


Resident Needs and Behaviors in Portland Parks and Natural Areas: Understanding Communities of Color

Final Report

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SUMMARY OF SURVEY PARTICIPATION AND MAIN FINDINGS

This study surveyed residents of the Portland metropolitan region who do and do not visit Metro parks and natural areas and other parks and natural areas in this region to understand their: (a) visitation behavior (e.g., parks visited, frequency of visitation), (b) barriers to visiting (e.g., time, health, transportation, awareness, cost, safety), (c) activity participation, and (d) interests (e.g., sources, topics, and languages of programming and educational information) associated with these parks and natural areas. A primary objective was to understand and compare these issues for both traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population) in this region.

Data were obtained from a questionnaire administered to two samples of adult residents in Clackamas, Multnomah, and Washington counties: (a) a proportionate random sample of residents mostly from communities of color (i.e., probability sample), and (b) a convenience sample of Opt-In Panel members (i.e., nonprobability sample). The questionnaire was available in English, Latin American Spanish, Russian, Traditional Chinese, and Vietnamese. The proportionate random sample mostly targeted Hispanic / Latino, Black / African American, Asian, Slavic / Eastern European, Middle Eastern, and American Indian populations. These populations were combined into a single group called traditionally underserved populations (i.e., communities of color) because the project scope limited the ability to collect large enough samples of each population to be representative of each population on its own. Data for this proportionate random sample were obtained from a mixed-mode survey (mail and online), and 620 questionnaires were completed and returned from this sample (15% response rate). A telephone nonresponse bias check with 137 nonrespondents showed no differences from the 620 respondents. Data for the nonprobability convenience sample of Opt-In Panel members were obtained from an online survey, and 2,708 questionnaires were completed from this sample (38% response rate). To test for any possible method effects, questionnaire responses were statistically compared between these two samples. There were no substantive differences, so the data were aggregated across these samples, resulting in a total combined sample size of 3,328 residents. Some characteristics of this combined sample differed slightly from the most recent (2015) American Community Survey (i.e., Census), so the data were statistically weighted by demographic characteristics (e.g., county, age, gender, education) to ensure this combined sample was representative of the entire population of all adult residents in the region at the 95% confidence level with a margin of error of ± 1.7% (± 2.2% at the 99% confidence level). In other words, 19 times out of 20, the results presented in this report are within ± 1.7% of those for the entire population of adults in this region if they had all completed questionnaires (i.e., a Census).

Given that the sample data were weighted by Census information, demographic characteristics of respondents were almost identical to the entire population of all adult residents in this region (e.g., 50% male, 50% female, average age of 48 years old, 65% with no children under 18 years of age currently in household, 87% not living with a disability, 91% spoke English in their homes, 22% with a high school diploma or GED, 33% with some college or an Associates or two-year technical degree, 19% with a bachelor's degree, 15% with a postgraduate degree, 53% with an annual household income below $75,000, 44% from Multnomah County, 32% from Washington County, 23% from Clackamas County). Compared to traditionally well-served respondents (i.e., white dominant population, n = 1,981), traditionally underserved respondents (i.e., communities of color, n = 557) were younger (average age of 43 years vs. 50 years), had more children under the age of 18 currently living in their household (average of 1.02 vs. 0.53),

spoke more languages other than just English at home (e.g., Spanish, Russian), were less educated (29% vs. 44% with bachelor's degree or postgraduate work / degree), and had lower annual household incomes (62% vs. 48% below $75,000).

The remaining results, however, showed that although there were some differences in questionnaire responses between traditionally underserved (i.e., communities of color) and well-served residents (i.e., white dominant population), there were more similarities than differences. In total, 63% of the statistical tests showed no significant differences between these two groups, whereas 37% showed statistically significant differences. In addition, there were no clear differences between these groups in responses to all open-ended (i.e., text responses) questions.

