable to approach all of the adults or caregivers in the playground, and that language differences between staff and playground users sometimes made obtaining consent or refusal impossible.

Uni-variate and bi-variate analyses of these data were conducted to understand differences in perceptions by borough, by neighborhood income, and by respondent income. These findings are reported separately.

UTILIZATION COUNT FINDINGS AND DISCUSSION

Data collection was completed on one weekday and one weekend day for each of four seasons during 2010-2011. Count data were compiled and tallied in Excel spreadsheets, and analyzed using Stata 11. Chi square analyses were used to investigate differences in utilization counts across seasons and boroughs.

New York City playgrounds are heavily utilized: over the four seasons, research staff counted 37,412 users in the elected playgrounds, as can be seen in Table 1. Approximately 53% of these users were children. Forty-seven percent of all playground users used these playgrounds in the spring. As expected, utilization was lowest in the winter, with research staff counting (and estimating, as described above) only 906 users - just 2% of the total users. Counts by season, day of week and playground are reported in Table 2 of main report (page 7). As can be seen in Table 2, utilization patterns were largely similar on weekdays and weekend days, with the exception

of the fall, when the weekday data collection coincided with largely cool and drizzly weather. Differences in playground utilization were significant at the $p < .05$ level.

Across the four seasons, utilization was highest in Manhattan, Brooklyn and Queens, and lower in the Bronx and Staten Island, as can be seen in Table 3. This pattern was largely consistent across seasons. For instance, during the spring season, 37% of all users were counted in Manhattan, 31% in Brooklyn, and 20% in Queens, with only 6% of spring users in the Bronx and in Staten Island.

As can be seen in Table 4, utilization of the sampled New York City playgrounds varied over daytime hours, on weekends and weekdays. In general, utilization of playgrounds was heaviest in the afternoon hours (generally after 2:00 pm), and lowest in the morning hours, in spring, summer and fall weekends and weekdays. Winter utilization was sparse across playgrounds on both weekdays and weekends, and did not vary overall over the course of these days.

Despite these general findings, there are notable differences in utilization between playgrounds. For instance, according to data collectors, differences in child and adult counts on weekdays may reflect utilization of playgrounds by local pre-school and school programs.

Limitations: This study has several limitations. Data collection occurred on only one weekend day and one weekday each season, and thus utilization estimates may reflect special events or other activities that occurred in different playgrounds on such days, making these days less representative of utilization for the season overall. While weather conditions for each of the data collection days undoubtedly influenced utilization on those days, efforts to avoid severe conditions (consistent rain, snow) were made and alternate days were used in every season. However, poor weather could contribute to observed utilization, particularly during the winter months, when it was especially cold, even for New York City. Moreover, errors in recording utilization counts could have resulted in inaccurate estimates in some places. No measure of the length of time people stayed in the playground was included in the data collection. In addition, staff were asked to count adults and children separately, and may have inaccurately estimated the ages of

some adolescents and young adults. Elements of the training protocol and the use of mechanical counters were utilized to minimize such errors. Most importantly, playgrounds were not selected randomly, and may not reflect utilization across playgrounds within boroughs. These estimates, therefore, cannot be generalized across playgrounds within a borough, across neighborhoods, or across boroughs.

CONCLUSION

This study demonstrated a low-cost method for monitoring the utilization of neighborhood playgrounds across seasons. Our investigation demonstrated the feasibility of fielding such a survey across boroughs and seasons. Our experience in conducting this preliminary study suggests several lessons for replication. These include:

- 1) **Training:** Attendance at training must be required for all data collectors, and a brief refresher training is advisable for returning data collectors across seasons. As noted in the training protocol, training should include a practice session for data collectors to surface ambiguities or questions regarding the process of data collection.
- 2) **Staffing:** College students (both undergraduate and graduate) can be trained and deployed for data collection. Yet, as with all temporary workers, students may fall sick or not show up despite commitments to do so, affecting data collection. As a result, training a larger pool, and reserving one or two additional workers to be “alternate” collectors is advisable.
- 3) **Playground conditions:** Conditions within playgrounds can affect the data collection activities in ways that can compromise its accuracy. For instance, bathrooms in the playgrounds were not open during the winter data collection efforts. As noted within this report, threatening or disruptive people may linger in some playgrounds, making data collection difficult.
- 4) **Adjustments for weather and transportation differences:** Researchers should select alternate days for each planned day of data collection to adjust for severe weather

that prevents utilization. While severe weather occurs in all seasons, and affects the true utilization of the playgrounds in these seasons, finding staff to document non-utilization under such conditions is more expensive. In addition, while travel to Staten Island (SI) playgrounds is feasible by public transportation, the length of time to use public transportation on SI to playgrounds proved impractical, and additional funds were necessary to pay for cab service from the ferry terminal to the playgrounds.

