FAIRMOUNT PARK CONSERVANCY

Knight Foundation

WILLIAM PENN FOUNDATION

Report on Pre-Construction Usage at the Discovery Center

Prepared by: PennPraxis for The Fairmount Park Conservancy

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PennPraxis

I. PROJECT INTRODUCTION

The Fairmount Park Conservancy (FPC) retained PennPraxis to assist in the design and implementation of data collection and baseline monitoring of current public usage patterns at four Philadelphia parks due to undergo renovation or expansion. This series of renovations and expansions is related to the Reimagining Civic Commons Initiative (RCC). In order to document the impacts of the Initiative, PennPraxis designed surveys and monitoring protocols that could both measure current conditions and be implemented again in the future to compare pre-project and post-project public usage. This comparison will allow FPC to identify changes in use, behavior, and opinions associated with the Civic Commons interventions. This documentation initiative is supported by the Knight Foundation and William Penn Foundation.

This document contains the results of PennPraxis' research and surveying related to the Discovery Center. Herein are also presented the tools developed for use in this research, and the details related to their development. This document also makes recommendations for additional or more detailed research. Corresponding documents report research on the Viaduct Rail Park, Bartram's Mile and Lovett Memorial Library and Park projects.

PennPraxis conducted preliminary research to discern the priority questions/hypotheses. PennPraxis then determined what activities were important to measure and what was reasonably measurable given time and resources. Subsequently, several survey instruments were developed. These tools took the form of in-person questionnaires and a protocol for mapping behavior in public spaces. The survey questionnaire was designed to be compatible with research conducted by Pennsylvania State University on behalf of FPC on the fifth Civic Commons site in West Fairmount Park—Centennial Commons. These surveys were also tailored to collect some information specific and appropriate to the individual parks.

PennPraxis' survey instruments are designed to test the following hypotheses:

> Hypothesis 1. *The Civic Commons interventions will be associated with an increase in use of civic assets.*
>
> Hypothesis 2. *Interventions will be associated with increased diversification of park usership and broader socio-economic integration and distribution of the benefits of park use.*

These are "alternative hypotheses" to be tested against the "null hypotheses" that there is no change in activity, benefit or distribution of benefit associated with the interventions.

The data collected using the instruments developed by PennPraxis should adequately provide a description of changes associated with the development of the Civic Commons projects. PennPraxis determined that the resources are not available to conduct a survey of the scope necessary to assign *causality* to the relationship between the Civic Commons interventions and changes in usership or behavior at or around the sites.

BASELINE SURVEY RESULTS: *SELECTED FINDINGS*

- Users participated in a broad range of activities but specific amenities drew distinct audience groups. For example, the majority of the visitors to Sedgley Woods disc golf course were white males, many from outside North Philadelphia. Smith Playground was the most diverse of those surveyed.
- Most users surveyed expressed a strong belief that the park was an important part of the neighborhood but few felt a high degree of personal ownership of the park. People who live in North Philadelphia zip codes expressed similar feelings.
- Survey subjects reported very little familiarity or understanding of future plans for the Discovery Center site, and only 11% of North Philadelphia residents reported being familiar with the plans in any way.
- Users answered favorably when asked about affinity for natural or forested areas. Most reported moderate interest in Discovery Center programming but free response suggestions asked for more access and amenities.
- Behaviors tended to cluster in predictable ways: eating and drinking at picnic tables along Sedgely Woods, children playing at playgrounds and sports in the larger, open grassy areas.
- East Fairmount Park attracted fewer women than children or men.
- The average repeat visitor was younger than 50 and arrived by automobile. The majority of visitors came from North Philadelphia but visitors came from all over the City.
- Average users reported visiting the park an average of five to ten times per month and spent over an hour at the site.
- Survey respondents strongly agreed that they enjoyed spending time outdoors and values nature.

II. STUDY SITES

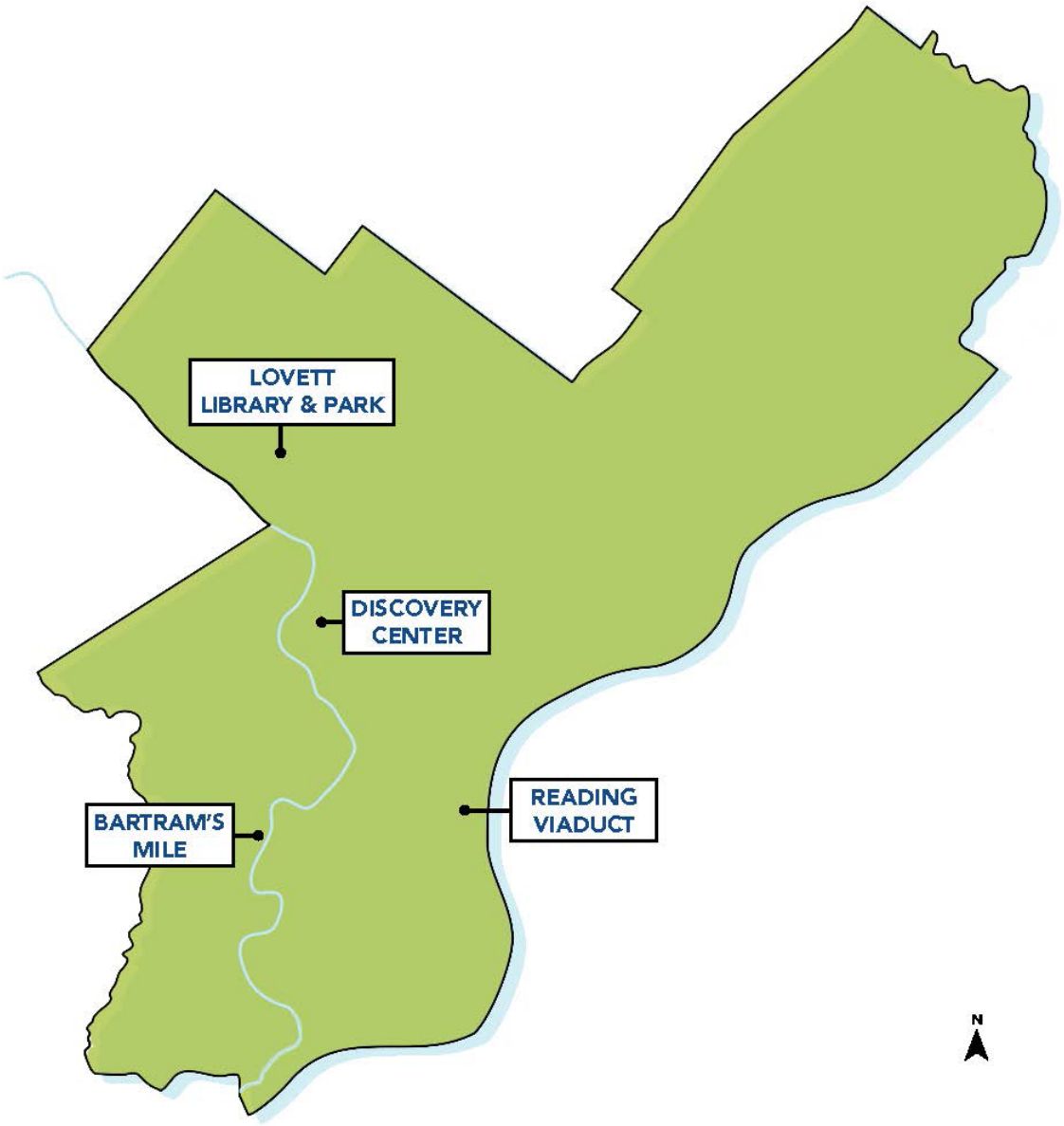

Figure 1. Four Civic Commons sites in Philadelphia studied by PennPraxis

Penn Praxis surveyed near the future site of the Discovery Center (Discovery) (Figure 1). PennPraxis considered the site's idiosyncrasies in order to develop specialized measurement instruments, in addition to generalizable tools. Whereas the first phase of Penn Praxis' research took place in existing park spaces due to be renovated or transformed, this second phase of the RCC data collection was conducted in the vicinity of parks that currently do not exist.

The Discovery Center will be the site of a cooperative environmental programming hub run by the Philadelphia Outward Bound School and the Audubon Society of Pennsylvania in conjunction with the City of Philadelphia's Department of Parks and Recreation. The Discovery Center is to be an educational facility which sits adjacent to a century-old water reservoir in East Fairmount Park. The reservoir has been closed to the public for many years, and has become a hotspot for migratory bird activity. The relatively "wild" history of this space will allow The Discovery Center to host environmental education and experiential programming using a rare natural setting surrounded by a dense urban environment. The Discovery Center which is almost entirely funded, plans to break ground in Spring 2017 and open in late Spring 2018.

East Fairmount Park is home to a diverse set of well-used facilities. Nearby to the future Discovery Center are a driving range, a wooded disc golf course (Sedgley Woods), a 16,000 square foot children's play house (Smith Memorial Playground) as well as various ballfields (Edgeley Fields), athletic courts, and playgrounds (Mander Playground) (Figure 2). Some of these amenities, like the driving range or disc golf course, are unique city resources and can draw visitors from a wide geographic area. Other amenities – picnic areas, playgrounds and ball courts – generally have a more local appeal.

East of 33rd Street, near the future Discovery Center site is the Strawberry Mansion neighborhood. According to demographics collected by the City Observatory on behalf of the Knight Foundation and Fairmount Park Conservancy, the census tracts adjacent to the site are some of the least diverse in the city (City Observatory, 2016). These tracts, which are 70-95% African-American, have poverty rates of 37-53% – well above local and national averages. Nearby tracts also have very low rates of high school graduation and advanced educational attainment. These tracts rank in the bottom third of Philadelphia's census tracts in almost all measures of educational and economic success.

Figure 2. Map of Discovery Center site

III. METHODOLOGY

Preliminary Research

Prior to creating surveying instruments and methods, PennPraxis surveyed existing research, conducted site visits and administered a series of interviews in order to determine how best practices in survey delivery and site observation could be applied.

PennPraxis deployed two types of survey instruments: an in-person intercept survey and a "participant observation" (PO) behavioral survey. The intercept survey is designed to determine the demographic profile of park users, elucidate information about park usage and relate this information to various visitor attitudes and opinions. The PO surveys are designed to measure the intensity, nature and pattern of usage at each site in space and time. Ultimately, this information can be related to programming and design interventions which are designed to understand the way in which the space is used, leading to potential programming interventions. Each survey type is addressed separately in this section.

Participant Observation Survey Instrument

The (PO) survey instrument was designed to test Hypothesis 1 and discern whether the interventions will be associated with increased usage at the sites. Furthermore, the PO instrument will allow one to determine whether the type, diversity and spatial arrangement of usage changes in association with the intervention. This additional information can be related to some elements of Hypothesis 2: different types of park usage behavior are associated with different types of user benefits and different user groups.

Description

PennPraxis The PO instrument is a detailed map of the study site upon which a researcher logs observations of park users using a set of coded keys which indicate the type of behavior a subject is exhibiting and basic demographic information about them. For a half-hour period, an observer logs each individual subject they observe once during a circuit of a site. The subject is coded on the map as being male, female or child. The subject is also coded as exhibiting one of sixteen behaviors—a list which includes Standing, Sitting, Bicycling, Using Electronic Device, Reading, Drinking/Eating, Observing Nature and more.

These observations can then be associated with the time-of-day, temperature, weather and day of the week. They can be mapped and spatial-temporal patterns can be detected.

The PO survey instrument is included in Appendix I.

Development

PennPraxis' development of this instrument was inspired by the rich tradition of observational research by design scholars in public spaces. The modern successor to the work of William H. Whyte and Jane Jacobs is the Danish architect Jan Gehl. Gehl's work (and the work of his Gehl Institute) inspired the creation of the PO survey. The Gehl "toolkit" (Gehl Studio San Francisco, 2015) for assessing diversity and vibrancy in public space includes methodology for logging the location, time, nature and circumstance of an individual's behavior in the space.

PennDesign Associate Professor Stefan Al and Ph.D student Jae-Min Lee lent their expertise in the

creation of the PO survey instrument. Mr. Lee created an extremely detailed mapping and coding methodology for the purpose of his doctoral research and permitted PennPraxis to adapt his tools for use in this study. By combining the types of behaviors and information used for Mr. Lee's maps with observed types of behaviors gathered during site visits, PennPraxis researchers developed the final instrument. Dr. Al provided general guidance and direction for the development of the instrument.

Deployment

PennPraxis observers deployed PO survey instruments during the hours of 7:30-9:30AM (morning), 11:30AM-1:30PM (mid-day) and 4:30-6:30PM (late afternoon/evening), recording each of these time periods on seven separate occasions. These seven occasions consisted of three weekend or holiday observations and four weekday observations for each time period). Each two-hour time period was further subdivided into four half-hour observation periods. Sampling took place during July, August, and September 2016.

For each thirty-minute observation window, the observer would survey the entire site by foot or bicycle, recording each person's behavior the first time that person was encountered by the observer. Regardless of that individual's movement about the site or potentially changing behavior, they were not logged again during that period. The observer recorded whether that person was a male, female or child. The observer also recorded the weather, temperature and date of the observation. These observations were recorded using paper and pen.

The area around the future Discovery Center site, being far too large for one person to survey in a half-hour, was surveyed in its entirety once per hour. For this reason, it can be compared cross-sectionally with the other parks only using rate statistics.

Data Processing and Analysis

The data were converted into a digital format by manual entry using the open-source geocoding website geojson.io. Geojson.io is a site which allows one to manually draw points on a map and assign them attributes in a table. The data can then be exported as comma-separated values data (CSV) where each datum is joined with the latitude and longitude of the associated point or as a geodatabase (shp or geojson). A sample of the data can be seen in Figure 3. PennPraxis designed a protocol for coding data using geojson.io which will be available for use by the client and partners.

Male	Female	Child	Day	Month	Year	Hour	Min.	Weekday	Code	Activity	Temp.	Longitude	Latitude
0	1	0	4	6	2016	13	30	Saturday	T	Sitting	83	-75.188	40.0568
1	0	0	4	6	2016	13	30	Saturday	S	Standing	83	-75.187	40.0568
1	0	0	4	6	2016	13	30	Saturday	O	Sports	83	-75.188	40.0571
1	0	0	4	6	2016	13	30	Saturday	O	Sports	83	-75.188	40.0571
1	0	0	4	6	2016	13	30	Saturday	O	Sports	83	-75.188	40.0571

Figure 3. Sample of Raw Data

Subsequent to coding the data, all of the individual observation data sets were coalesced into a master dataset, which was then cleaned and manipulated using the statistical software language R. The data can also be manipulated in this fashion using Microsoft Excel but such manipulation cannot be automated. The ggplot package (Grammar of Graphics) in R allows for highly customizable informational graphics. PennPraxis's R programs will be available for use by the client and partners.

The coalesced data sets, consisting of all observations at each site, were then mapped and analyzed using ArcGIS to determine the density of use and the spatial patterns of usage.

Intercept Survey Instrument

PennPraxis developed an intercept survey instrument in order to test Hypothesis 2 and explore whether future interventions will be associated with increased diversification of park usership and broader socio-economic integration and distribution of the benefits of park use. To test this hypothesis, these surveys were designed to document the socio-economic and locational characteristics of park users and associate that information with their level of park usage and stated attitudes about ownership, safety and attachment related to the park. These surveys also represented an opportunity for PennPraxis to collect additional information on behalf of various stakeholders and solicit feedback about park quality.

Description

The intercept survey instrument consists of thirty-four questions which were administered in person to visitors of each park in the study, and a varying number of questions which were park-specific. These questions are divided into the following categories: General Usage, Quality, Experiences, Community, Personal Ownership and Demographics. The question formats vary. Surveys took between five and ten minutes to complete. The survey instruments are included in Appendix II.

The surveys were administered using pen-and-paper and also using iPads running the iSurvey application. The iSurvey application is a product of Harvest Your Data, which provides a back-end data visualization suite and data collection apparatus on a subscription basis. Since the Viaduct was not yet open to the public during the survey period, nor was it adjacent to existing park land, some surveys were conducted online by PennPraxis and coded into iSurvey afterwards. More information regarding this methodology is included under the "Deployment" header below.

PennPraxis designed the survey to be generally compatible with a survey administered at the "Centennial Commons" site in West Fairmount Park by a team of researchers from PSU in 2015. This team was led by Principal Investigator Andrew Mowen. This compatibility will allow for a widened analysis which can compare parks to one another (cross-sectional analysis) and compare individual parks or aggregated data over time (longitudinal analysis). This desire for compatibility is reflected in both the form and content of the questionnaire but also in the use of iSurvey and Harvest Your Data, which were both employed by PSU. It is notable that the types of activities which PennPraxis asked respondents to report are different from those measured during participant observation. This difference owes both to the desire for congruity with the PSU study but also because observed behavior is different from a person's stated intent and reason for visiting, which may not be outwardly observable.

Unfortunately, time and resources did not allow for a replication of PSU's "matched control" research model. The PSU researchers were able to assign statistical significance to survey results from Centennial Commons relative to a control group (Mowen, Hickerson, Benfield, Pitas, & Kim, 2015), PennPraxis will attempt to make no such claims.

Development

PennPraxis developed the in-person survey instrument after a series of interviews with

stakeholders and scholars. First, PennPraxis interviewed relevant site staff and partners (Figure 4). Professor Andrew Mowen, a member of the PSU study team, reviewed draft questionnaires and provided insight into the functionality of the Harvest Your Data platform. PennDesign Assistant Professor Erick Guerra, an expert in "revealed preference" survey methodology, reviewed draft questionnaires and advised PennPraxis regarding survey length and technique, and hypothesis development. PennPraxis also conducted site visits to inform the crafting of site-specific questions. The questions and format were refined after field trials.

Name of Interviewee	Organization
Maitreyi Roy	Bartram's Garden
Zoe Axelrod	Schuylkill River Development Corporation
Danielle Gray	Schuylkill River Development Corporation
Amy Weidensaul	Audubon Pennsylvania
Sharon Barr	Discovery Center
Nancy Goldenberg	Center City District
Joel Nichols	Free Library of Philadelphia
Michael Barsanti	Free Library of Philadelphia
Brad Copeland	Mt. Airy USA
Kim Massare	Mt. Airy USA
Scott Brady	Delaware Valley Regional Planning Commissio
Sean McGill	Delaware Valley Regional Planning Commission
Melissa Kim	Friends of the Rail Park
Sunanda Ghosh	Friends of the Rail Park

Figure 4. Interviewees

Deployment

Surveys were conducted in-person, on site using both pen-and-paper and iPad survey methods during the months of July, August, and September 2016. PennPraxis created a calendar of events expected to generate large crowds and sampled some of these days in order to maximize efficiency and increase sample size. Since the Discovery Center was not yet open for use, some of the questions regarding park ownership or usership were of no utility. For example, the question "Including today, please estimate how many times over the last 30 days you visited this park?" was useful at Bartram's Mile and Lovett Library, but was not relevant at the Rail Park, which is not yet open. Questions about current or past usage were stripped from the Rail Park survey but remained in the Discovery Center survey. Discovery Center sits in the middle of East Fairmount Park, an area of active park use.

In the areas of East Fairmount Park adjacent to the future Discovery Center site, PennPraxis surveyed park users under the assumption that these users represent a baseline of existing usership. This assumption is similar to that made at Bartram's Mile in earlier surveys, that the new feature is an expansion or enhancement of existing park facilities. However, surveying at the Rail Park required some alternative methodology as there is no existing park facility whose users can be surveyed.

Data Processing

Most surveys were inputted using iPads in the field, and pen-and-paper surveys were coded using the iPads into iSurvey and timestamped with the original survey date. Bulk data sets were downloaded directly from Harvest My Data in SPSS file formats and manipulating using the statistical software language R. Data visualizations were done using the ggplot package in R and mapping was done using both ArcGIS and R.