In terms of differences, traditionally underserved residents (i.e., communities of color) were less likely to have visited Metro's parks and natural areas before (72% vs. 84%), and they also visited other parks and natural areas in the Portland region (not just Metro) less often (53% vs. 35% never visited in the last 12 months or visited less than once a month). Underserved residents (i.e., communities of color) were more likely to agree they were constrained from visiting Metro's parks and natural areas (i.e., barriers) because of: (a) perceived lack of facilities and services (e.g., not enough developed facilities and services [45% vs. 25%], difficult access for people with disabilities or mobility issues [36% vs. 21%], lack of online reservations of picnic areas and shelters [35% vs. 18%]), (b) the number of rules and regulations (28% vs. 19%), and (c) limited numbers of visitors, staff, and programs representing diverse racial, ethnic, and cultural groups (18% – 27% vs. 6%). These residents were also more likely to agree they were constrained from visiting other parks and natural areas in the Portland region (not just Metro) for similar reasons, including limited numbers of visitors and staff representing diverse racial, ethnic, and cultural groups (22% vs. 3%); information only being in English (9% vs. 3%); and fear of prejudice from staff or other visitors at these areas based on personal experiences (6% vs. 3%) or the experiences of other people they know (8% vs. 4%).

Traditionally underserved residents (i.e., communities of color) were also more likely to think managers should address limited information and knowledge about what residents can do at Metro parks and natural areas (44% vs. 33%), lack of developed facilities and services at these areas (25% vs. 13%), facilities at these areas being difficult to access for people with disabilities or mobility issues (14% vs. 4%), inability to make online reservations of picnic areas and shelters (8% vs. 3%), and the limited numbers of visitors, staff, and programs at these parks and natural areas representing diverse racial, ethnic, and cultural groups (6% – 8% vs. 1%). Similarly, these residents were also more likely to think managers of other parks and natural areas in the Portland region (not just Metro) should address their lack of interest in visiting these areas (25% vs. 10%); limited numbers of staff (28% vs. 7%) and visitors (21% vs. 4%) representing diverse racial, ethnic, and cultural groups; and fear of prejudice from staff or other visitors at these areas based on the experiences of other people they know (14% vs. 5%).

These traditionally underserved residents (i.e., communities of color) were also less likely to visit Metro parks and natural areas on most weekdays (15% – 18% vs. 28% – 30%) and would be less likely to visit these areas if Metro required only credit cards to pay fees (e.g., parking, reservations; 28% vs. 17% would visit less often). They were also more interested in cleaning up and caring for trails (54% vs. 46%), harvesting seeds or planting native plants (52% vs. 42%), and storytelling in nature (33% vs. 25%). In addition, they were more interested in receiving information about parks and natural areas via a smartphone using apps, codes, or websites (69% vs. 58%), and learning about outdoor survival skills (68% vs. 59%), how to camp overnight

safely (55% vs. 44%), how or where to fish (50% vs. 38%), archery basics (45% vs. 33%), and how agencies manage and care for their land (70% vs. 61%). Camping (e.g., tents, cabins, recreational vehicles; 44% vs. 36%), fishing (26% vs. 19%), and field sports and games (e.g., soccer, baseball, softball, football; 31% vs. 14%) were more popular with underserved residents (i.e., communities of color). Finally, these residents were more interested in paid jobs or internships in parks and nature for youth (45% vs. 37%).