- 5) **Playground sample:** Methods described in this report can be adapted to neighborhood playgrounds that did not meet the strict criteria for inclusion used for this study, but implications of those modifications should be assessed in advance of training. For instance, one playground initially selected for inclusion included entrances that neighborhood residents used as a shortcut across two streets, making counting “users” more difficult. In

some circumstances, users may be defined more broadly than in this study. Residents passing through larger parks or playgrounds may be considered users, since they may have chosen their route to take advantage of park amenities and may use trash cans or bathrooms. In larger park areas with field entrances or multiple entrances, it may be advisable to station staff in heavily trafficked areas, and count the number of people passing the staff member. Researchers could then modify the protocol to address such issues, but may need to visit selected playgrounds in advance of data collection to plan for such modifications.

In sum, the methods described in this study allow for estimations of utilization across days of the week, seasons and sites of playgrounds. While such methods may need to be adapted for different playground or park circumstances, the data presented here may be useful for understanding how parks are used across neighborhoods.

Table 1: Number and percent total users of selected NYC playgrounds by season

	Adult	Children	Total Number	Percent of total
Spring	8319	9649	17,768	47
Summer	6000	7003	13,003	35
Fall	3200	2615	5815	16
Winter	351	555	906	2
Total	17,870	19,822	37,412	100

Table 2: Percent users of selected playgrounds, weekend day vs. weekday, by season

	Weekday	Weekend
Spring* N=17,768	52	48
Summer* N=13,003	53	47
Fall* N=5815	17	83
Winter N=906	49	51

*Differences between weekday and weekend days were significant at the $p < .05$ level in spring, summer and fall.

Table 3: Percent total users of selected NYC playgrounds, for one weekend day and one weekday, by season and borough

	Manhattan	Bronx	Brooklyn	Queens	Staten Island
Spring* N=17,768	37	6	31	20	6
Summer* N=13,003	21	13	32	27	6
Fall* N=5815	32	6	32	20	11
Winter* N=906	34	22	22	8	15

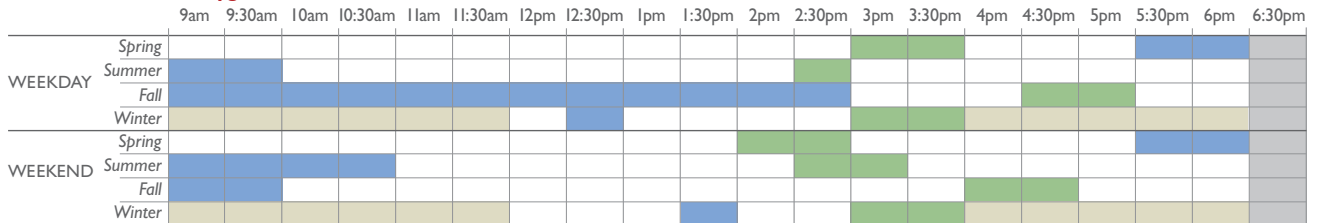
*Differences across boroughs were significant for each season observed at the $p < .05$ level.

Note: One Brooklyn playground was closed for repairs resulting from storm damage in Fall. One Bronx playground was inaccessible during weekday data collection due to harassment from vagrants.

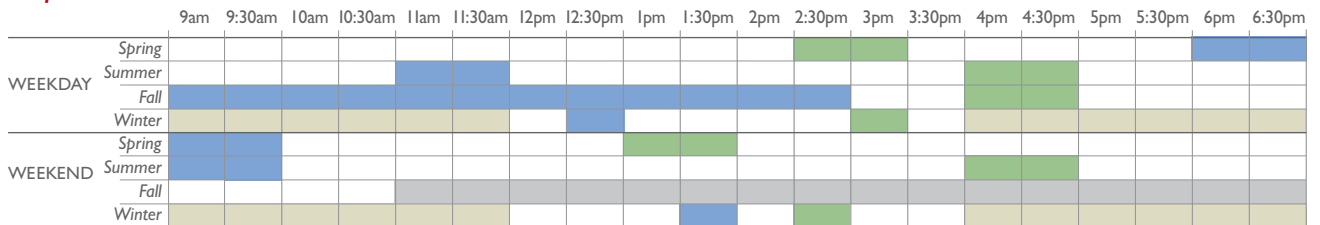
Appendix C Table 4: Highest and lowest utilization periods for sampled playgrounds, by season and day