IV. RESULTS

Participant Observation

In sum, over 36 hours of observation, a total of 5,582 users were observed in the areas of East Fairmount Park adjacent to the future Discovery Center site. Morning usage was low for all periods. Weekday usage was in excess of 300 persons per hour during the midday and afternoon/evening periods. On the weekends, midday and afternoon/evening usage was roughly 500 persons per hour on site (Figure 5).

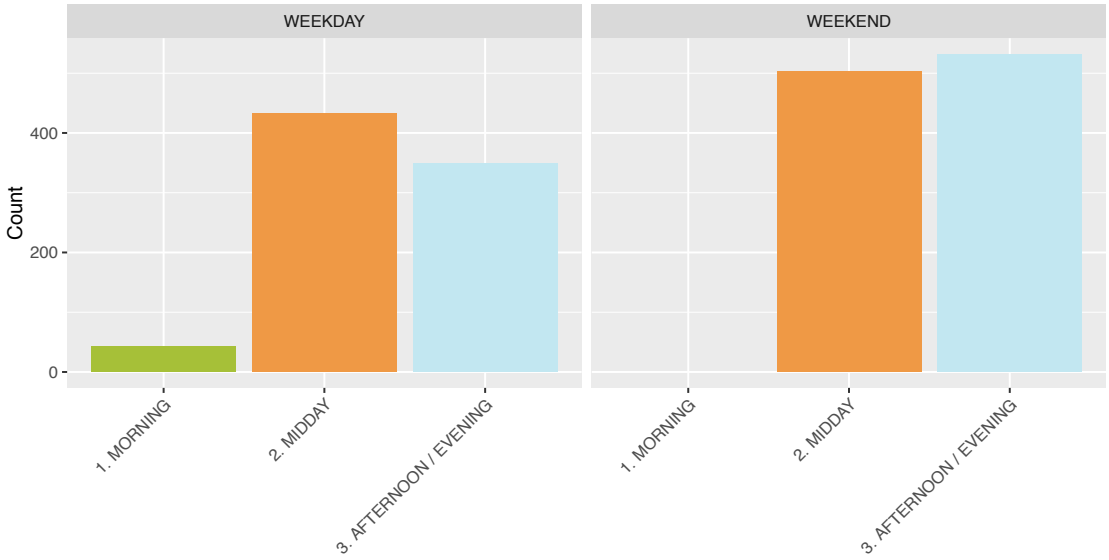

Figure 5. Persons observed per hour at East Fairmount Park areas adjacent to the future Discovery Center Site on weekends and weekdays (by time of day)

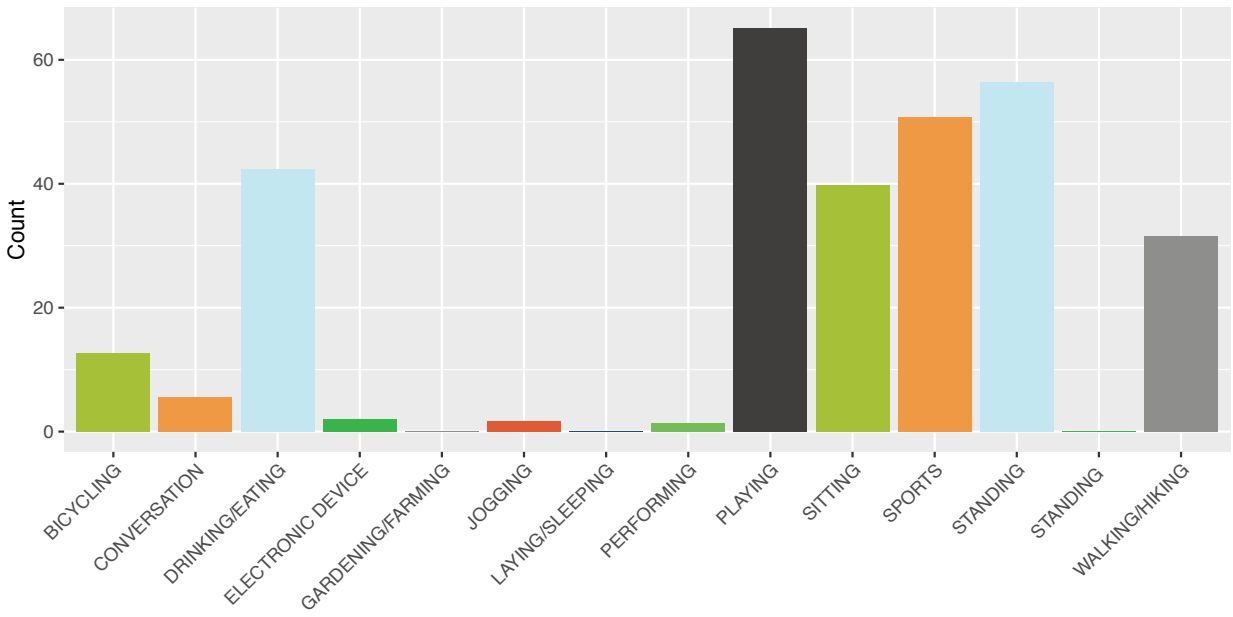

Figure 6. Hourly usage rates at East Fairmount Park areas adjacent to the future Discovery Center Site by activity

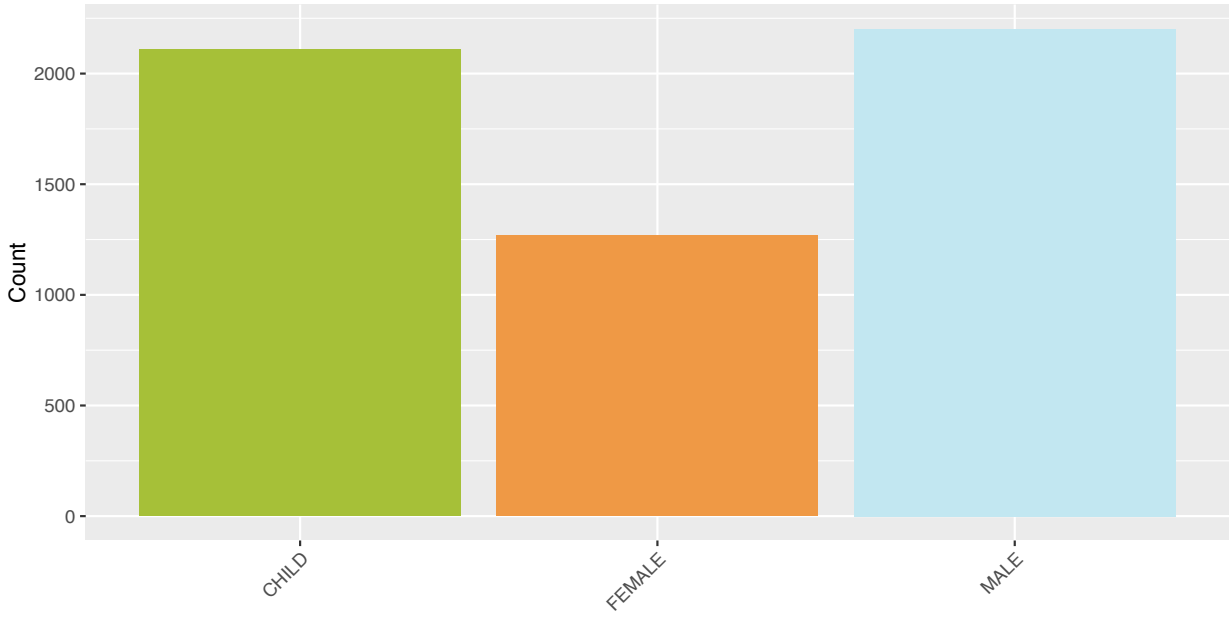

Figure 7. Gross usage at East Fairmount Park areas adjacent to the future Discovery Center Site by subject description

Subjects participated in a diverse range of behaviors in East Fairmount Park, including a wide range of active and passive activities (Figure 6). The areas of East Fairmount Park near the future Discovery Center site were the venue for numerous large social gatherings and well-attended ball games during the observation period in addition to regular usage of Sedgley Woods, Smith Memorial Playground, Mander Playground and the Driving Range.

One notable finding was that East Fairmount Park attracts a much smaller number of women than it does men and children (Figure 7). This fact may be simply due to demographically imbalanced attendance at specific nearby amenities. For example, Smith and Mander Playgrounds attract far more children than adult women or men, and the disc golf course and driving range attract far more men than either women or children (Figure 9). This imbalance was also reflected in the demographics of intercept survey respondents.

Maps from a few selected time periods (Figures 10, 11, and 12 – shown on the following pages) illustrate how these behaviors tended to cluster in predictable areas. Individuals tended to eat or drink at the picnic tables alongside the Sedgley Woods disc golf course, children tended to play at Mander and Smith Playgrounds, while sports and eating/drinking were the activity of choice in the larger grassy areas. A map of all of the collected observations gives one a notion of the clustering of park usage around certain amenities (Figure 8).

Figure 8. All Discovery Center area observations by subject activity

Figure 9. All Discovery Center area observations by subject description

Figure 10. Sample usage period – July 21, 2016, 12:00 PM to 1:00 PM

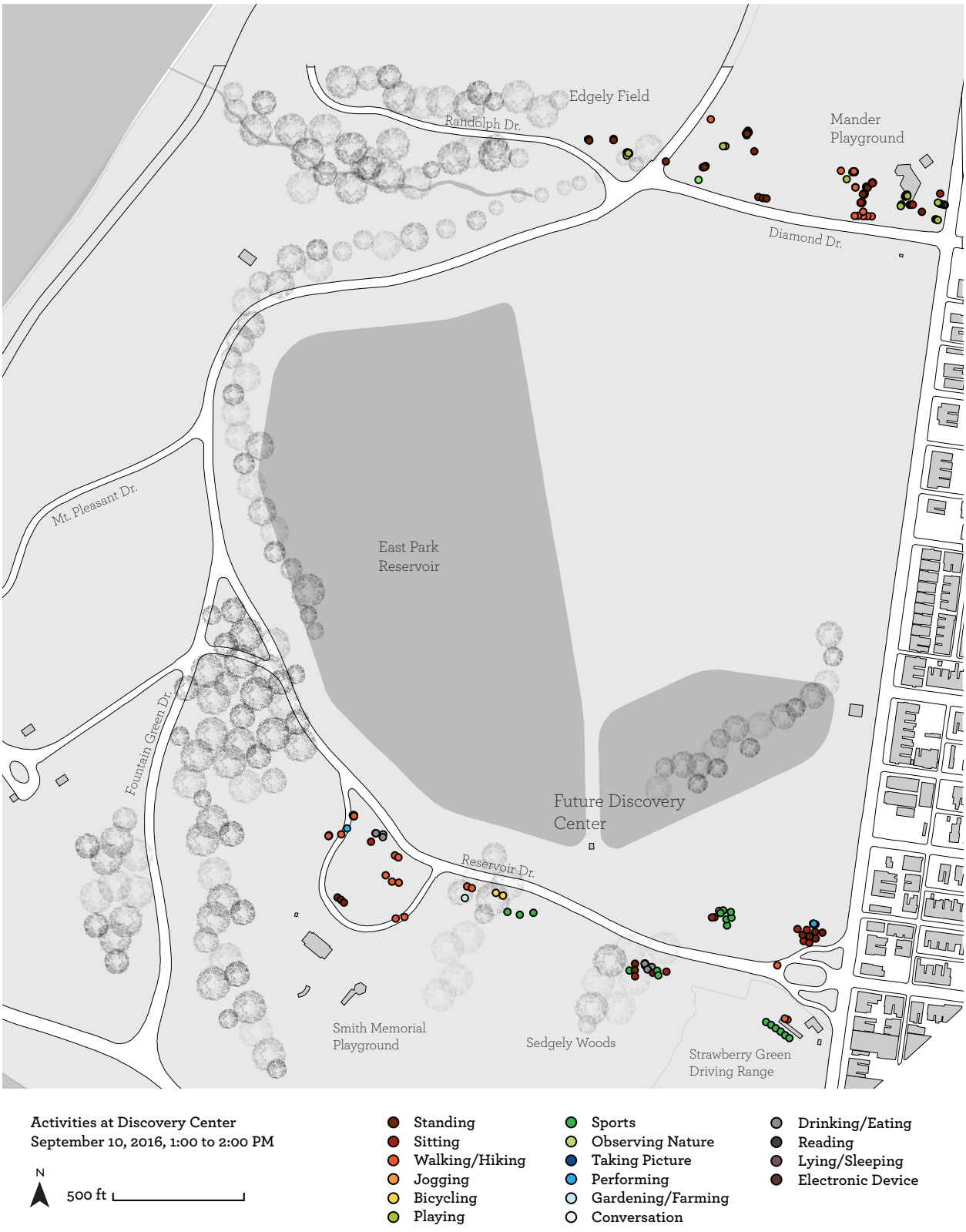

Figure 11. Sample usage period – September 10, 2016, 1:00 PM to 2:00 PM

Figure 12. Sample usage period – September 17, 2016, 5:30 PM to 6:30 PM

Survey

By early September 2016, PennPraxis had collected 138 surveys in 27 of hours of canvassing on site. This capture rate of 5.1 surveys per hour compares favorably to the PSU study's capture rate of 1.92 surveys/hour (Mowen, Hickerson, Benfield, Pitas, & Kim, 2015). If the sample is taken as an approximation of the larger stakeholding population (that of the City of Philadelphia (approximately 1.5 million residents)), the margin of error for 95% confidence interval in survey results is approximately 9%.[1] This section contains a general description of findings and some charts and tables of particular interest. A complete set of charts and tables describing all survey findings can be found in Appendix III.

The average adult visitor to the area of East Fairmount Park adjacent to the Discovery Center site was a repeat visitor under the age of 50 who arrived by automobile. The majority of visitors were from North Philadelphia but visitors came from all over the city (Figure 13, 14). Thirty percent of subjects reported living outside the city. Thirty percent of subjects reported living outside the city. Strawberry Mansion is the North Philadelphia neighborhood closest to the site, and which has a strong association with East Fairmount Park. However, respondents were only asked their zip code to determine location, so that is the most specific level of neighborhood detail collected. Therefore, all nearby neighborhood residents are classified as "North Philadelphia."

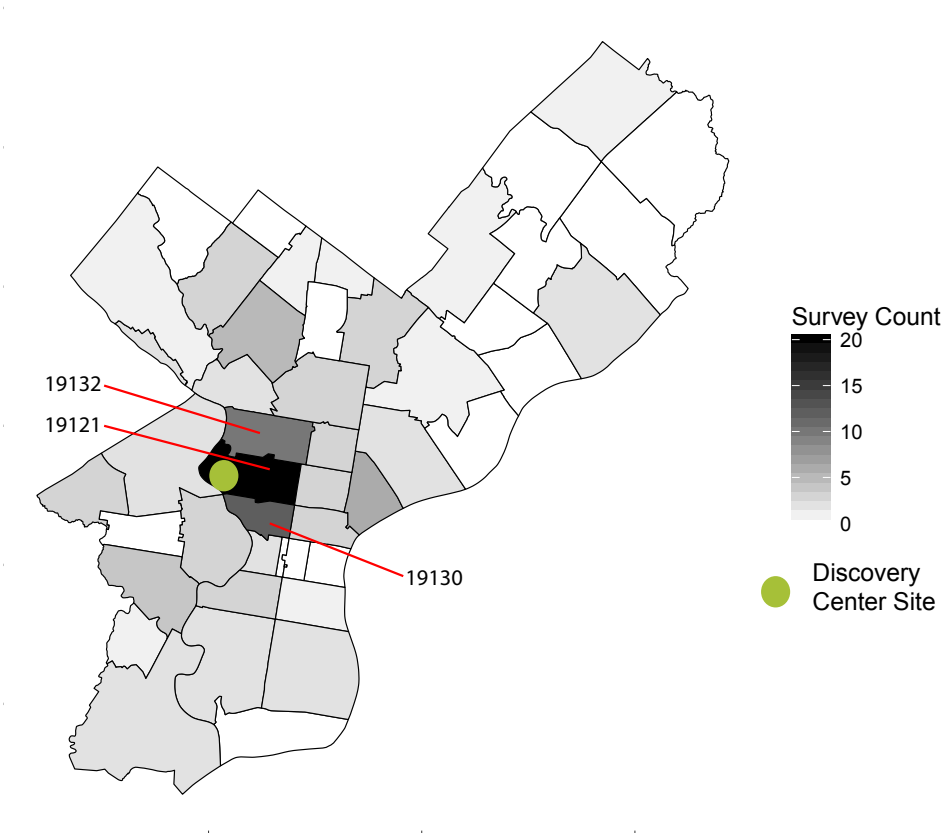

Figure 13. Counts of Philadelphia resident survey subjects by zip code

[1] Margins of error for survey sample point estimates were calculated using the following formula $\bar{p} \pm z\,\alpha/2\sqrt{(\bar{p}(1-\bar{p}))/n}$ where $\bar{p}$ represents a point estimate for the survey sample, n represents the population size and z $\alpha/2$ represents the 95th percentile of the standard normal distribution population (Yau, 2013).

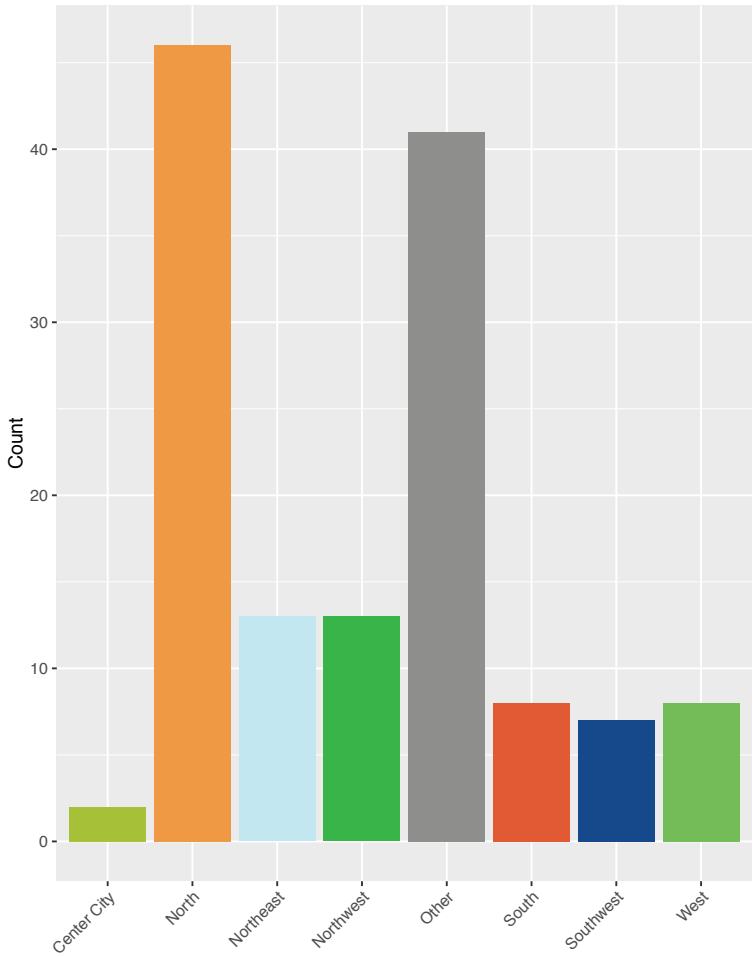

Figure 14. Counts of survey subjects by area of Philadelphia residence; "Other" category indicates non-Philadelphia resident

The average visitor held a high school degree. Fifty two percent of those who agreed to take the survey had a bachelor's degree or more. The plurality of visitors (50%) identified their race as white. The second most likely response to questions regarding the visitor's race was "Black or African American" (37%). For information regarding the distribution of responses to demographic questions, refer to Appendix III.

By far the most popular reason for visiting was to participate in exercise. Many subjects also reported being there for playing, eating, drinking or socializing (Figure 15). Because the East Park areas adjacent to the new site are large in size, it is not reasonable to assume that one could dissect the activity categories by demographic to see if social intermingling may be taking place. However, PennPraxis did ask subjects which specific amenity they came to visit. This allows for subdivision of visitation at each location into demographic categories or points of origin.