Traditionally well-served residents (i.e., white dominant population), on the other hand, were more likely to have visited Metro's parks and natural areas before (84% vs. 72%) (especially Smith and Bybee Wetlands Natural Area [37% vs. 20%], Glendoveer Golf Course and Fitness Trail [31% vs. 23%], Graham Oaks Nature Park [12% vs. 5%], and Canemah Bluff Nature Park [10% vs. 3%]), but were still more likely to think managers should address these areas taking too long to get to or being too far away (30% vs. 22%), not allowing pets (e.g., dogs; 21% vs. 14%), not being natural enough (i.e., too much development; 11% vs. 5%), and not offering their preferred activities (10% vs. 6%). In terms of other parks and natural areas in the Portland region (not just Metro), these residents were also likely to visit more often (64% vs. 47% visit at least once a month), but were still more likely to think managers should address fear of crime in these parks and natural areas (71% vs. 61%), perceptions of not feeling safe going to these places (51% vs. 39%), and these areas not feeling welcoming (17% vs. 10%). A number of activities were more popular among these residents, including hiking or walking for pleasure (85% vs. 75%); relaxing, hanging out, or escaping the weather / heat (66% vs. 57%); jogging, running, or walking for exercise (66% vs. 55%); wildlife watching, birding, or nature study (54% vs. 41%); visiting nature centers, historic sites, or related facilities (52% vs. 35%); swimming or wading (42% vs. 33%); non-motorized boating (e.g., canoeing, rowing, kayaking, paddling, rafting; 29% vs. 20%); and nature education programs such as guided talks and tours (22% vs. 15%).

Despite these differences between traditionally underserved residents (i.e., communities of color) and well-served residents (i.e., white dominant population), there were far more similarities than differences. Results of these two groups taken together, for example, showed that 80% of all respondents had visited Metro's parks and natural areas before, visiting an average of almost five times in the last 12 months. Weekends (68% – 77%) and both the late morning (65%) and early afternoon (69%) were the preferred times for visiting these areas. The largest proportions of respondents had visited Oxbow Regional Park (57%) and Blue Lake Regional Park (50%) before, with Oxbow Regional Park considered by the largest percentage (26%) to be their favorite Metro site. The most frequently visited favorite Metro park or natural area was Cooper Mountain Nature Park (average = 3.95 visits in the last 12 months), which is also where the most respondents agreed they feel a connection with nature (99%). Across all Metro parks and natural areas taken together, 94% of respondents agreed they feel a connection with nature when visiting. More than three-quarters of respondents (78%) agreed their favorite Metro park or natural area facilitates social relationships and experiences (especially Blue Lake Regional Park [90%]), and two-thirds (65%) agreed their favorite Metro park or natural area fosters emotional connections (especially Oxbow Regional Park [74%] and Smith and Bybee Wetlands Natural Area [73%]), but fewer than one-third (29%) agreed they were dependent on their favorite Metro park or natural area to provide physical conditions that support desired goals or activities (especially Cooper Mountain Nature Park [32%] and Oxbow Regional Park [31%]).

The most common constraints or barriers to visiting Metro parks and natural areas were: (a) lack of awareness (i.e., not knowing what to do at these areas [62%], where these areas are located

[58%]), (b) proximity (i.e., too far away or take too long to get to [52%]), (c) lack of emotional attachment to these areas (47%), (d) not knowing where to get information about these places (46%), (e) limited public transportation to some of these areas (43%), and (f) inability to take pets (e.g., dogs) to these places (40%). The constraint with which the fewest respondents agreed was that Metro parks and natural areas did not feel welcoming (9%). The most important constraints that respondents want managers to address are to let people know what they can do at Metro parks and natural areas (36%), where these places are located (34%), and where to get information about these places (23%). The fewest respondents thought that managers need to address constraints associated with providing a more welcoming environment (2%).

In terms of other parks and natural areas in the Portland region (not just Metro), the largest proportions of respondents visited less than once a month (32%), about once a month (20%), or about two or three times a month (20%). The most common constraint or barrier to visiting other parks or natural areas in the Portland region was, by far, lack of free time and being too busy to visit (50%). Other important constraints were fear of crime in parks and natural areas in this region (28%), and costs of fees at these places that make it difficult to visit (22%). The most important constraints that residents want managers to address are fear of crime (69%) and perceptions of not feeling safe in parks and natural areas in the Portland region (48%). Similarly, the most common open-ended (i.e., text) responses associated with making parks and natural areas in the Portland region (not just Metro) more welcoming focused on addressing safety and security issues, especially the homeless camping, crime (e.g., theft from vehicles), and drug use in these areas (e.g., increased visible staff presence and / or police patrols and enforcement, more lighting in parks, installing emergency call boxes; mentioned 327 times).