■ Highest utilization for that day ■ Lowest utilization for that day ■ Closed ■ Unobserved

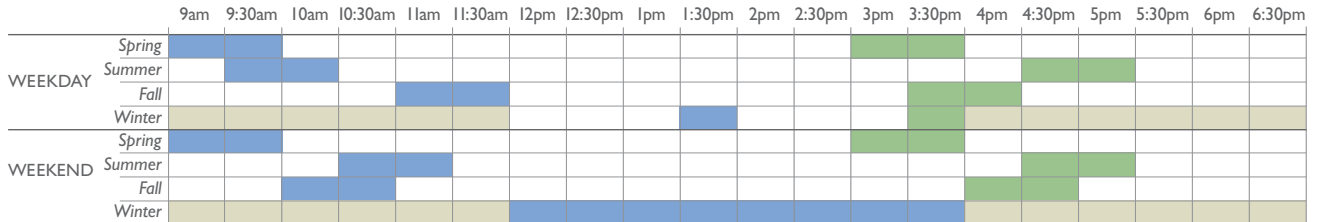
Matthews Muliner Playground



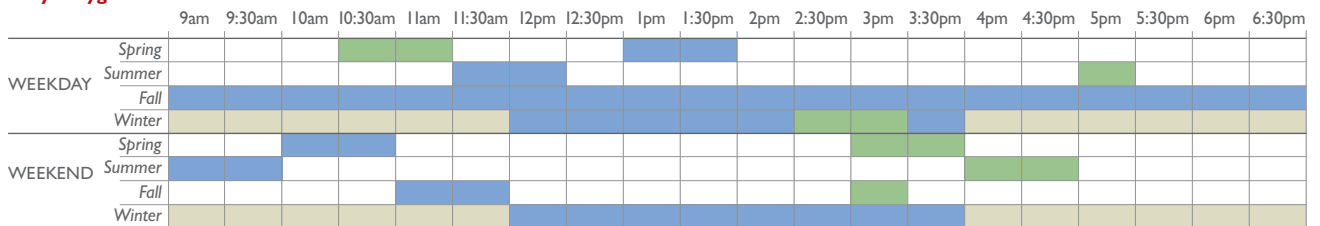
People's Park



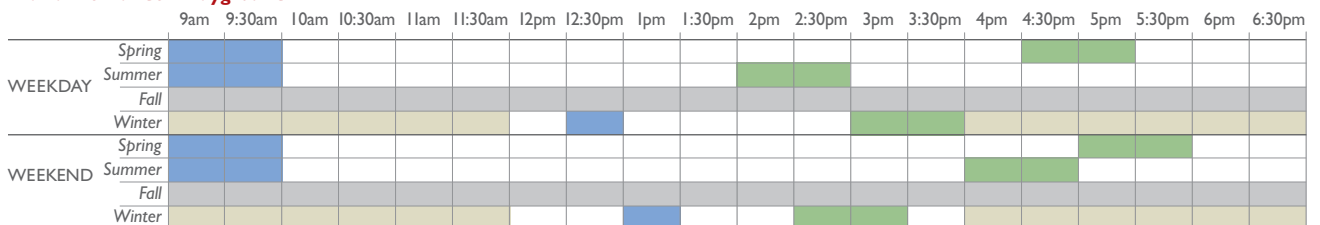
Jennifer's Playground



Levy Playground



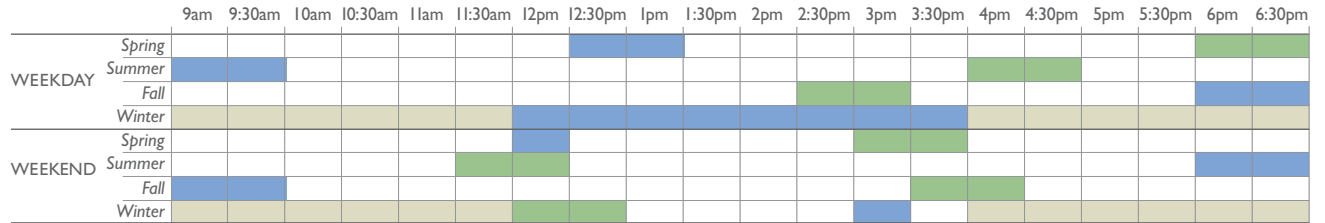
Maria Hernandez Playground



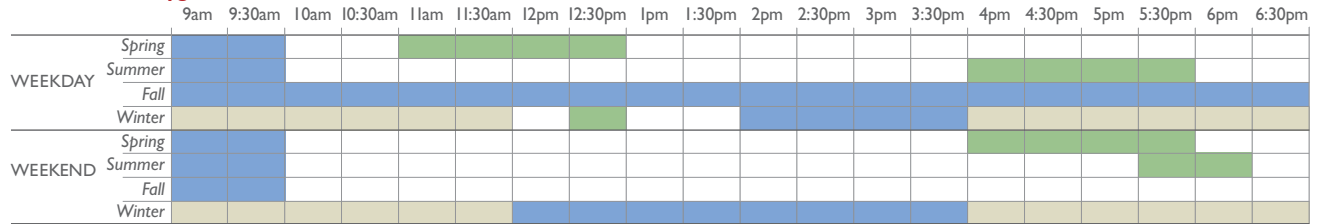