The largest pool of respondents were those who were there to visit the Sedgley Woods disc golf course. Perhaps this statistic is an artifact of the stationary nature of activity at that site. Numerous visitors to Sedgley Woods sit along the site edge at picnic tables, eating, drinking and socializing before or after playing disc golf. At the Smith Playground, Mander Playground and elsewhere – many could not be troubled to stop and take the survey because they were either engaged in vigorous activities or tending to children.

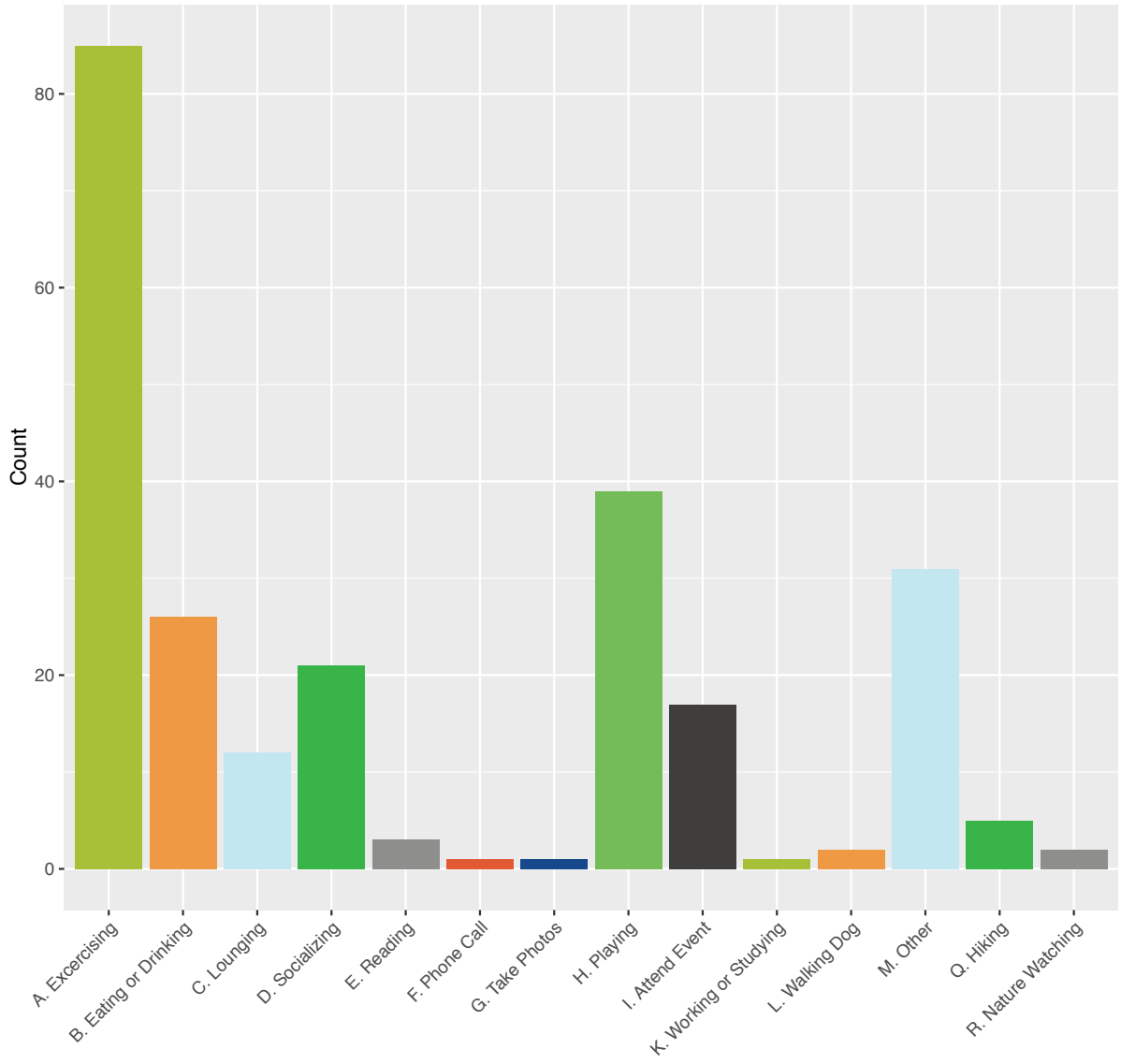

Figure 15. Respondent activity plans

Given the sample sizes of these sub-groups, the demographic makeup of the users at the sub-sites in East Fairmount Park should be treated as anecdotal. Given that caveat, it is notable that there is a range of diversity measured at different amenities in East Fairmount Park. The disc golf course was notable in that it was very homogeneously white and male and drew a large majority of its visitors from outside the immediate North Philadelphia area (Figures 16 and 17). The driving range visitation was also overwhelmingly male. Other sites generally had a balanced visitorship by gender. Smith Playground had the most diverse visitorship amongst those surveyed during the study period (Figure 17).

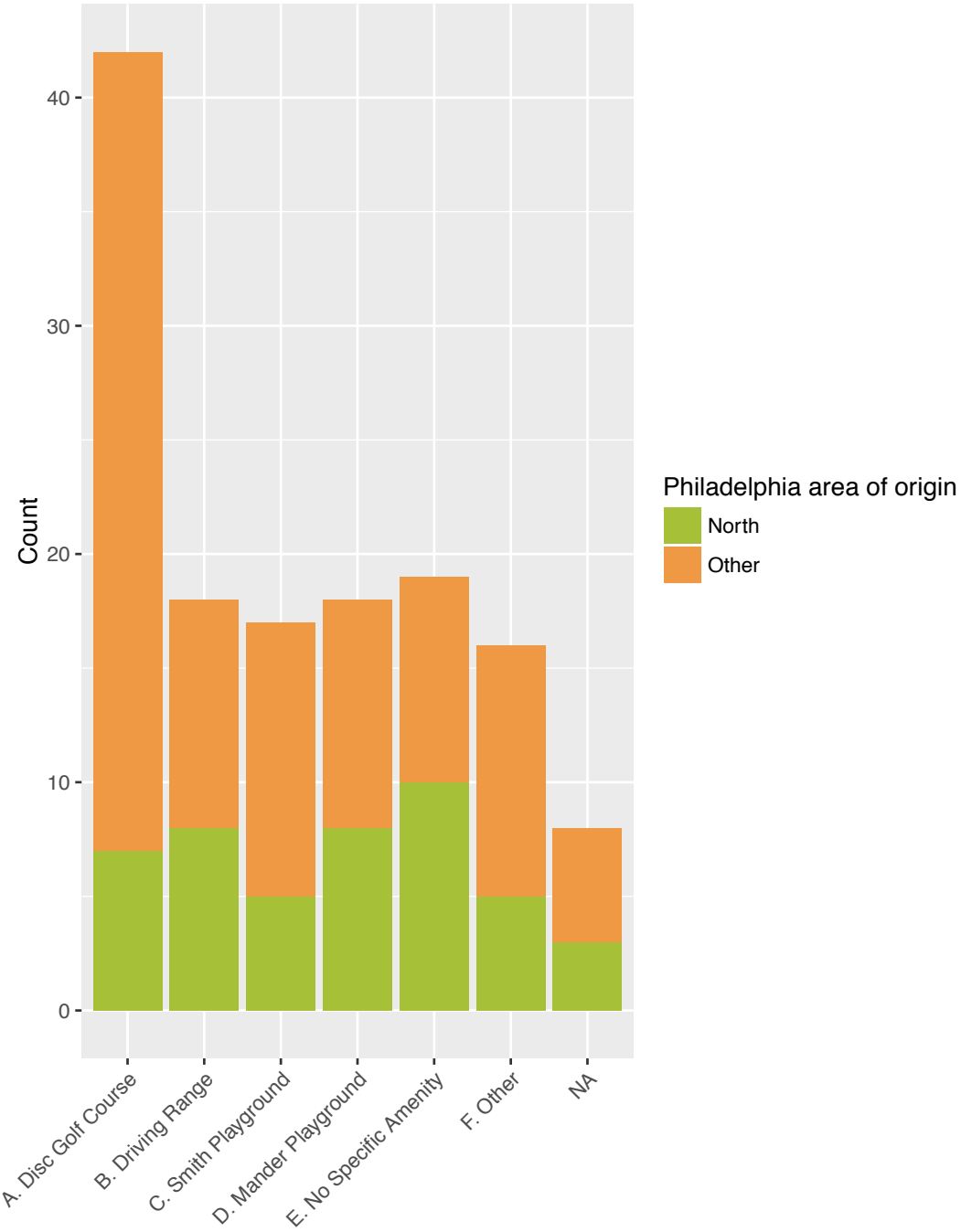

Figure 16. Respondent activity plans subdivided by area of origin – North Philadelphia or other

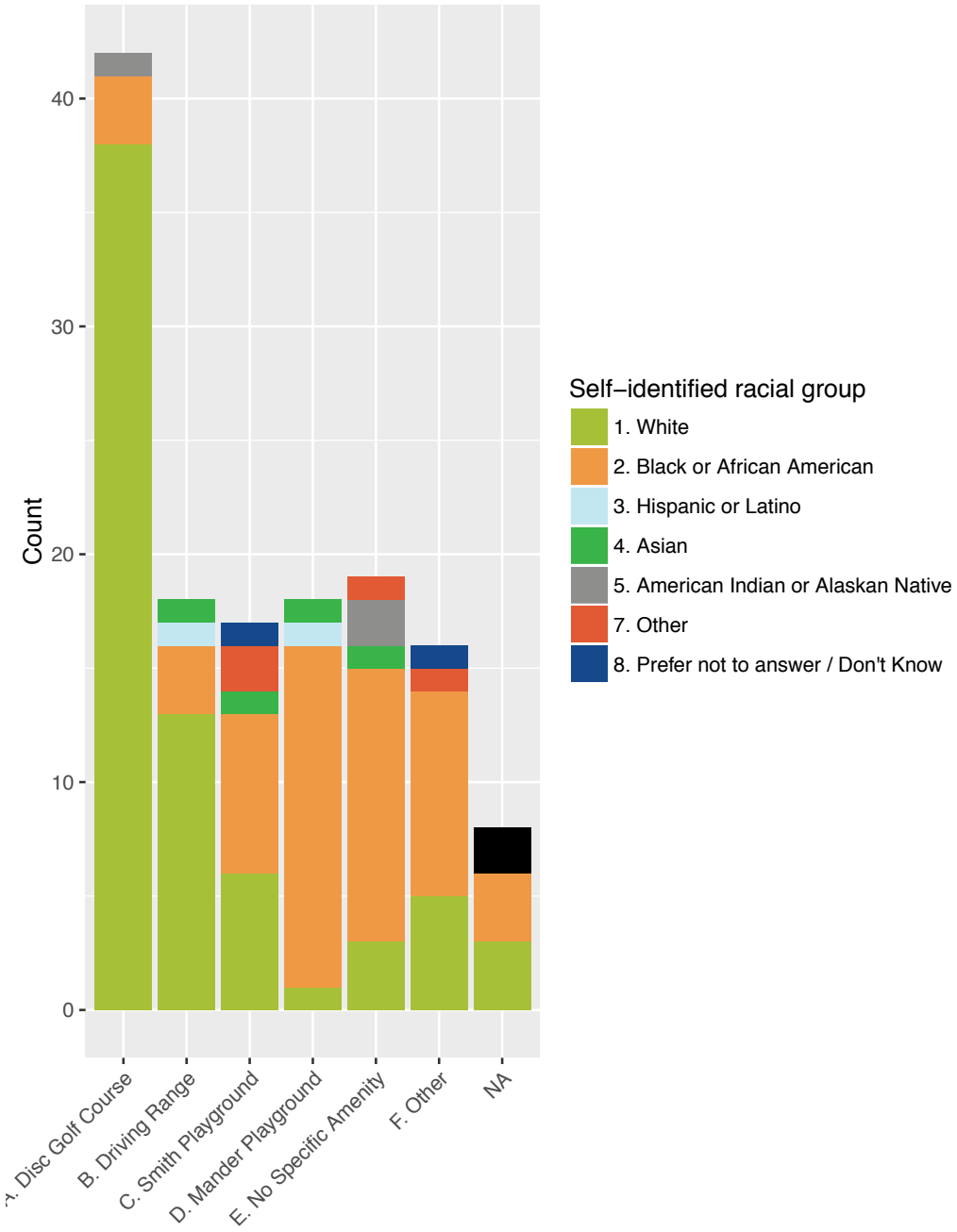

Figure 17. Respondent activity plans subdivided by race

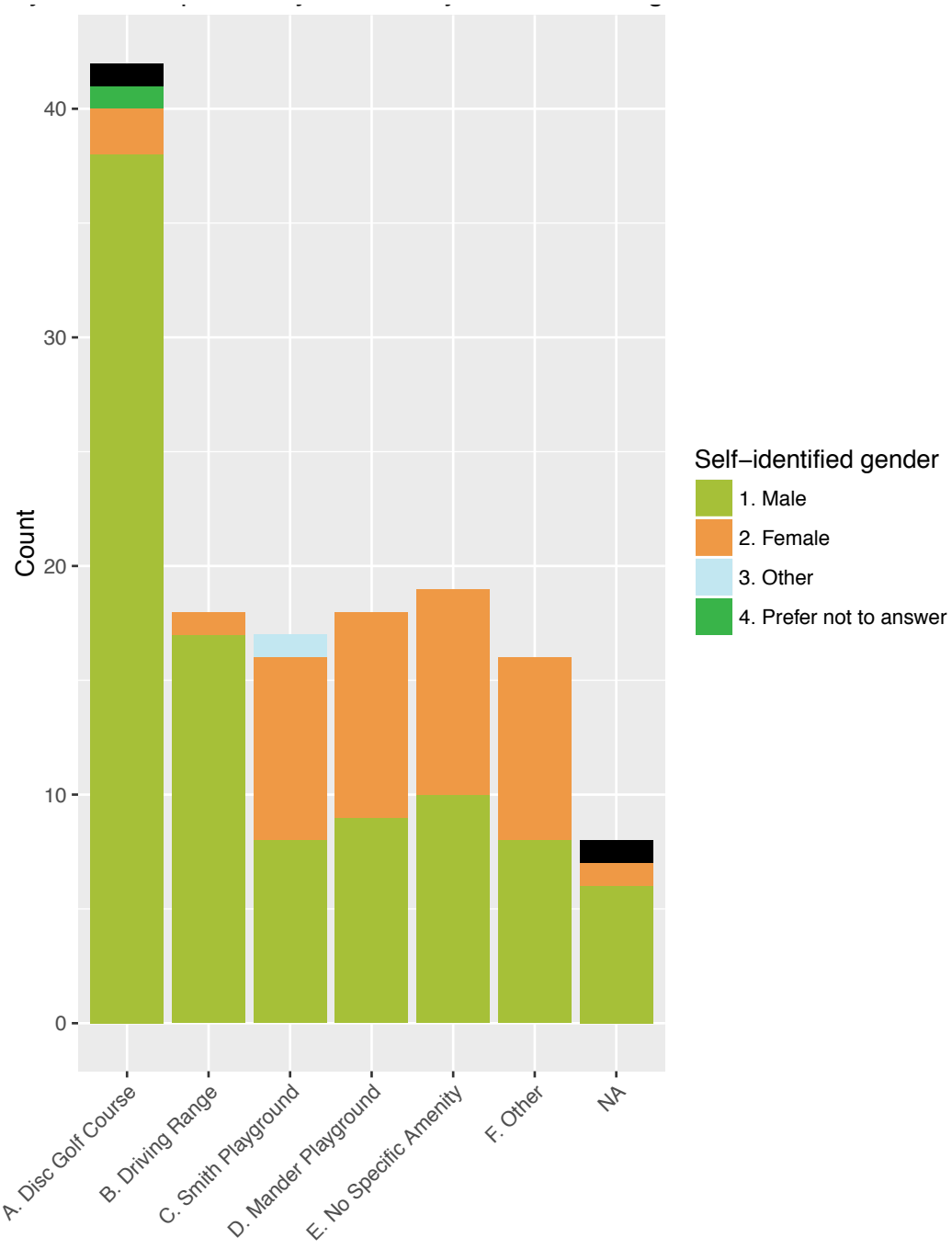

Figure 18. Respondent activity plans subdivided by gender

The average East Fairmount Park survey subject visited the park an average of five to ten times per month and reported spending over an hour on the site. Overall, interviewees expressed mildly positive impressions of the park's facilities, cleanliness and safety. On average, respondents rated facilities, cleanliness and safety between three and four on a possible five-point scale – with one being "Extremely Poor," three being "Neutral" and five being "Excellent" (Figure 19).

Please indicate your overall level of satisfaction with the…	Mean Score (out of 5)
11. Park's facilities and features	3.9
12. Cleanliness of the park	3.8
13. Safety of the park	4.0
14. Availability of signage and general information	3.5

Figure 19. Attitudes regarding facilities

When asked about the importance of different reasons for visiting the park users expressed the opinion that physical exercise, socializing, stress relief and "experiencing nature" were extremely important to them (Figure 20). Users were asked about the degree to which they found various reasons for visiting to be important using a five-point scale, with one being "Not at all important" and five being "Extremely important." Residents of North Philadelphia zip codes reported attitudes that were almost numerically indistinct from the general sample.

Overall, how important are the following reasons for your visit?	Mean Score (out of 5)
15. Experiencing nature (sights, sounds, smells)	4.0
16. Exercising or doing physical activity	4.4
17. Socializing (friends, family, colleagues)	4.3
18. Relieving stress	4.5

Figure 20. Attitudes regarding reasons for usership

When asked about their feelings of ownership or attachment to the park, visitors tended to express a strong belief that the park was valuable to the neighborhood but did not express a strong degree of personal ownership of the park (Figure 21). Subjects were asked to describe their level of agreement with a set of statements using a five-point scale, with one being "Strongly disagree" and five being "Strongly agree." Residents of North Philadelphia zip codes expressed a similar feelings of ownership to the general sample, reporting an average score of 3.7 out of 5 in their level of agreement with the statement "I feel a very high degree of personal ownership of this park." The mean "ownership" score was 3.8. Residents of North Philadelphia zip codes expressed slightly lower feelings of trustworthiness towards other park users scoring a few tenths of a point lower on both questions 19 and 20, but not so much as to represent a statistically useful difference.

To what degree do you agree or disagree with the following statement…	Mean Score (out of 5)
19. "People in this park share the same values."	3.8
20. "People in this park can be trusted."	3.7
21. "This park/site is an important part of the neighborhood/community."	4.7
22. "This section of the park benefits all residents from the surrounding neighborhood."	4.4
23. "I believe this parks helps put this neighborhood in the right direction."	4.5
24. "This park is important to me and my family."	4.4
25. "I feel a very high degree of personal ownership of this park."	3.8

Figure 21. Attitudes regarding ownership and community

Based on input from Discovery Center representatives, PennPraxis asked some additional questions designed to help understand public sentiment regarding the Discovery Center project and establish a baseline measure of park users' attitudes regarding nature and the natural park lands.

Survey subjects reported little to know familiarity with the future plan for the Discovery Center. The vast majority reported being "not at all familiar" with future plans. This lack of familiarity extended to the North Philadelphia community, where only five of the forty six persons or 11% identifying themselves as residing in a North Philly zip code reported being familiar in any way with the plans.

Survey subjects reported having strong positive feelings about natural and forested park lands and described nature as being important to them. People described the city's parks and open space as being accessible to them and safe. They majority claimed to visit the city's natural park areas once per week or more.

Subjects reported moderate interest in all of the types of programming the Discovery Center partners instructed PennPraxis to ask about including family programming and conservation education. Subjects added a number of free-response suggestions for programming and facilities including "fishing," "hiking," "restrooms", "recycling", "more access to water," "transit accessibility" and "more access for local residents."