Other common suggestions for making these areas more welcoming focused on increasing information, advertising, and other promotional materials so that residents could more easily learn where parks and natural areas are located, how to access these areas, and activities they can do in these areas (mentioned 144 times). Improving informational signs, directional signs and maps, interpretive information, and staff orientation (e.g., welcome greeters) within parks and natural areas was another common suggestion for making these areas more welcoming (mentioned 121 times). In fact, respondents were most interested in receiving information from maps of parks (90%), signs with directions for how to get to parks or move around inside parks (83%), and educational or interpretive signs in parks (79%). A majority of residents was also interested in receiving information from printed brochures or guides that can be carried around (68%), displays in visitor centers (62%), and information accessed with a smartphone using apps, codes, or websites (60%). The majority of respondents (61%) thought that agencies such as Metro should provide information in parks and natural areas in languages other than just English (e.g., Spanish, Russian / Ukrainian, Chinese, Vietnamese).

Respondents were most interested in learning about plants, animals, or birds of the region (86%); water quality in this region's streams and rivers (77%); how to identify plants or trees for fun, food, and / or healing (77%); natural processes such as floods and fires (74%); what activities or events can be done at nearby parks or natural areas (73%); the role of nature in healthy or livable communities (73%); the significance of the land to Native American communities (73%); how to identify animal tracks or signs of wildlife (72%); outdoor survival skills (e.g., shelter, water, fire, flood; 61%); and how agencies manage and care for their land (64%). Fewer than 40% of respondents, however, were interested in job, internship, and volunteering opportunities in parks and nature.

The majority of respondents were interested in participating in stargazing (62%), wetland canoe or kayaking tours (55%), and guided walks in parks and natural areas in the Portland region (50%). The activities in which respondents participated most often, however, were hiking or walking for pleasure (83%); relaxing, hanging out, or escaping the weather / heat (63%); jogging, running, or walking for exercise (63%); and wildlife watching, birding, or nature study (51%). Picnicking, barbequing, and family gatherings were also popular among respondents (48%), with the majority preferring first-come-first-served (non-reservable) picnic areas and shelters (59%) instead of reservable sites (41%). By far the most common single main activity in parks and natural areas in the Portland region, however, is hiking or walking for pleasure (52%).

All of these activities can facilitate connections to nature. When asked to identify words or phrases (i.e., open-ended, text responses) associated with connections to nature, the most common human themes among respondents focused on nature: (a) providing a sense of calm, peace, quiet, serenity, relaxation, and tranquility (mentioned 924 times); (b) being refreshing, rejuvenating, restorative, invigorating, and providing health, joy, and happiness for the soul (mentioned 413 times); and (c) hosting activities for recreation, exploration, and exercise (e.g., hiking, mountain biking, camping, fishing; mentioned 308 times). The most common non-human themes associated with nature involved: (a) plants, trees, forests, and greenspaces (mentioned 713 times); (b) animals / wildlife and birds (mentioned 534 times); and (c) natural beauty and scenery (mentioned 531 times).

Taken together, these results improve understanding of resident needs and behaviors associated with parks and natural areas in the Portland region, and can be used for informing current and future agency planning, decision making, management strategies, and policies. These findings also contribute to the growing body of recent community-focused research associated with parks and natural areas in the Portland region.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

Background and Objectives

Metro has evolved into a major public landowner and manager in the Portland, Oregon metropolitan region. As the regional government for Clackamas, Multnomah, and Washington counties, Metro manages approximately 17,000 acres of land (Metro, 2016). Bond measures have focused on land acquisitions to provide natural areas that protect streams and rivers, wildlife habitats, trail corridors, and iconic landscapes (Metro, 2016). Although most of these acquisitions have given priority to sensitive habitats, many of these areas also provide opportunities where people can connect with nature and recreate in the outdoors. With these acquisitions coupled with their existing parks and natural areas, Metro has now increased the Portland metropolitan region's amount of publicly owned natural areas, greenspaces, and parklands by more than 25%, providing residents with greater opportunities for exploring and experiencing nature in the wildland-urban interface (Metro, 2016).