Appendix C Table 4: Highest and lowest utilization periods for sampled playgrounds, by season and day (Continued)

■ Highest utilization for that day ■ Lowest utilization for that day ■ Closed ■ Unobserved

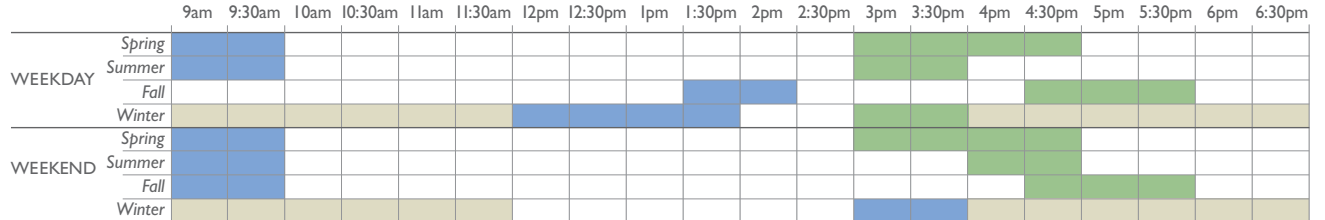
Rappaport Playground



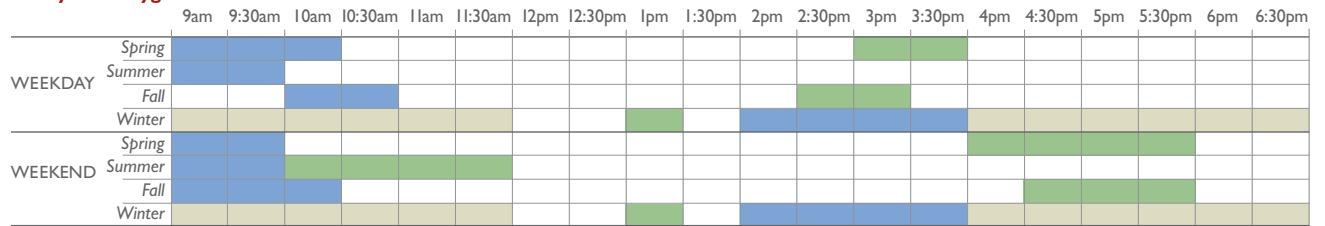
Carmansville Playground



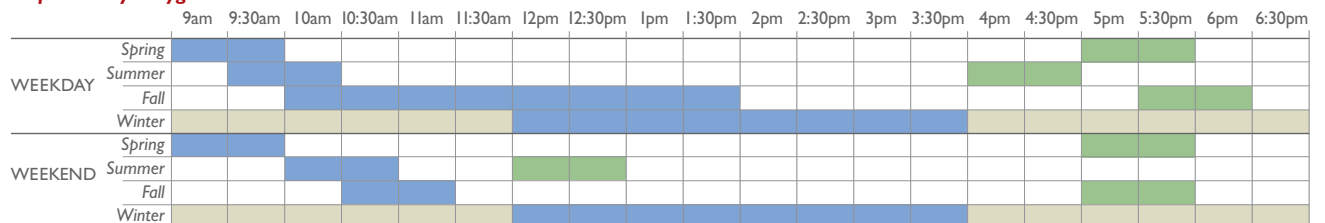
Tompkins Square Park Playground



Charybdis Playground



Captain Tilly Playground





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