V. DISCUSSION

This study provides a baseline to determine if the intensity and type of usage observed in the areas of East Fairmount Park adjacent to the future Discovery Center site change after the project is opened to the public. The distinct nearby areas of the park – Mander Playground, Smith Playground, Driving Range and Sedgley Woods – were seen to have characteristic usage patterns and user demographics. Future observation may see these patterns shift or intensify.

The opening of the Discovery Center and reservoir will see the establishment of brand new usage patterns. The most northerly areas of the property were not open to the public during the study period, and one can only speculate as to the types and intensities of use they may see. For this reason, the next year of observation should be treated as "Year Zero" for unopened areas of the park. PennPraxis noticed distinct usage patterns and user types in various sub-areas of East Fairmount Park. These patterns were consistent in both intercept and PO surveys.

The Sedgley Woods and Driving Range areas had a largely white male user base made up of residents from across the city and outside the city. Smith Playground had a diverse user base from all across the city. Mander Playground had a largely African-American user base made up of men, women and children. Children's activity was clearly concentrated at Mander and Smith Playgrounds. Certain behaviors tended to cluster in predictable spots: playing at Mander Playground, sports at the courts and fields, eating and drinking at family picnics adjacent to Edgley Field, walking and biking along roadways.

This research is designed, in part, to ascertain the socioeconomic diversity of park usership (Hypothesis 2). It is notable that visitorship to East Fairmount Park is more diverse than the immediate neighborhood but some amenities in the Park, like the Sedgley Woods are visited almost exclusively by visitors who are not North Philadelphia residents who describe themselves as white. The Reimagining the Civic Commons – Metrics study (City Observatory, 2016) describes the immediately adjacent Strawberry Mansion neighborhood as overwhelmingly African American with a low level of education and low household income. Survey subjects interviewed by PennPraxis reported higher average levels of education and income than Strawberry Mansion residents.

Though it is unclear what kind of visitorship the Discovery Center will attract, and it is unclear how it will affect (or not affect) other amenities in the park – it is worth noting that the majority of local residents stated that they were "not at all familiar" with plans for the Discovery Center. Given the willingness of individuals to travel to amenities in East Park which are singular within the City (like the Driving Range), one might expect the Discovery Center will attract a wide base because of its novel programming and setting, leaving open the possibility that the Discovery Center's user base will be from elsewhere unless a promotional campaign is undertaken.

Generally speaking, survey participants (local and otherwise) had positive views of parks, nature and natural lands. They felt that natural park lands were accessible to them and they indicated that they visited them frequently. They also felt East Fairmount Park was an important community site. However, feelings of ownership and trust of other park users rated only slightly better than neutral.

VI. FUTURE RESEARCH

In future years, this site-specific study can be replicated to generate a year-over-year comparison of usage after the interventions in the Civic Commons spaces are complete. The study can also be expanded to encompass new park land, such as the Discovery Center site. Building toward this longitudinal data analysis is critical to address the two basic hypothesis most directly. For these future iterations, PennPraxis has developed custom computer programs in R for quickly visualizing data outputs from digitally administered surveys. Data visualizations can also be viewed and downloaded from the Harvest My Data dashboard, though they are difficult to manipulate.

At present, the Discovery Center survey does not have a sample size quite equal to that of the PSU study, but margins of error are roughly similar. Despite the fact that sample capture rates were relatively good, additional hours of surveying or additional online surveys could increase the baseline sample, should the client choose to increase the sample size. Online surveys would be a low-cost option. However, there are some problems inherent in giving these surveys outside of the context in which they make intuitive sense—when the user is in or adjacent to the park and when a survey administrator can provide clarification or help upon request. Some questions will not make sense to online users. For example, "how did you travel to the park today?" is a question that can be used to accurately assess travel behavior in person, but makes little sense elsewhere, especially if the interviewee has to attempt to abstract some kind of average visit in his mind in order to answer. This may lead to some unreliable data. Therefore, it is highly desirable to replicate the on-site surveys.

There are several additional data sources which can be used to create a richer picture of the impact of the Civic Commons interventions. Depending on the granularity and sample sizes of some available third party data, it may be possible to construct some causal econometric models. These data sources are detailed in Figure 22.

Data	Source	Application
Indigo Bike Share Usage	opendataphilly	Determine intervention impact on travel patterns
Licenses & Inspections permit data	Azavea "License to Inspect"	Monitor residential development and code enforcement
Social Media Traffic	Twitter, Instagram, etc.	Assess popularity of Commons sites
Pedestrian, Bike Counts	Delaware Valley Regional Planning Commission	Assess impacts on visitation and commuting

Figure 22. Additional Data Sources for Greater Depth on RCC Projects

PennPraxis and Locus Partners have both identified sites for potential remote monitoring at all the Civic Commons sites. **Note: All illustrations of Electronic Sensors on maps contained in Appendix I indicated potential future locations identified by PennPraxis, having reviewed the sites, spoken to site staff, and reviewed Locus Partners' report.**

Lastly, future research should be accompanied by a more granular, more comprehensive demographic analysis of the areas adjacent to study sites.

VII. REFERENCES

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APPENDIX I. Participant Observation (PO) - Survey Instrument

Figure 1. Participant Observation Map of Southern Half of the Discovery Center

Figure 2. Participant Observation Map of Northern Half of the Discovery Center

2016 Reimagining the Civic Commons Visitor Survey

Date: _____
Time: _____
Interviewer Name:_____
Location: _____

GENERAL USAGE

"The first set of questions is about your use of the park and the activities you do here."

1. Is this your first visit to this site/park?

☐ Yes ☐ No

If NO, skip Questions 2 – 3. If YES, answer Questions 2 – 3.

2. Are there physical barriers to accessing the site/park?

☐ Yes. Please describe: _____

☐ No ☐ Maybe

3. Are you interested in visiting the site/park more frequently?

☐ Yes ☐ No ☐ Maybe

4. How did you travel to the park today?

☐ Walk ☐ Bicycle ☐ Public transit ☐ Automobile ☐ Other

5. Which entrance did you take to enter this site/park? MAP HERE

_____

6. What kinds of activities are you planning to do at the park? FLASH CARD HERE

_____

7. Including today, please estimate how many times over the last 30 days you visited this park.

☐ Once ☐ 2-5 Times ☐ 5 - 10 times ☐ More than 10 times

8. Please estimate how many total minutes you expect to spend in this section of the park during today's visit.

☐ 0 - 10 minutes ☐ 10 - 30 minutes ☐ 30 minutes - 1 hour ☐ More than 1 hour

9. How many people are in your group today?

Number of adults _____

Number of children/youth (under 18 years) _____

10. Would you say that you visit this place more, less, or about the same as in the past?

☐ More ☐ Less ☐ About the same

QUALITY

"Now I'm going to ask you to rate your satisfaction with the park facilities and maintenance. These questions are on a scale of 1 to 5 – with 1 being a rating of 'Extremely Poor,' 3 being 'Fair' and 5 being 'Excellent'."

11. Please indicate your overall level of satisfaction with the park's facilities and features.

Extremely Poor Poor Fair Good Excellent

Figure 1. Intercept Survey for the Discovery Center - RCC 2016

1 2 3 4 5

12. Please rate the cleanliness of the park.

Extremely Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

13. Please rate the safety of the park.

Extremely Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

14. Please rate the availability of signage and general information in the park.

Extremely Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

EXPERIENCES

"Now I'm going to ask you about different activities and you can tell me how important they are as reasons for your visit. These questions are on a scale of 1 to 5 – with 1 being a rating of 'Not At All Important,' and 5 being 'Extremely Important'."

15. Experiencing nature (sights, sounds, smells)

Not at all important		Neutral		Extremely Important
1	2	3	4	5

16. Exercising or doing physical activity

Not at all important		Neutral		Extremely Important
1	2	3	4	5

17. Socializing (friends, family, colleagues)

Not at all important		Neutral		Extremely Important
1	2	3	4	5

18. Relieving stress

Not at all important		Neutral		Extremely Important
1	2	3	4	5

COMMUNITY

"Now I'm going to make a few statements about the users of this park and the park's importance to the community. Tell me if you agree or disagree with these statements using a scale of 1 to 5 – with 1 being a rating of 'Strongly Disagree,' and 5 being 'Strongly Agree'."

19. "People in this park share the same values."

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

20. "People in this park can be trusted."

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

21. "This park/site is an important part of the neighborhood/community."

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

22. "This section of the park benefits all residents from the surrounding neighborhood."

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

23. "I believe this parks helps put this neighborhood in the right direction."

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

PERSONAL OWNERSHIP

24. "This park is important to me and my family."

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

25. "I feel a very high degree of personal ownership of this park."

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

DEMOGRAPHICS

26. What is your age?

☐ Under 18 ☐ 18 – 34 ☐ 35 – 49 ☐ 50 – 65 ☐ 65 +

27. In what zip code do you live?_____

28. How long have you lived there? _____

29. How would you describe your employment status?

☐ Employed ☐ Unemployed ☐ Retired ☐ Student

☐ Other _____ ☐ Prefer not to answer

30. If you are employed, in what zip code do you work? _____

31. What is the highest degree or level of education you have completed?

☐ < than 9th grade ☐ 9th-12th grade ☐ High school Graduate or GED

☐ Associate's Degree ☐ Bachelor's Degree ☐ Graduate or Professional Degree

☐ Prefer not to answer

32. Which of the following would you use to describe your race or ethnic background?

☐ White ☐ Black or African American

☐ Hispanic or Latino ☐ Asian

☐ American Indian or Alaskan Native ☐ Hawaiian or Pacific Islander

☐ Other _____ ☐ Prefer not to answer/ Don't know

33. Please identify your gender.

☐ Male ☐ Female ☐ Other ☐ Prefer not to answer

34. Have you ever visited any of the following sites?

☐ Bartram's Mile

☐ West Fairmount Park Near the Please Touch Museum

☐ East Fairmount Park

☐ Lovett Library & Park

☐ Reading Viaduct

2016 Reimagining the Civic Commons Visitor Survey – Discovery Center

Date: _____
Time: _____
Interviewer Name:_____
Location: _____

DISCOVERY CENTER (ONLY)

35. How familiar are you with the future plans for the Discovery Center?

Not at all familiar		Neutral		Very familiar
1	2	3	4	5

36. Did you come specifically to visit any of the following amenities?

☐ Disc Golf Course ☐ Mander Playground
☐ Driving Range ☐ No specific amenity
☐ Smith Playground ☐ Other: _____

37. How far did you travel to get to the park today?

☐ 0 - 10 minutes ☐ 10 - 30 minutes ☐ 30 minutes - 1 hour ☐ More than 1 hour

38. Do you enjoy visiting the natural or forested areas of the park?

☐ No ☐ Yes ☐ Not sure

39. What other parks or natural areas do you currently use?

_____

40. How frequently do you spend your free time in those parks or other natural settings?

☐ Never ☐ Once per month
☐ Once a year ☐ Once per week or more
☐ Once every six months

Please indicate the extent to which you agree or disagree with the following statements:

41. "The City's natural and forested park areas are safe to visit"

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

42. "The city's parks and open space are easily accessible to me"

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

43. "I enjoy spending time outdoors in a natural area"

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

44. "Nature is important to me"

Strongly Disagree		Neutral		Strongly Agree
1	2	3	4	5

48. Are you interested in any of the following types of Discovery Center programming?

☐ Bird watching ☐ Nature programs for children
☐ Family programming ☐ Land conservation education/workshops
☐ Other. Please describe: _____

APPENDIX III. Full Report of Survey Findings

1. Is this your first visit to this site/park?

Yes	No	NA
18	120	0

2. (If yes to Q1) Are there physical barriers to accessing the site/park?

None of those answering "yes" to this question offered free-response suggestions.

Yes	No	Maybe	NA
47	6	3	82

Barriers described include: fencing (3x), handicap access (2x)

3. (If yes to Q1) Are you interested in visiting the site/park more frequently?

Yes	No	Maybe	NA
42	3	9	84

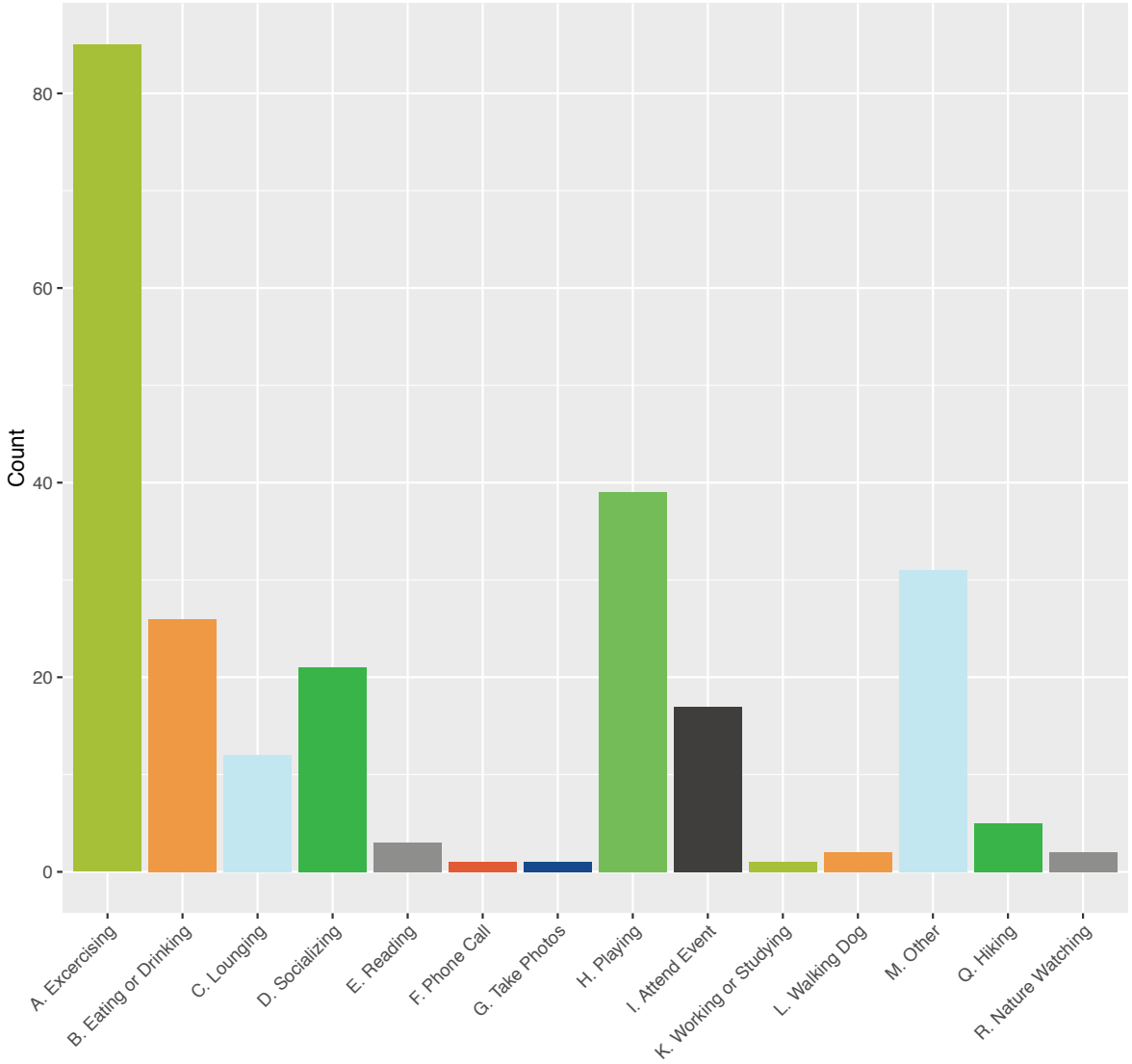
4. How did you travel to the park today?

Walk	Bicycle	Public Transit	Automobile	Other	NA
17	17	5	97	1	1

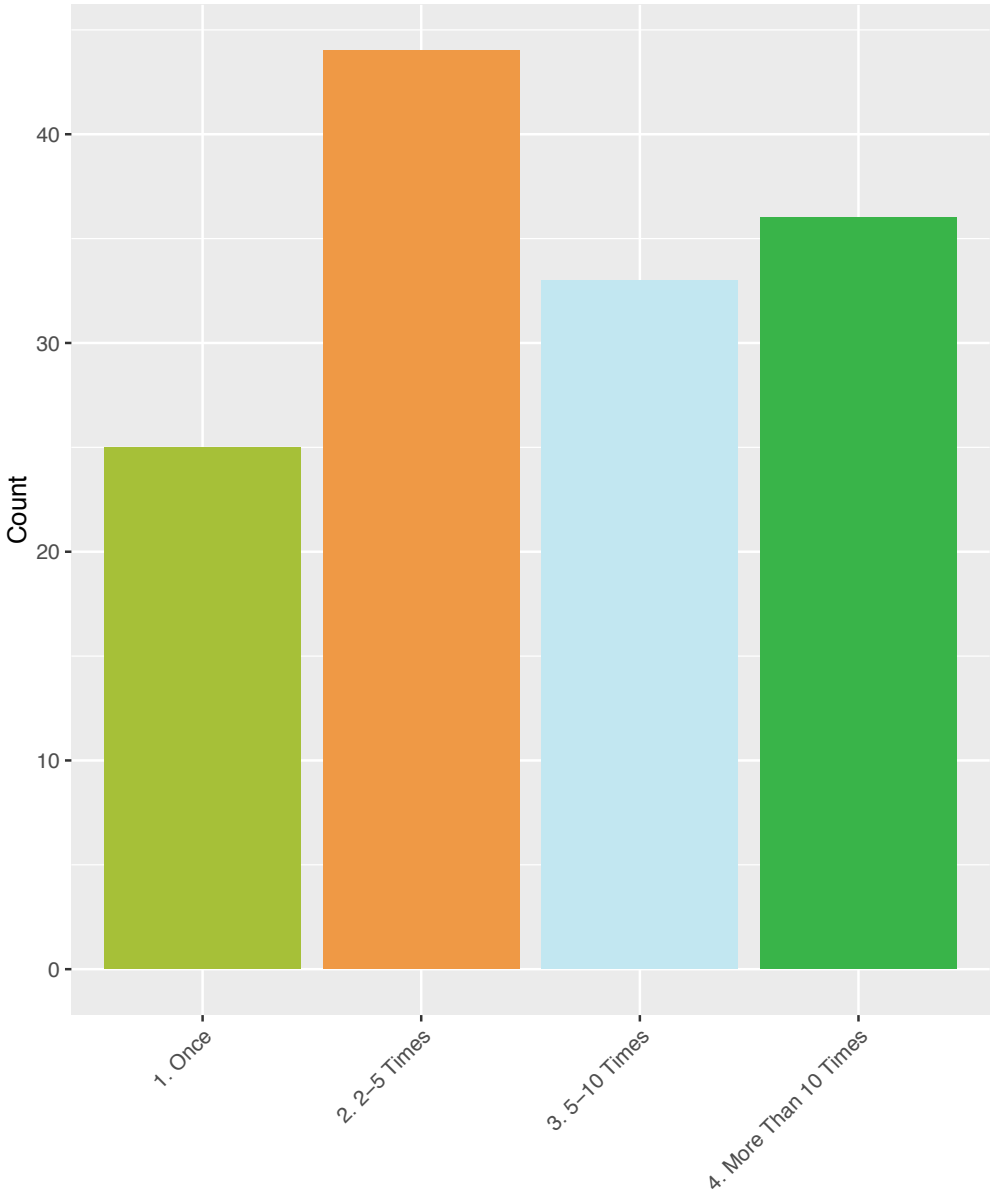
5. Which entrance did you take to enter this site/park?