As this portfolio of natural areas and protected lands continues to increase, Metro faces important questions associated with resident experiences in these areas and also current and future demand for the use of these and other natural areas. To understand this demand, it is important to know experiences and constraints faced by residents that limit their visitation to these parks and natural areas, whether these experiences and constraints differ between traditionally underserved (i.e., communities of color) and traditionally well-served (i.e., white dominant) populations, and how agencies such as Metro can help residents improve their experiences and overcome any barriers to visitation. These issues are particularly important given that: (a) the Portland metropolitan region is rapidly diversifying (e.g., more than 8% increase in Latino population and 40% increase in Asian population in the last decade); (b) one of Metro's "mission critical strategies" is to ensure that programs and facilities support the needs of underserved communities, including communities of color; and (c) there has been little reliable and representative data collected recently on resident experiences, constraints, and needs associated with Metro's properties and other natural areas in the Portland region (Metro, 2016).

Baseline information, therefore, is needed on these issues to help provide a foundation for current management and lay the groundwork for future decisions about Metro's role as a regional landowner and steward of these natural areas, greenspaces, and parklands (Metro, 2016). The objectives of this project, therefore, were to survey a representative sample of residents of the

Portland metropolitan region (Multnomah, Clackamas, Washington counties) who do and do not visit Metro parks and natural areas and other parks and natural areas in the region to understand:

- Traditionally underserved populations (i.e., communities of color), including their barriers to visiting Metro parks and natural areas, and their activity preferences and interests in these and other parks and natural areas in the region.
- Whether residents have visited Metro parks and natural areas, which of these areas are their favorites to visit, frequency of their visitation, and how they think the agency can improve these areas.
- Barriers or constraints that residents face when visiting Metro parks and natural areas and other parks and natural areas in the region (e.g., time, health, transportation, awareness / information, cost, park attributes, family / friends, safety, welcoming environment), and possible approaches for negotiating these constraints to increase visitation in the future.
- Emotional, functional, and social attachments that residents have to Metro parks and natural areas, which can serve as a motivation for visiting these areas, an approach for negotiating barriers or constraints, and a method for improving understanding of the value of parks and natural areas and their connections to people.
- Preferred sources (e.g., signs, brochures, staff talks), topics (e.g., natural environment, human history), and languages (English and / or other languages) of programming and communications associated with parks and natural areas.
- How residents and their families connect with nature, and what makes them feel personally connected to nature and more welcome in parks and natural areas.
- Activity participation of residents in parks and natural areas (e.g., hiking, bicycling, picnicking), including water-based activity preferences (e.g., fishing, boating, swimming).
- Demographic characteristics of residents.

This report addresses these objectives by summarizing responses from representative surveys of a large number of residents in the Portland metropolitan region. Results improve understanding of resident needs and behaviors, and can be used for informing current and future planning processes, decision making, and management. The primary audience of these results includes not only Metro staff, but also other park planners, operators, practitioners, nature educators, communications specialists, and community organizations. Results also contribute to the

growing body of community-focused research associated with parks, natural areas, and other greenspaces in the Portland region (e.g., Baur, Gomez, & Tynon, 2013a; Baur, Tynon, & Gomez, 2013b; Dresner, Handelman, Braun, & Rollwagen-Bollens, 2015; Houck, 2016; Kovacs, 2012).