33rd and Diamond	33rd and Oxford	Kelly Drive to Reservoir Drive	NA
99	6	1	3

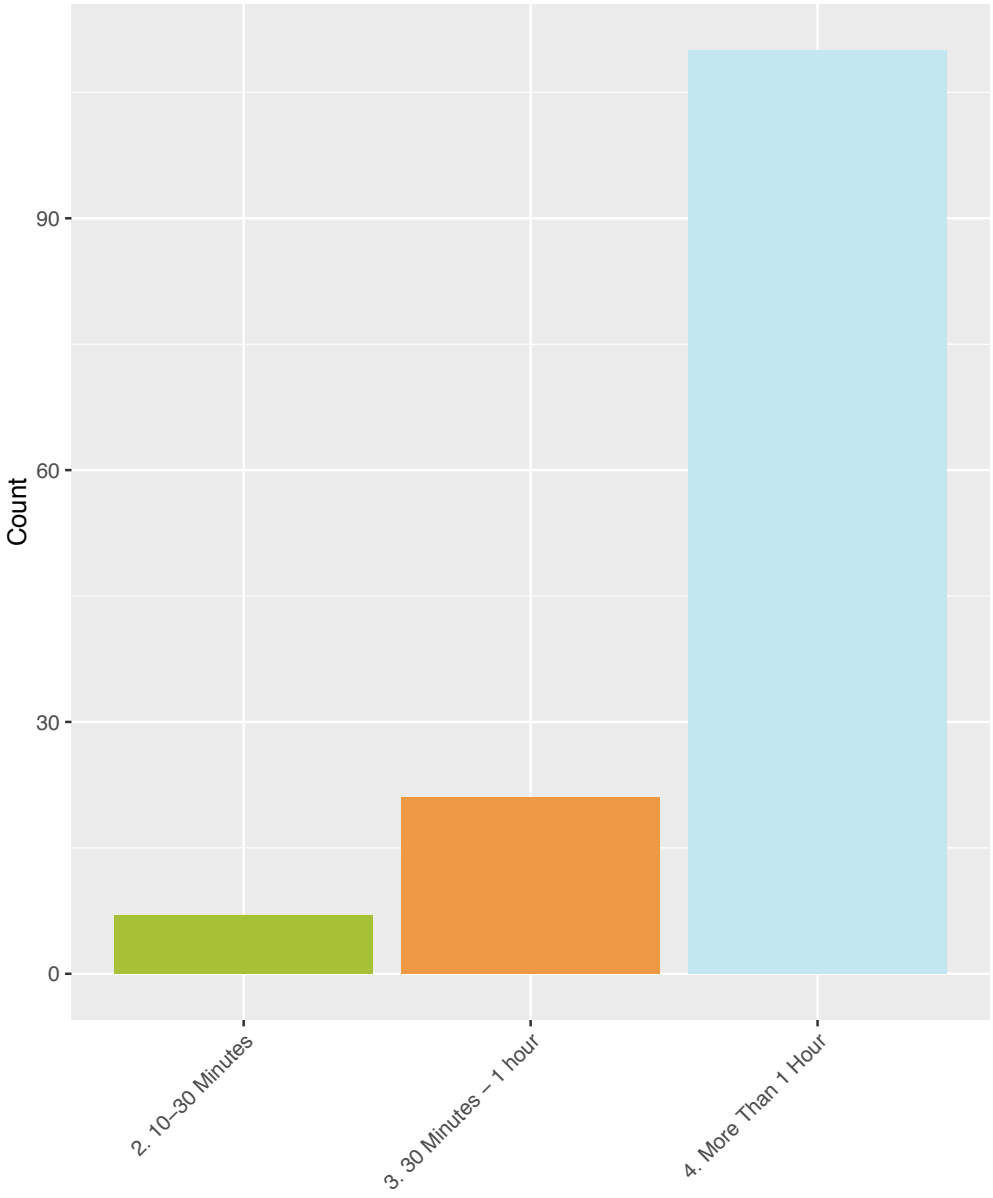
6. What kinds of activities are you planning to do at the park?



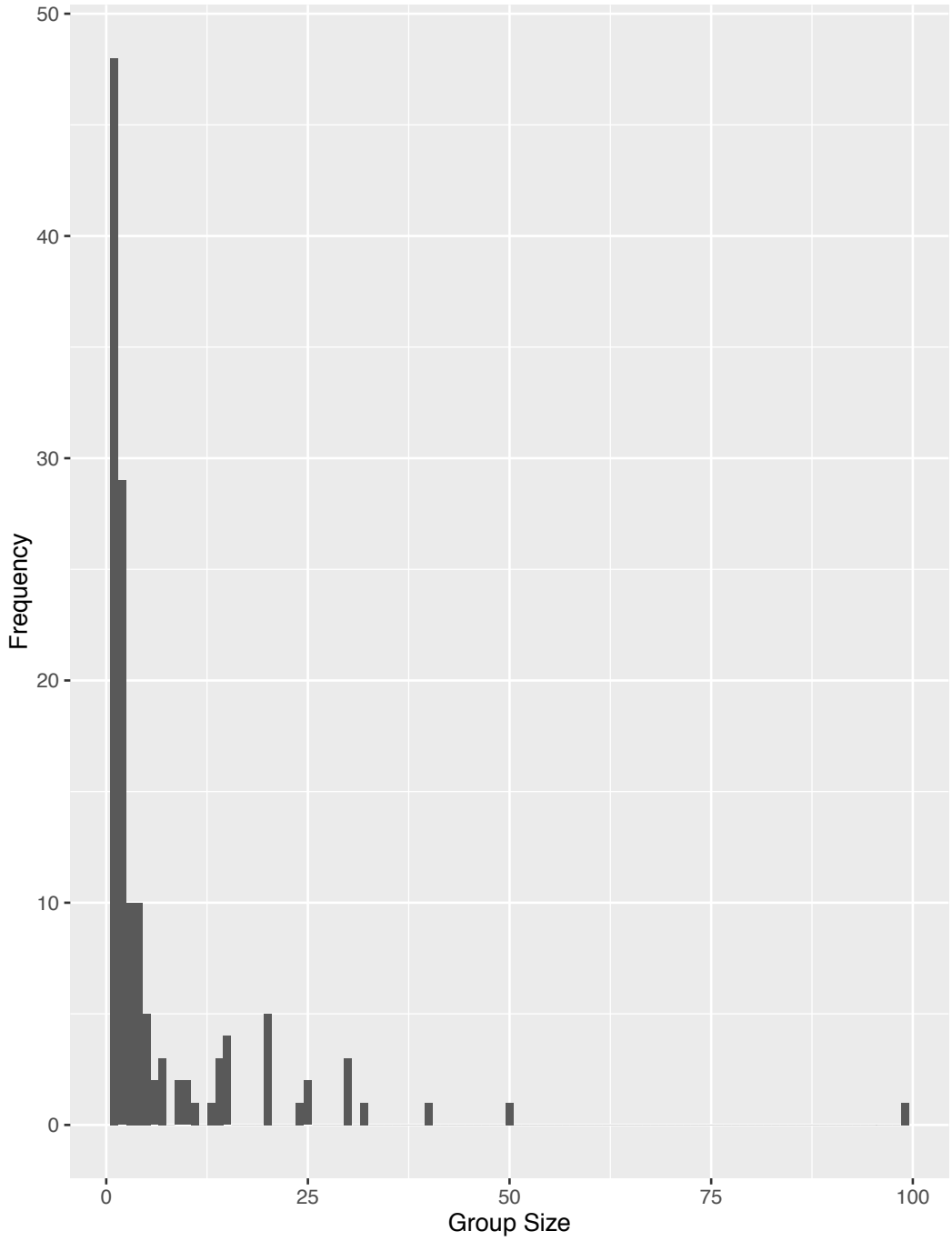
7. Including today, please estimate how many times over the last 30 days you visited this park?



8. Please estimate how many total minutes you expect to spend in this section of the park during today's visit.



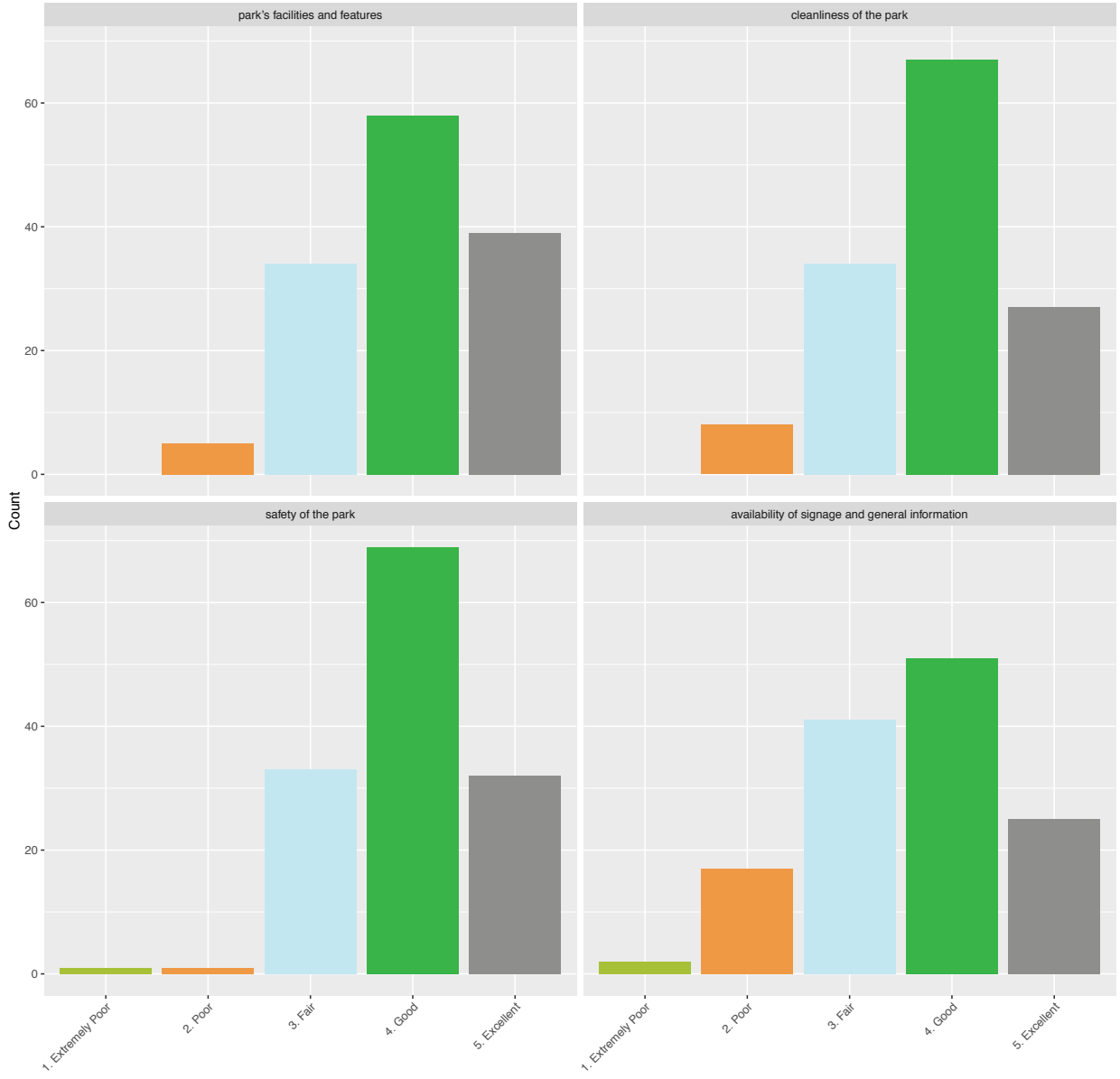
9. How many people are in your group today?



10. Would you say that you visit this place more, less, or about the same as in the past?

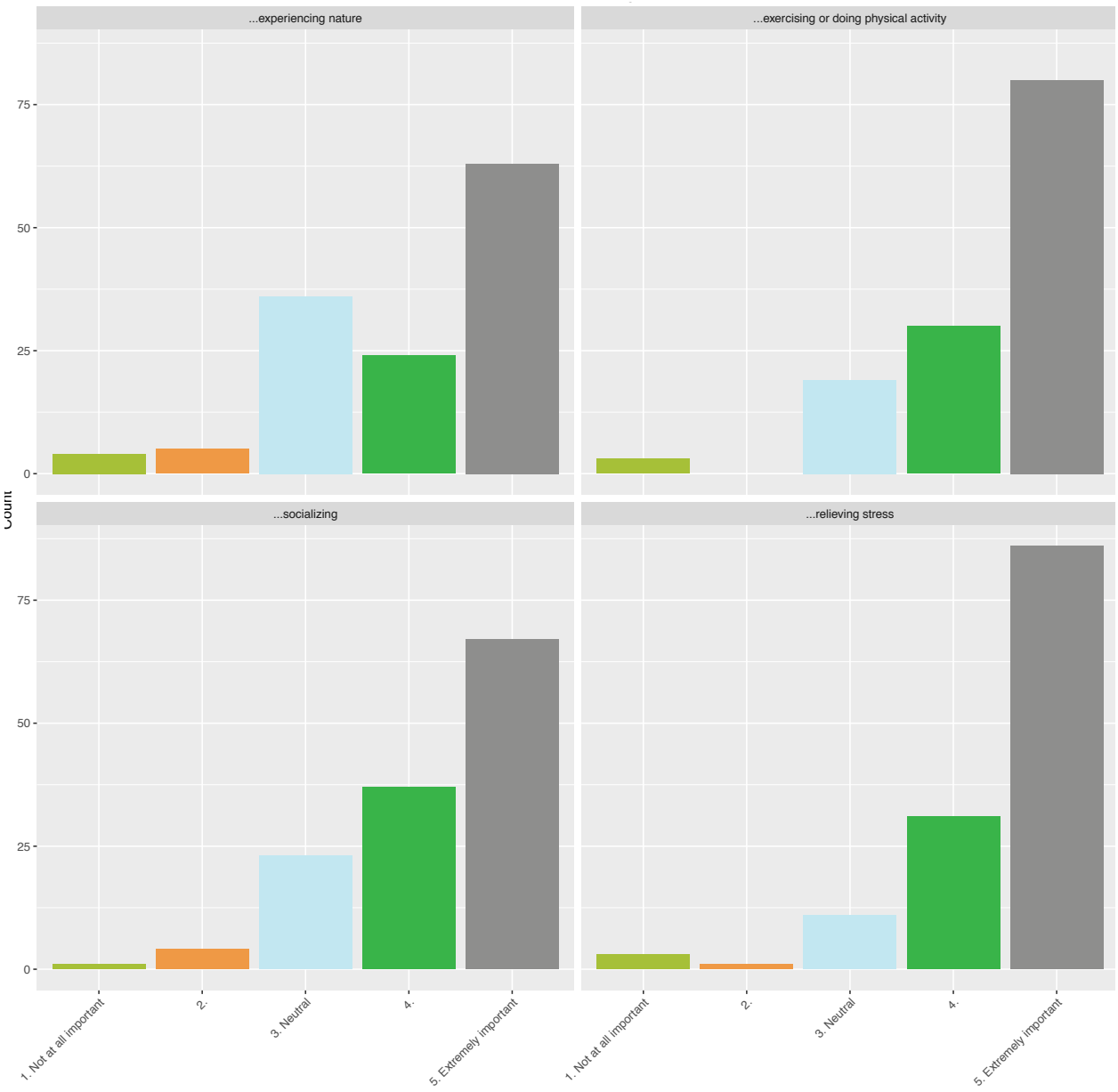
More	Less	About The Same	NA
58	7	73	0

11-14. Please indicate your overall level of satisfaction with the…



Question	Mean Score (out of 5)
11. Park's facilities and features	3.9
12. Cleanliness of the park	3.8
13. Safety of the park	4.0
14. Availability of signage and general information	3.5

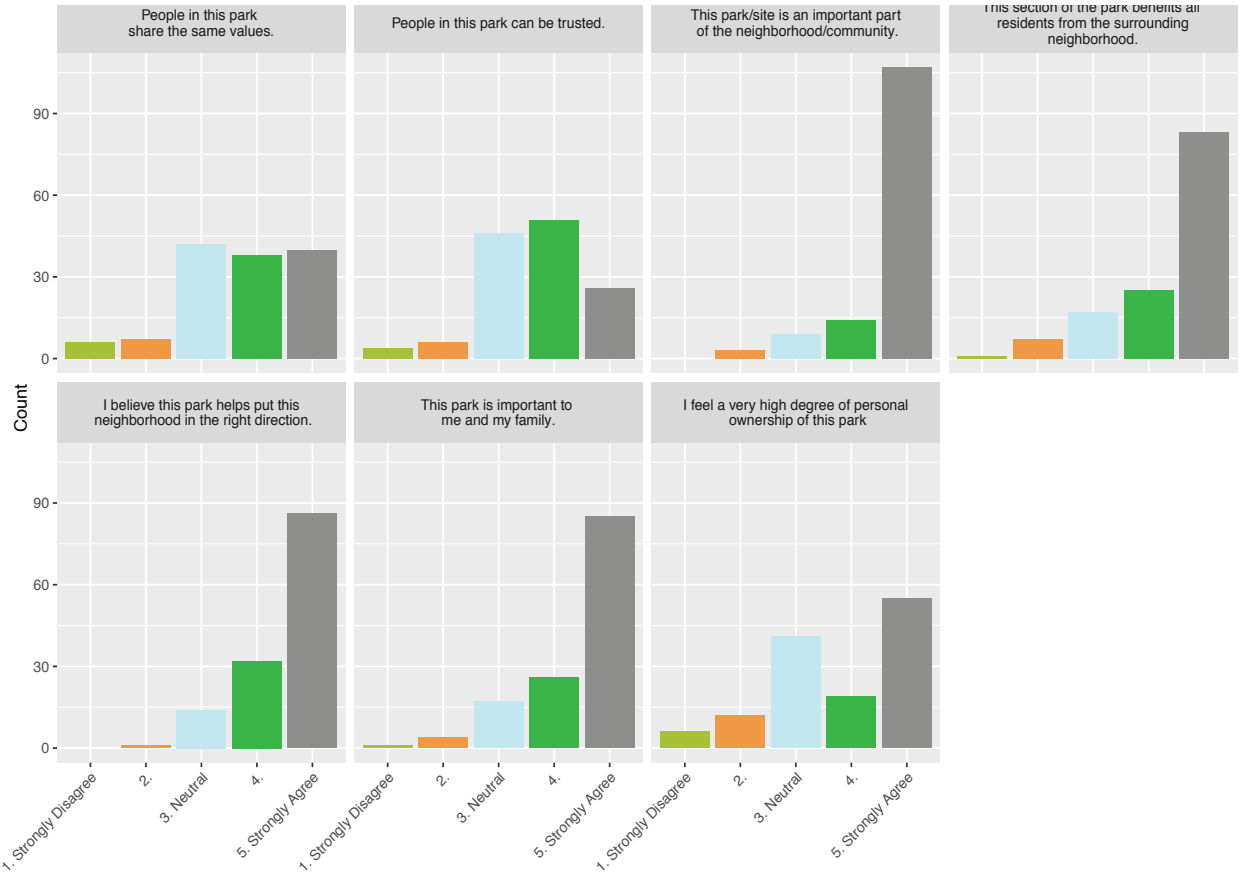
15-18. Overall, how important are the following reasons for your visit?



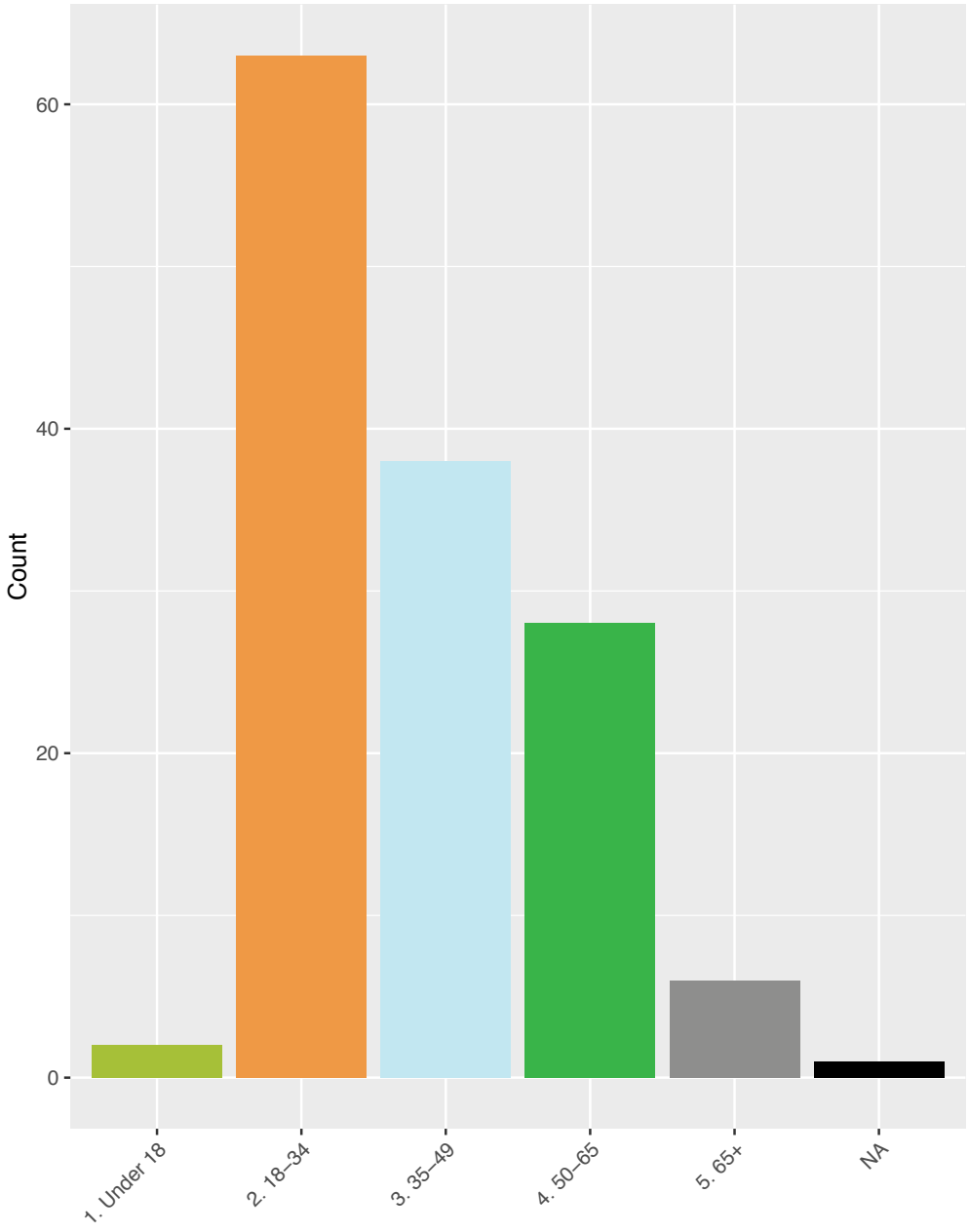
Question	Mean Score (out of 5)
15. Experiencing nature (sights, sounds, smells)	4.0
16. Exercising or doing physical activity	4.4
17. Socializing (friends, family, colleagues)	4.3
18. Relieving stress	4.5

19.-25. To what degree do you agree or disagree with the following statement…

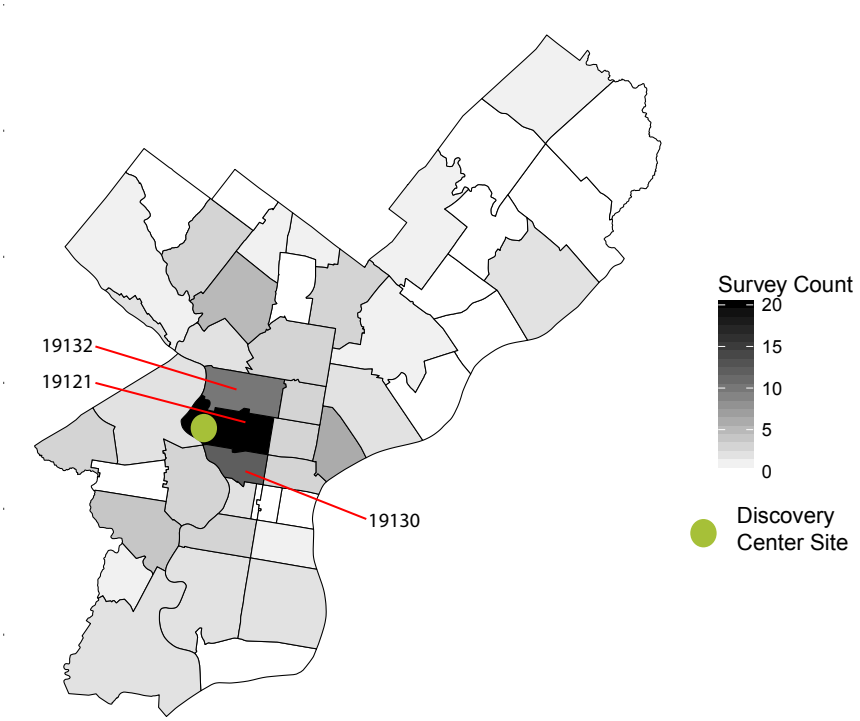
Question	Mean Score (out of 5)
19. “People in this park share the same values.”	3.8
20. “People in this park can be trusted.”	3.7
21. “This park/site is an important part of the neighborhood/community.”	4.7
22. “This section of the park benefits all residents from the surrounding neighborhood.”	4.4
23. “I believe this parks helps put this neighborhood in the right direction.”	4.5
24. “This park is important to me and my family.”	4.4
25. “I feel a very high degree of personal ownership of this park.”	3.8



26. What is your age?



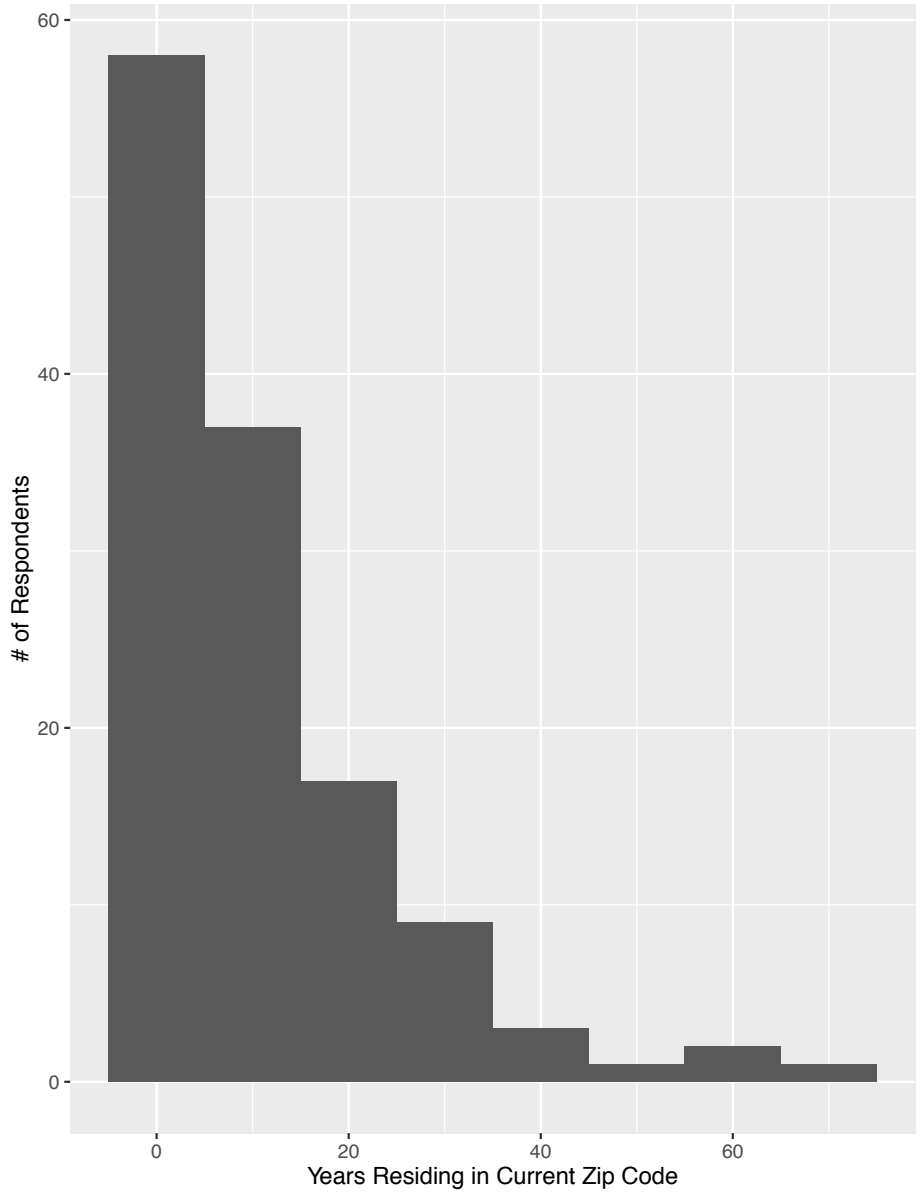
27. In what zip code do you live? (41 have non-Philadelphia zip codes)



Zip Code	Total Number of Survey Respondents
19121	20
19130	12
19132	10
19125	6
19144	5
19143	4
19151	3
19146	3
19140	3
19133	3
19123	3
19122	3
19120	3
19119	3
19104	3

28. How long have you lived there?

Mean value = 11.6 years

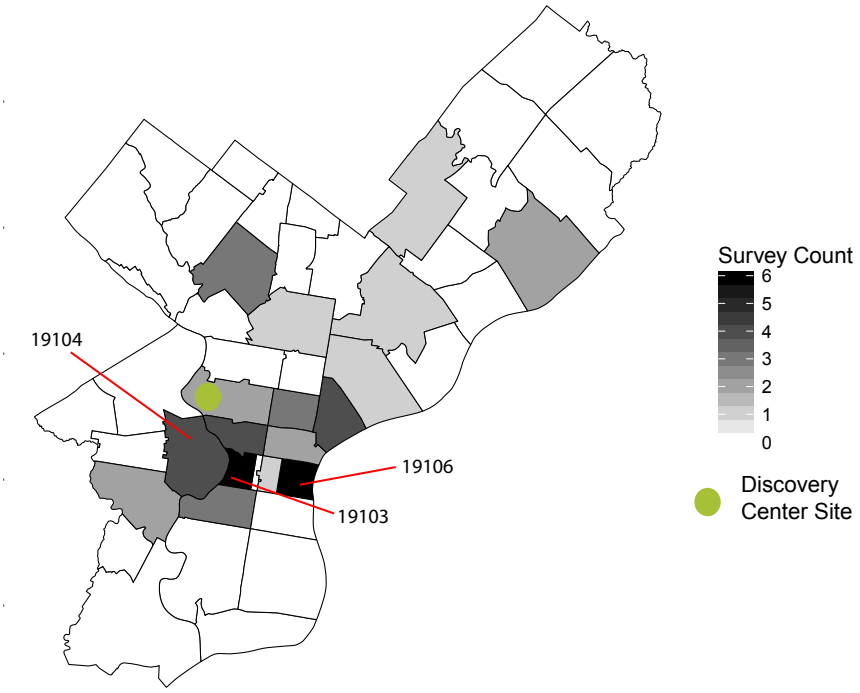


29. How would you describe your employment status?

Employed	Unemployed	Retired	Student	Other	Prefer not to answer	NA
87	14	16	7	7	6	1

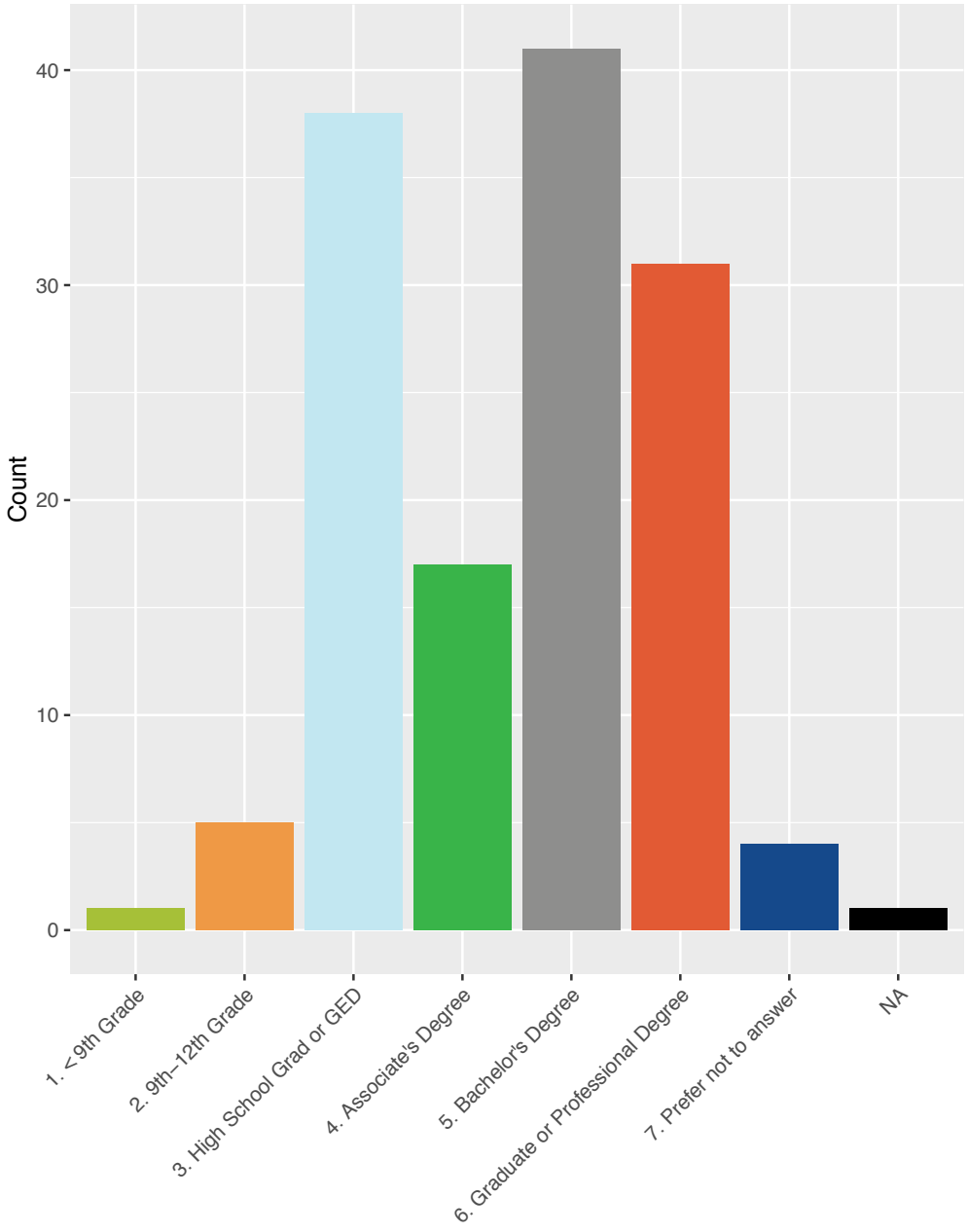
30. If you are employed, in what zip code do you work?

(92 reported either working outside Philadelphia or declined to answer)

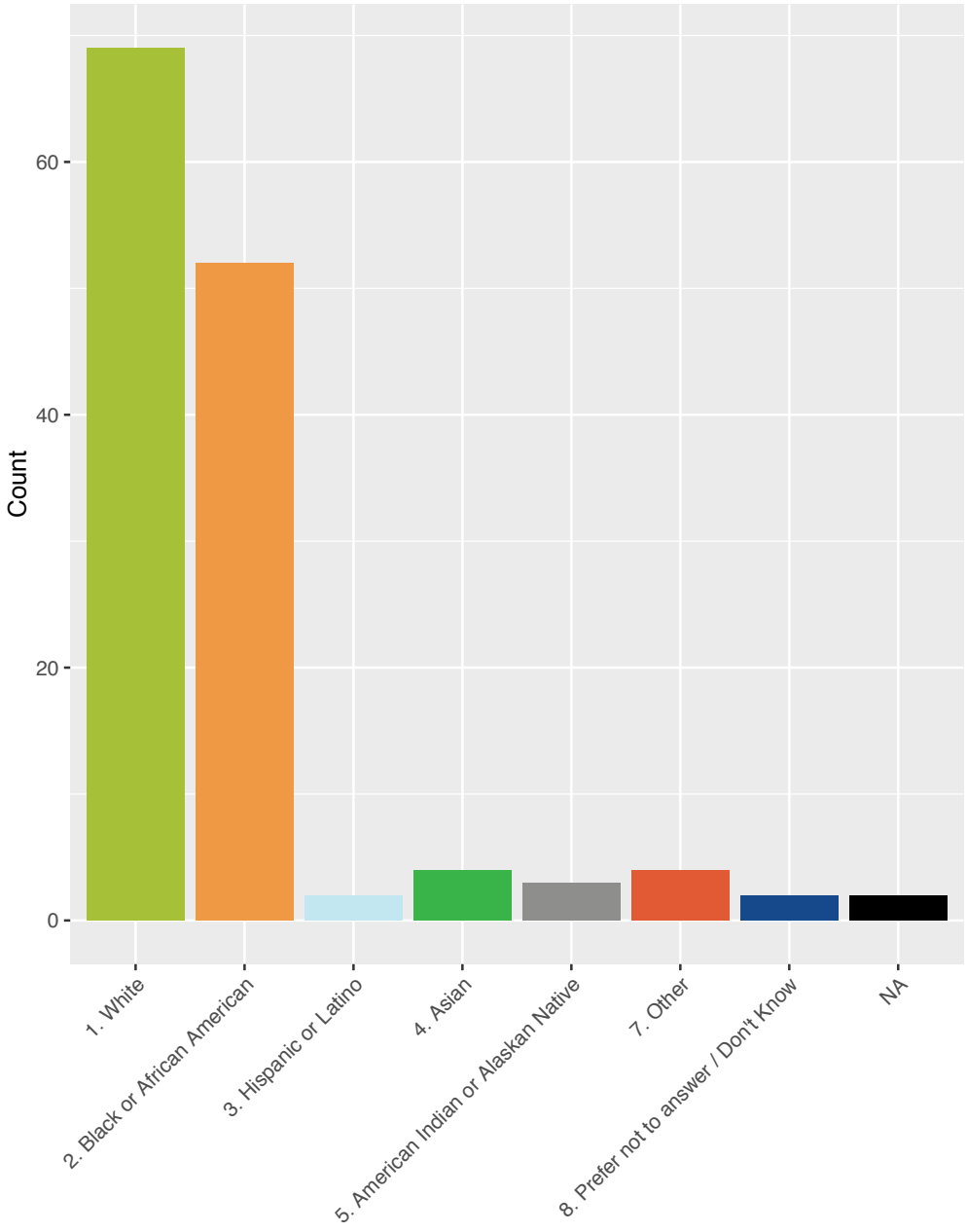


Zip Code	Total Number of Survey Respondents
19103	6
19106	6
19104	4
19130	4
19125	4
19144	3
19122	3
19146	3
19109	2
19121	2
19138	2
19136	2
19143	2
19123	2
19104	3