Conceptual Foundation

Study objectives necessitated examining concepts such as constraints and place attachment. *Constraints* are factors that limit participation in outdoor recreation or visitation to parks and natural areas, affect leisure preferences, and reduce enjoyment and satisfaction with recreation experiences (Jackson, 2005; Jun & Kyle, 2011). Examples of these constraints are costs associated with visitation, prior obligations (e.g., work, family), ability to travel to parks and natural areas, and personal safety in these places. Constraints have typically been grouped into three broad categories (Crawford & Godbey, 1987; Crawford, Jackson, & Godbey, 1991). First, *intrapersonal constraints* "involve individual psychological states and attributes, which interact with leisure preferences rather than intervening between preferences and participation" (Crawford & Godbey, 1987, p. 122). These constraints include stress, depression, and perceived ability in an activity, which typically arise from personality needs and prior socialization (Crawford & Godbey, 1987; Jun & Kyle, 2011). Second, *interpersonal constraints* are the result of relationships or interactions, such as differing leisure preferences among spouses or difficulty participating in leisure activities due to family obligations (Crawford & Godbey, 1987). Third, *structural constraints* are the furthest removed from the individual and have more to do with situational and functional characteristics (Crawford & Godbey, 1987). Often, the most salient constraints to visiting parks and other natural areas are structural and include inability to afford visitation costs, lack of time, lack of information, and distance from recreation resources (Crompton & Kim, 2004; Jackson, 1994, 2000; Mowen, Payne, & Scott, 2005; Scott & Jackson, 1996; Scott & Mowen, 2010; Zanon, Doucouliagos, Hall & Lockstone-Binney, 2013).

One constraint that impedes visitation to many parks (e.g., national parks) and other natural areas is their remoteness, which can make these areas difficult and expensive to visit (Walker & Virden, 2005). However, parks and natural areas that are within or closer to population centers offer a natural refuge in an otherwise built environment; a space in which to unwind, connect with nature, engage in physical activity, hold social events, and participate in educational programs. Despite these kinds of parks and natural areas being closer to population centers than

many other types of parks (e.g., national parks), people still face constraints that may influence their ability to visit and participate in recreation activities.

Understanding constraints is important in the context of publically funded protected areas because the agencies responsible for managing these places are obligated to serve the general tax-paying public (Scott & Mowen, 2010). Constraints, however, are not always felt equally by all members of the public. Certain groups, such as communities of color, are sometimes more likely to experience some constraints (Bustam, Thapa, & Buta, 2011; Floyd, Gramann, & Saenz, 1993; Shinew & Floyd, 2005; Shinew, Floyd, & Parry, 2004; Stodolska & Yi-Kook, 2005). Research has shown, for example, that low-income elderly women of color are often the most constrained, whereas educated young-adult white males are often the least constrained (Shores, Scott, & Floyd, 2007). Communities of color are also more likely to experience fear of discrimination, language barriers, and lack of group facilities (Byrne & Wolch, 2009; Gobster, 2002; Shinew & Floyd, 2005; Shinew et al., 2004). Common constraints among communities of color, however, are often the same as those of the majority white population and include lack of time, lack of information about parks and natural areas and the activities occurring in these places, travel costs, proximity, fear of crime, and fear of police force (e.g., Bustam et al., 2011; Shinew & Floyd, 2005; Shinew et al., 2004; Shores et al., 2007; Stodolska & Yi-Kook, 2005).

Some studies have found that communities of color experience more constraints and different barriers to recreation and visitation than the white dominant population (Bustam et al., 2011; Gobster, 2002; Metcalf, Burns, & Graefe, 2013; Shores et al., 2007; Stanis, Schneider, & Russell, 2009). Others, however, have found that different factors, such as available income and free time, are more influential than race and ethnicity in contributing to perceived constraints (Jackson, 1994, 2005; Scott, 2013). Despite these mixed findings, it is clear that race and ethnicity are connected to these and other factors, such as access to education and residential location, that are commonly associated with constraining factors such as affordability of recreation costs, residential distance from parks and other natural areas, lack of transportation, and fear of crime (Bustam et al., 2011; Byrne & Wolch, 2009; Gobster, 2002; Manning, 2011; Metcalf et al., 2013; Shinew et al., 2004; Shores et al., 2007; Stodolska & Jackson, 1998; Stodolska & Yi-Kook, 2005; Washburne, 1979; Zanon et al., 2013).

These constraints can impede, limit, or alter preferences for recreation and visitation to parks and other natural areas. Limited visitation to a place may influence the ability to become emotionally

and functionally attached to that place (e.g., Kyle, Jun, & Absher, 2014). The concept of *place attachment* involves how humans connect with geographic locations and explores the strength of these connections between humans and a place (Manning, 2011; Stedman, 2002; Williams & Vaske, 2003). Most outdoor recreation research has examined human-place relationships as a combination of both place identity and place dependence (see Kyle et al., 2014; Manning, 2011; Williams & Vaske, 2003 for reviews). *Place identity* is an emotional connection to a location and it occurs when an area is perceived as an essential part of one's self. Place identity often evolves from familiarity, which is influenced by assigned meanings, childhood memories, and affinity for a particular setting. *Place dependence* is the functional form of attachment that reflects the importance of a place in providing specific physical and geographic features and conditions that support particular goals or desired activities. Kyle et al. (2004) also incorporated social bonding as an additional dimension of place attachment. *Social bonding* involves attachment developed through social relationships and experiences in a place. It is important to include social bonding in measures of place attachment, especially for communities of color because these groups generally prefer to engage in recreation and visit parks and other natural areas with groups of family and / or friends (Gobster, 2002; Manning, 2011; Shinew et al., 2004).

METHODS

For this study, the data were obtained from a questionnaire (Appendix A) administered to two samples of adult residents (18 years of age and older) in Clackamas, Multnomah, and Washington counties: (a) a proportionate random sample of residents mostly from communities of color (i.e., probability sample), and (b) a convenience sample of Opt-In Panel members (i.e., nonprobability sample). The Opt-In Panel (http://optinpanel.org) consists of people who volunteered to be on the panel because they are interested in community and government issues in the Portland region (e.g., economic growth, employment, transportation, park management) and want to contribute opinions through online questionnaires sent to the panel. The English version of the questionnaire was designed first and then translated into Latin American Spanish, Russian, Traditional Chinese, and Vietnamese (i.e., the four most frequently spoken languages among limited English proficient residents in this region). These translated versions were made available to all potential respondents in both hardcopy (i.e., paper questionnaire) and online formats, and questions in these translated versions were identical to those in the English version.

Proportionate Random Sample

The proportionate random sample mostly targeted Hispanic / Latino, Black / African American, Asian, Slavic / Eastern European, Middle Eastern, and American Indian populations, and was drawn as a probability sample using the most current representative address-based system (ABS) databases combined with other databases (e.g., last name algorithms, ethnicity codes, Census block clusters largely consisting of communities of color). This sample was obtained from Marketing Systems Group, which is one of the largest and most reputable sampling firms in the country. In the results, these populations are combined into a single group taken together called traditionally underserved populations (i.e., communities of color). Project scope limited the ability to collect large enough samples of each population (e.g., Hispanic / Latino, Black / African American, Asian) to be representative of each population on its own.

Data for this proportionate random sample were obtained from a mixed-mode survey (mail and online) administered from November 2016 to February 2017 in four phases to increase response rates: (a) mailing an initial letter inviting completion of the questionnaire online (i.e., internet using Qualtrics software), (b) mailing the questionnaire along with a cover letter and postage-paid return envelope to those who did not complete it online (two weeks after the first mailing), (c) mailing a postcard reminder with the option to complete the questionnaire online (one week after the second mailing), and (d) second full mailing of the questionnaire along with a cover letter and postage-paid return envelope to nonrespondents from the previous three phases (three weeks after the third mailing). Multiple mailings are standard for social science studies and necessary for increasing response rates and ensuring generalizability and representativeness of samples (Dillman, Smyth, & Christian, 2014; Vaske, 2008). No further mailings were sent, so residents were considered a nonresponse if they did not complete the questionnaire following these four contacts. Each potential respondent was given a unique identification (ID) code to ensure they did not complete the questionnaire more than once. This is a standard approach for avoiding duplicate responses (i.e., people completing the questionnaire more than once), which could make the sample nonrandom and bias the representativeness and generalizability of results (Vaske, 2008). This ID code also allowed the researchers to identify who completed the questionnaire so that respondents were not contacted again in any additional correspondence.