31. What is the highest degree or level of education you have completed?



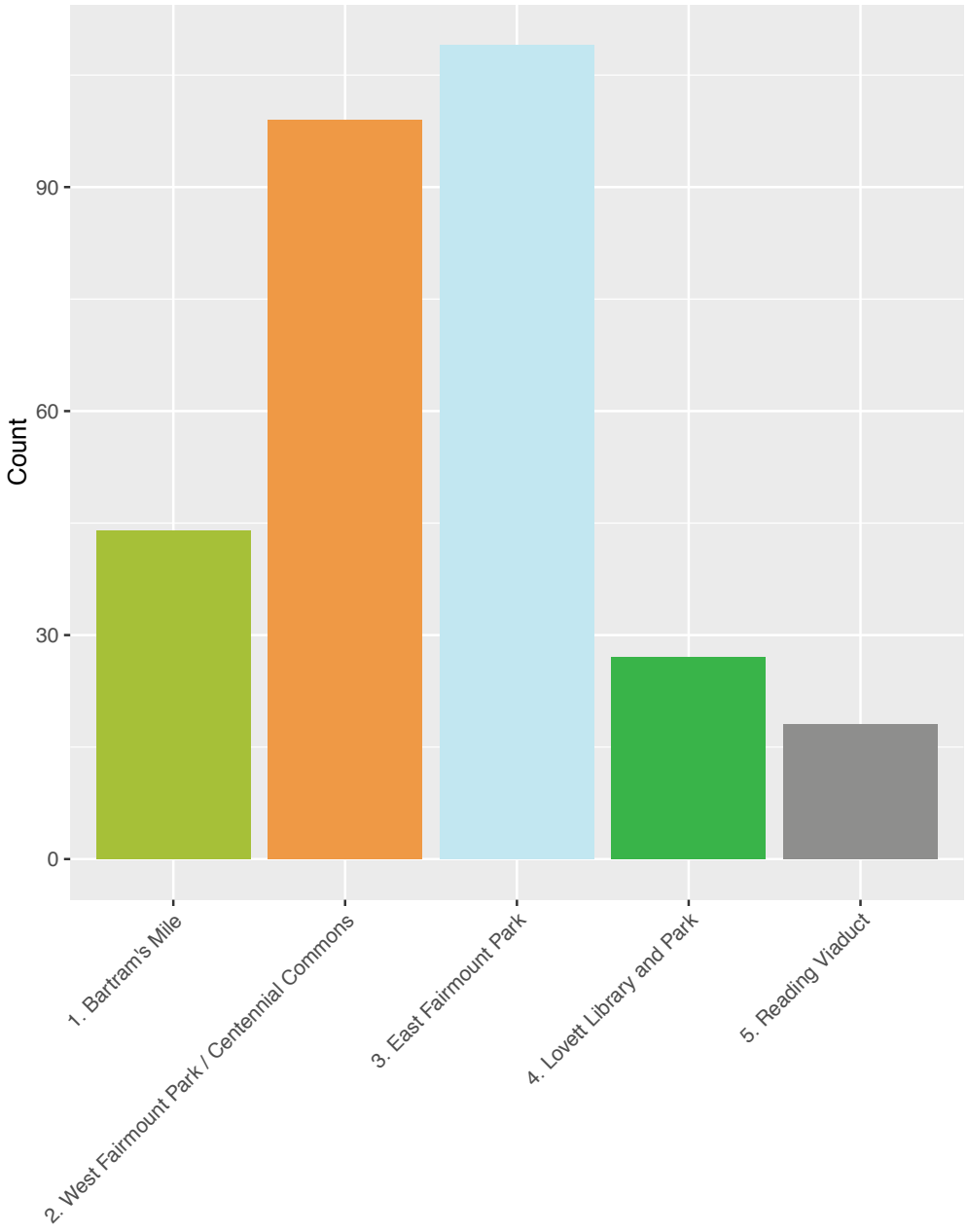
32. Which of the following would you use to describe your race or ethnic background?



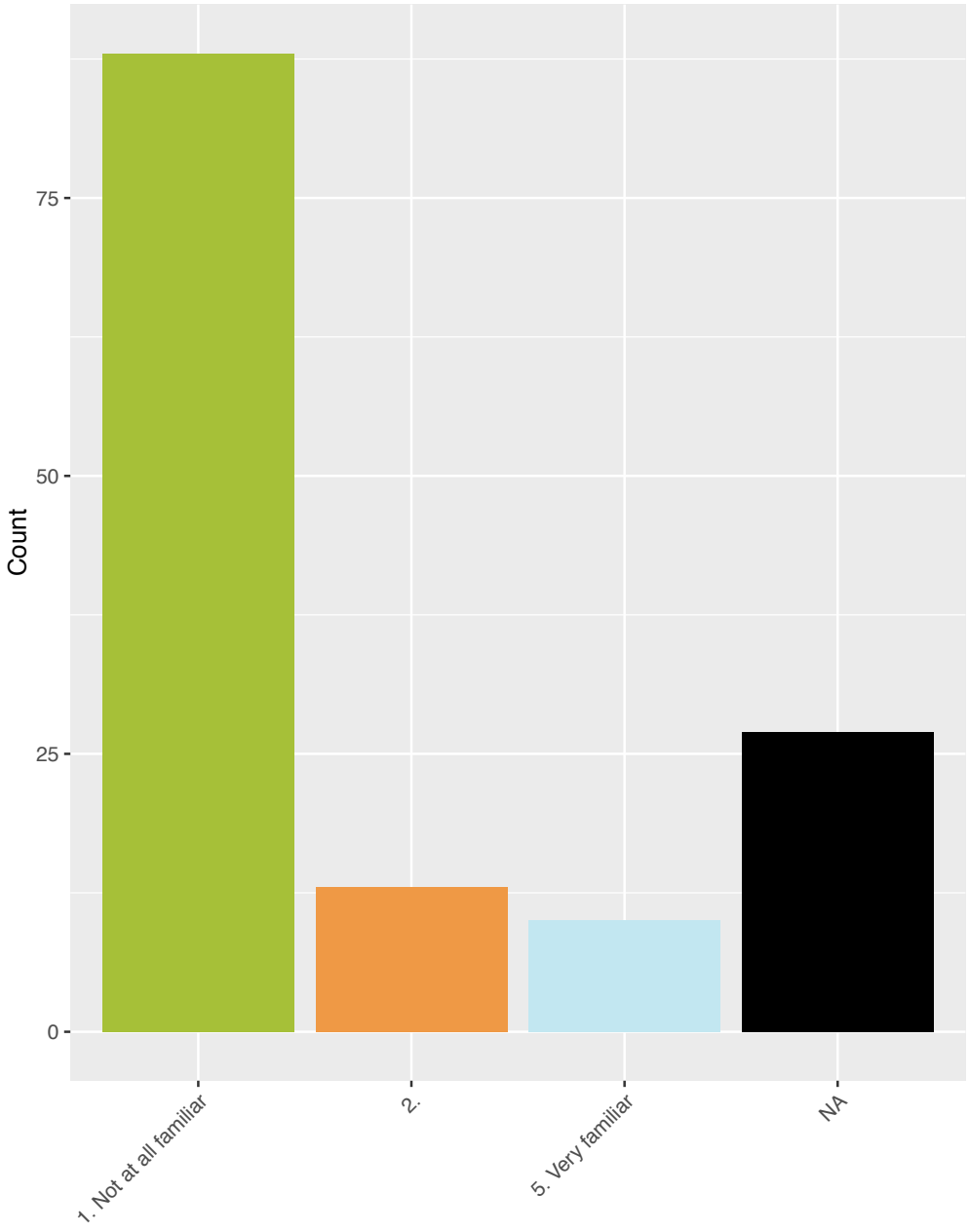
33. Please identify your gender.

Male	Female	Other	Prefer not to answer	NA
96	38	1	1	2

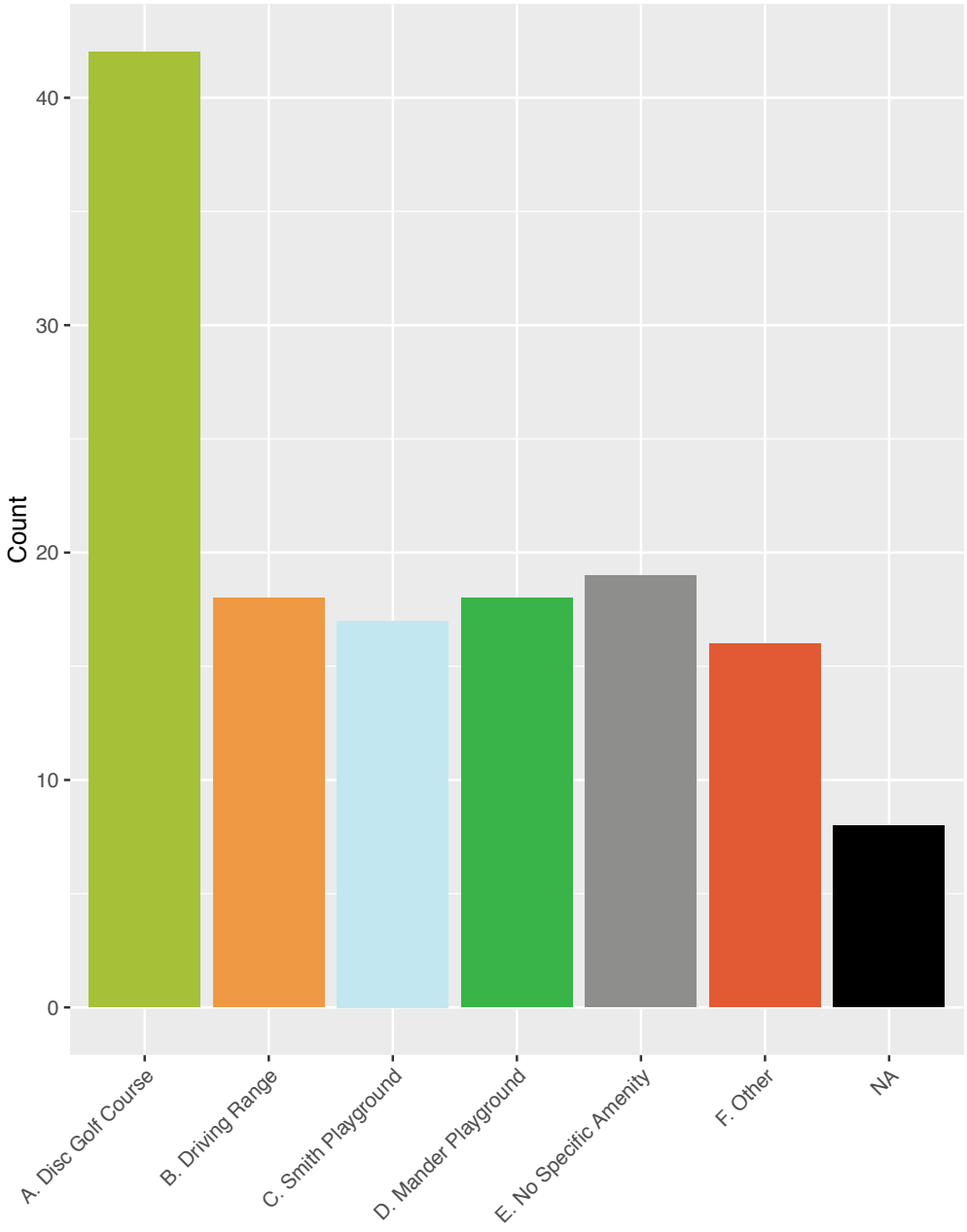
34. Have you ever visited any of the following sites?



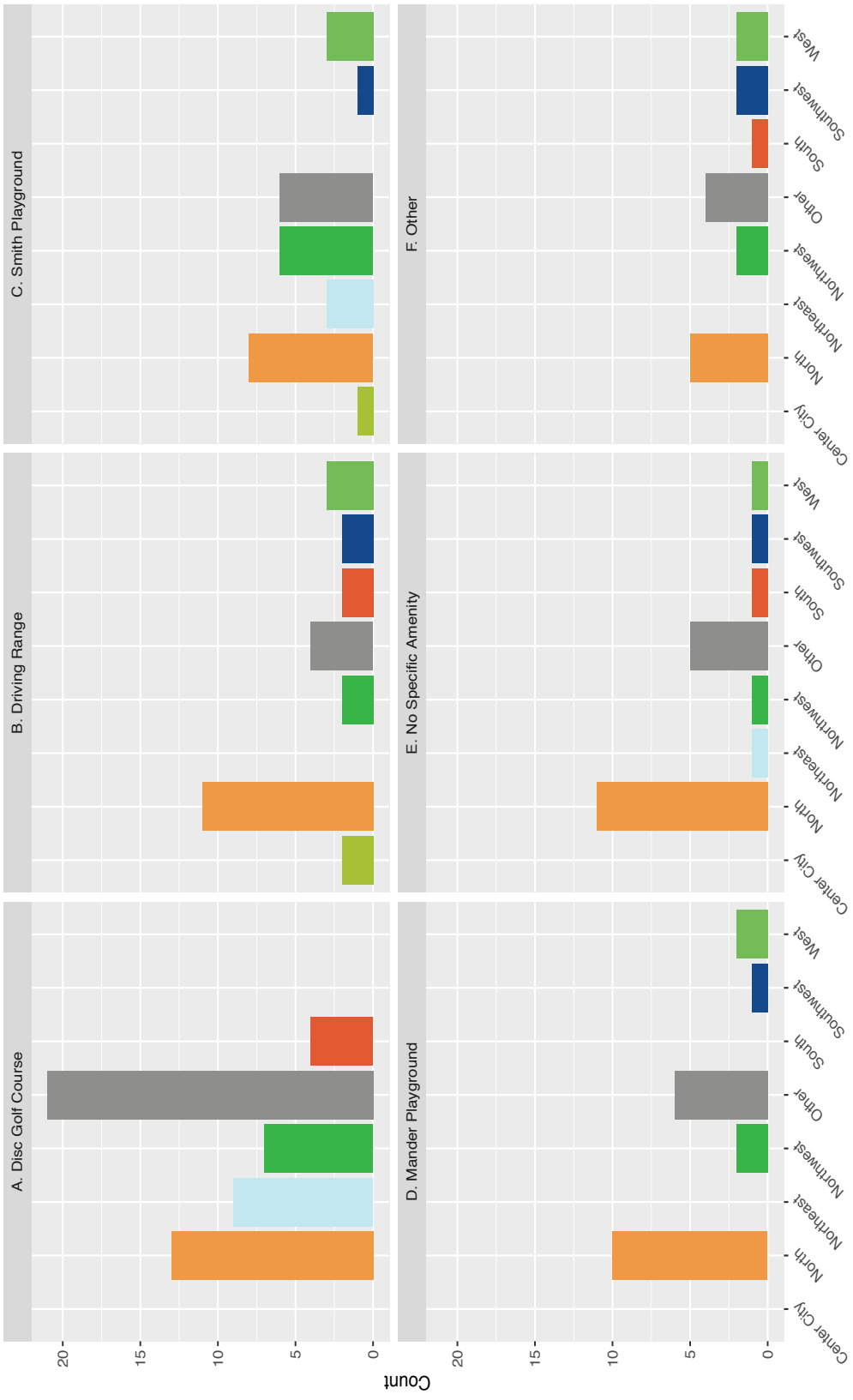
35. How familiar are you with the future plans for the Discovery Center?



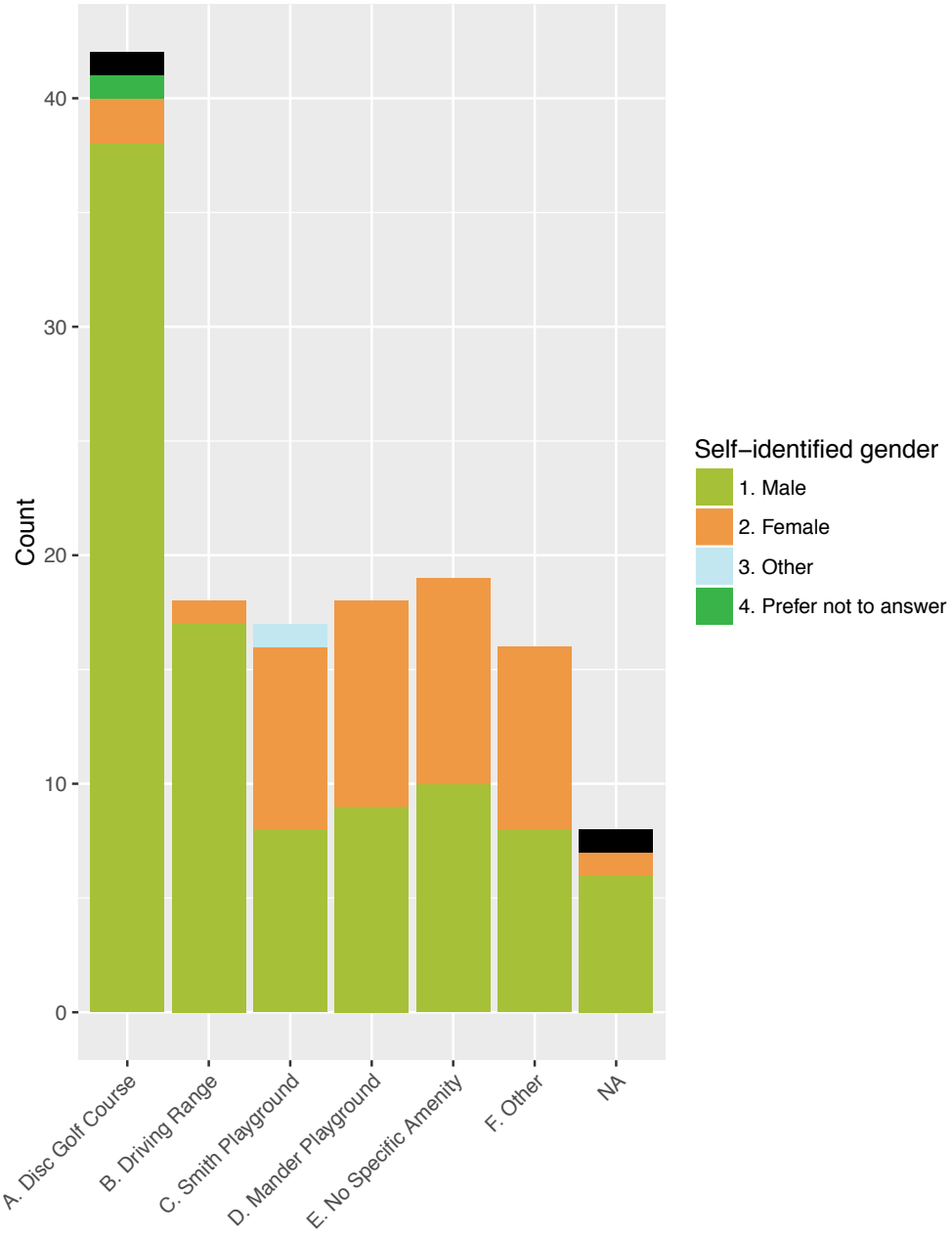
36. Did you come specifically to visit any of the following amenities?



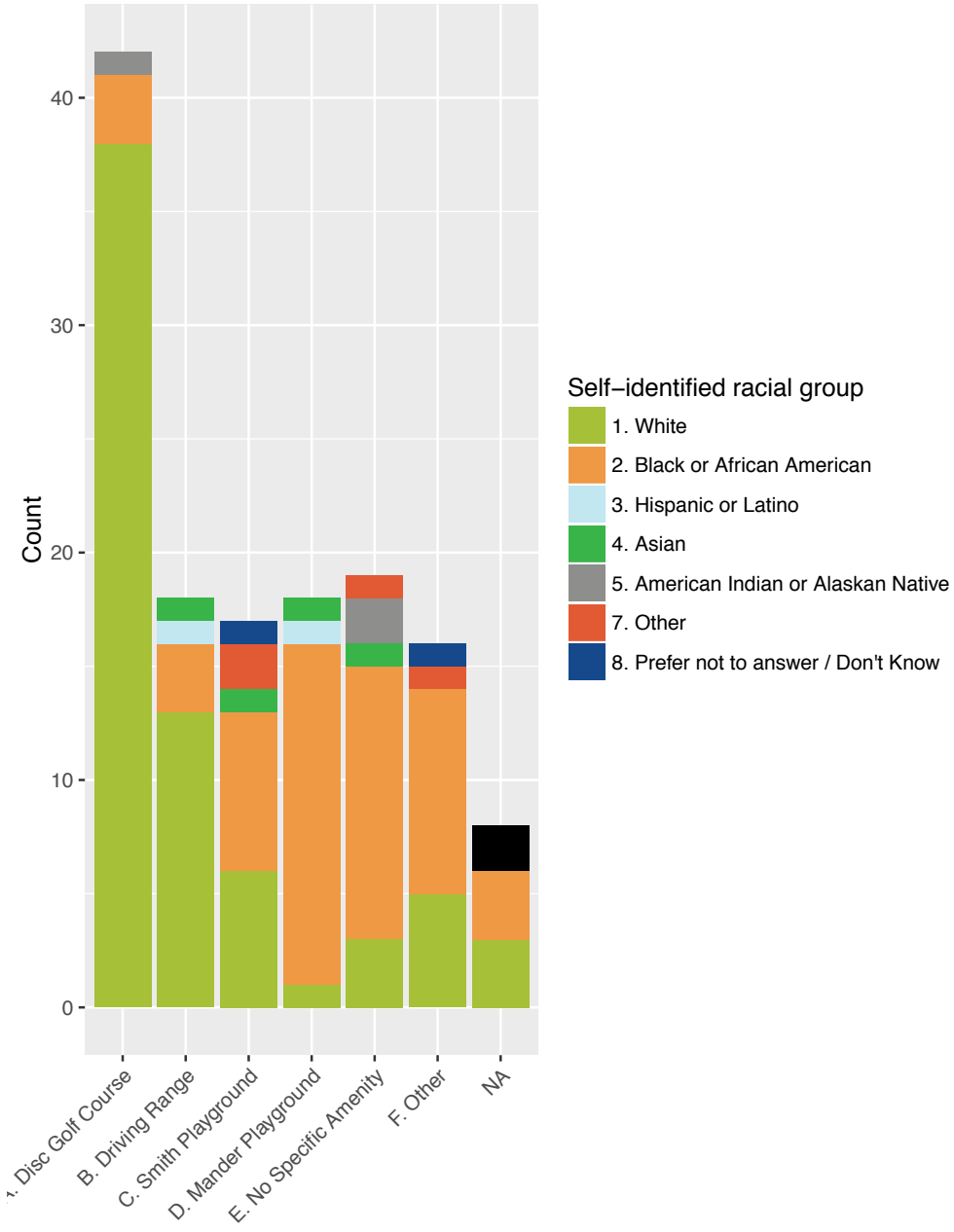
36a. Did you come specifically to visit any of the following amenities (by area of origin) (Other means a non-Philly zip code)



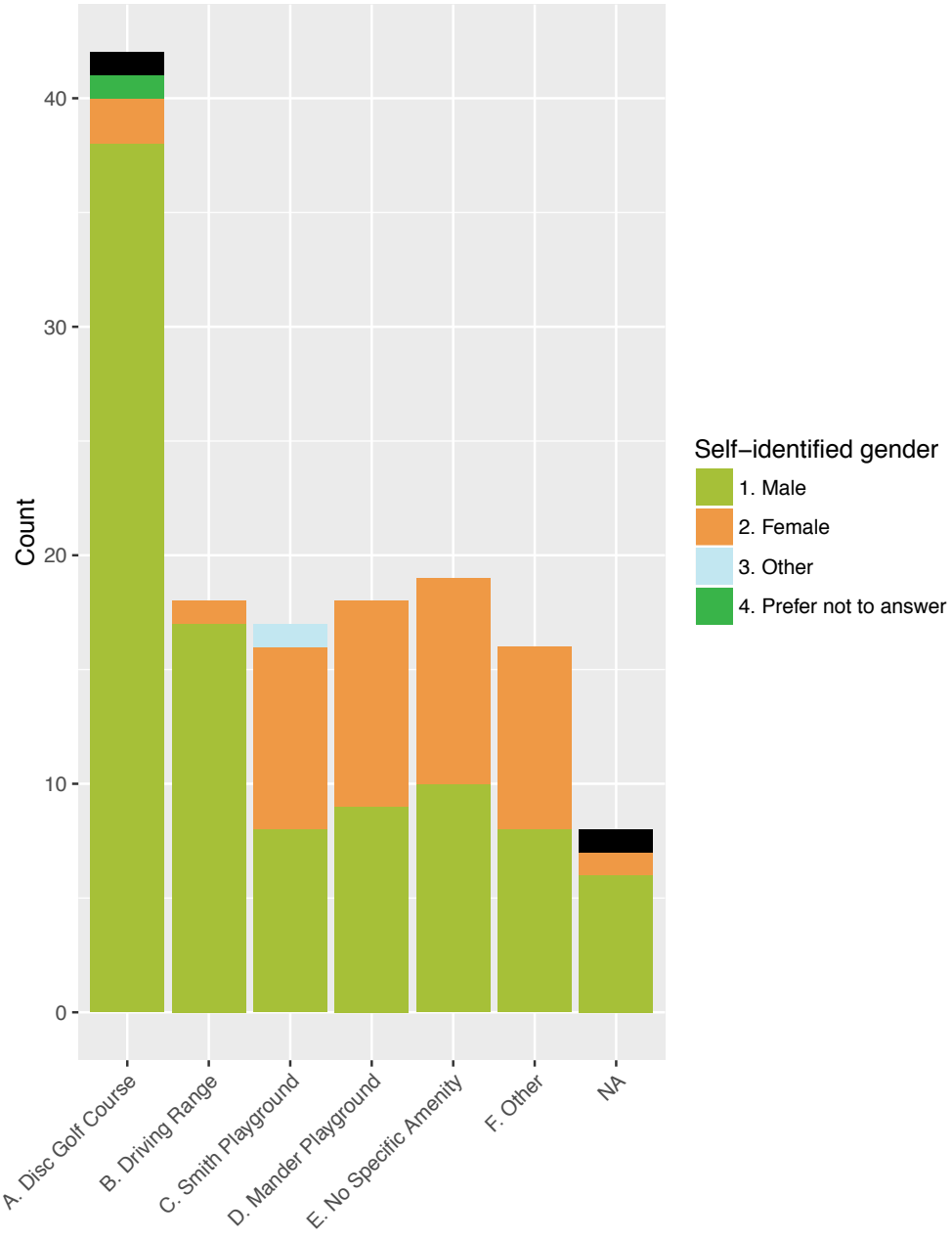
36b. Did you come specifically to visit any of the following amenities (by self-described gender)?



36c. Did you come specifically to visit any of the following amenities (by self-described racial category)?



37. How far did you travel to get to the park today?



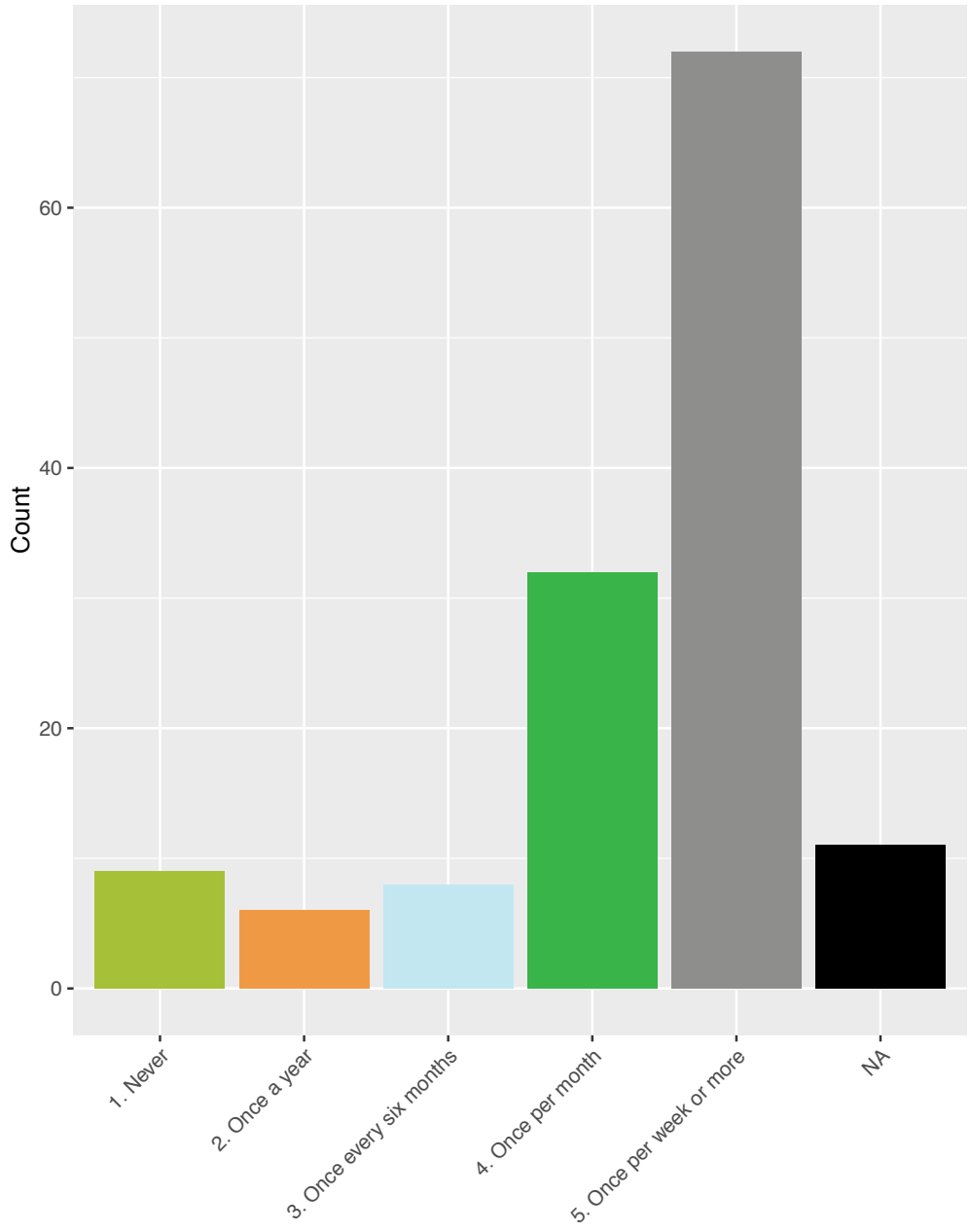
38. Do you enjoy visiting the natural or forested areas of the park?

Yes	No	Not sure	NA
116	6	9	7

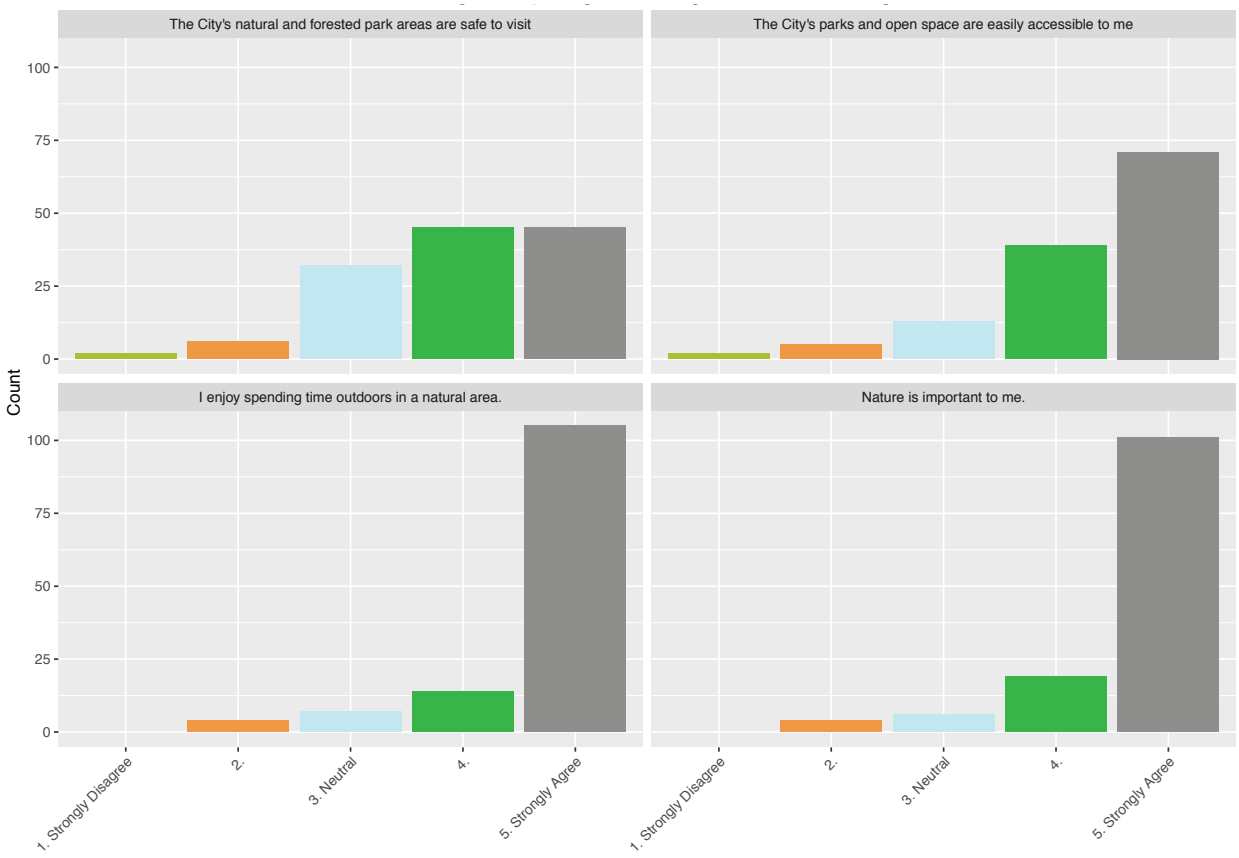
39. What other parks or natural areas do you currently use?

Park Description	Number of Responses
• Any	2
• Area Parks	1
• Azalea Garden	1
• Bartram's Garden	4
• Boat Houses	1
• Carpenters Woods	1
• Clark Park	4
• Cobbs Creek	3
• Disc Golf Courses	7
• Driving Range	1
• Fairmount Park	11
• FDR	2
• Forbidden Drive	3
• French Creek	1
• Germantown	1
• Glendinning Rock Garden	1
• Home	1
• Huntington Park	1
• Lenape Park	1
• Memorial Park	1
• National Parks	1
• Neshaminy State Park	2
• Nockamixon	1
• None	5
• Ogden	1
• Parks in Delaware	5
• Parks in 19129/19140 zip codes	2
• Parks in North Philadelphia near Temple	1
• Parks within 30 miles of 08086	1
• Penn Treaty Park	1
• Pennypack Park	4
• Perkiomen	1
• Rittenhouse Square	2
• River Rink Park	1
• Schuylkill River Trail	5
• Skate Parks	1
• Spruce Harbor Park	1
• Stones Course	1
• Suburbs	1
• Tyler State Park	6
• Valley Forge	2
• Valley Green	2
• Wissahickon	14

40. How frequently do you spend your free time in those parks or other natural settings?



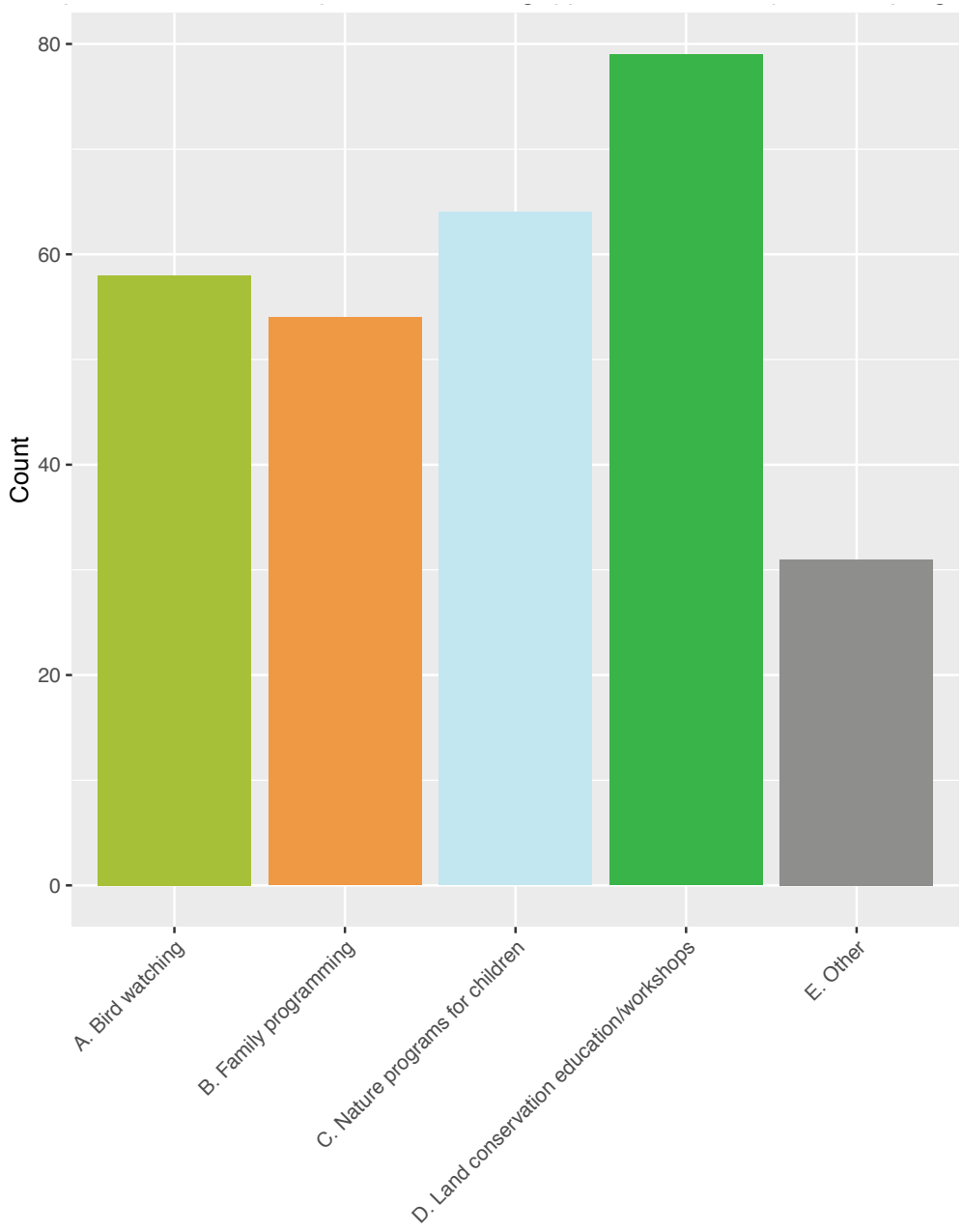
41-44. To what degree do you agree or disagree with the following statement...



41-44. To what degree do you agree or disagree with the following statement…

Question	Mean Score (out of 5)
41. The City's natural and forested areas are safe to visit.	4.0
42. The City's parks and open space are easily accessible to me.	4.3
43. I enjoy spending time outdoors in a natural area.	4.7
44. Nature is important to me	4.7

45. Are you interested in any of the following types of Discovery Center programming?



45a. Are there other types of programming or general comments you would like to share?

Programming	Number of Responses
• Disc golf courses, activities	6
• Entertainment	1
• Geology Programs	1
• Mini Golf	1
• Only programs that increase or have neutral effect on the safety of the natural habitats	1
• Programs relating to flora, fauna and wildlife	1
• Running paths, places to walk your dog	2
• Water slides	1

General Comments	Number of Responses
• Disc golf courses, activities	6
• Access to reservoir	2
• Any improvements would be positive	1
• Increase and maintain park benches, water fountains, bathrooms and other features	2
• Increased advertising and sharing of information about parks	1
• Increased public transit access	1
• Jobs	1
• Make the area safer	1
• More access for local residents	1
• Recycling, sustainable energies	1
• Selective development to make it more a part of the city, not just a destination	1