After eliminating a few problematic cases (e.g., only one question was answered and the rest of the questionnaire was blank, “straight lining” where people answered exactly the same way for

almost every question), a total of 620 usable questionnaires were completed and returned for this sample, and 172 were undeliverable (e.g., moved, incorrect address), yielding a 15% response rate (620 usable completions / 4,250 in the original sample – 172 undeliverables = 15%). This was much more successful than the initial projected target of 400 completed questionnaires.

To check for potential nonresponse bias, a random sample of 137 nonrespondents was telephoned in February 2017 and asked 12 questions from the questionnaire (Appendix B). There were no substantive differences in responses between those who responded via mail or online versus those who did not (i.e., those who completed this telephone nonresponse bias check), so the data did not need to be weighted based on this nonresponse bias check.[1]

Convenience Sample of Opt-In Panel Members

Data from the nonprobability convenience sample of Opt-In Panel members were obtained from an online questionnaire (i.e., internet using Qualtrics software) administered to the entire panel in November 2016. At that time, the panel consisted of 16,598 members. Three email contacts were used for increasing participation: (a) initial email contact, (b) first reminder email (one week after initial contact), and (c) final reminder email (one week after first reminder). This approach is consistent with recent recommendations for online survey research (Dillman et al., 2014).

In total, 7,203 panel members opened at least one of these emails, whereas 9,395 members either deleted all of these emails without opening and reading them, or their email address was undeliverable or not valid. After eliminating a few problematic cases (e.g., only one question was answered and the rest of the questionnaire was blank, "straight lining" where people answered exactly the same way for almost every question), a total of 2,708 usable questionnaires were completed from Opt-In Panel members, representing response rate estimates of 16% from the entire panel (2,708 / 16,598 = 16%) and 38% from those who opened at least one of the email contacts (2,708 / 7,203 = 38%). This was much more successful than the initial projected target of 400 completed questionnaires from Opt-In Panel members. A nonresponse bias check was not possible for this sample because other forms of contact information (e.g., mailing addresses, telephone numbers) are not available for these online panel members.

[1] In total, 67% of the tests for differences were not statistically significant and 33% were significant at $p \leq .05$, but these tests of significance are sensitive to the large sample sizes and the sample size differences here (e.g., 620 vs. 137). There were also no clear patterns in any differences. Most importantly, phi (ϕ), Cramer's V, and point-biserial correlation (r_{pb}) effect size statistics, which are much less sensitive to sample size issues, ranged from only .01 to .19 and averaged only .09. Using guidelines from Cohen (1988) and Vaske (2008) for interpreting effect sizes, all of these values ($\leq .19$) suggested the magnitude of any potential differences was "small" or "minimal," respectively.

To test for any possible method effects, all questionnaire responses from this online survey of Opt-In Panel members (n = 2,708) were statistically compared to those from the mixed-mode (mail, online) survey of the proportionate random sample (n = 620). Comparisons for every item in the questionnaire were made between each of these surveys for traditionally underserved residents (i.e., communities of color) and also between each of these surveys for the traditionally well-served residents (i.e., white dominant population). There were no substantive differences in responses between these two surveys for each sample across all of these comparisons (i.e., no consistent methods effects), so the data were aggregated across both samples (i.e., surveys), resulting in a total combined sample size of 3,328 residents.[2]

Some characteristics of this combined sample, however, differed slightly from the most recent (2015) American Community Survey (i.e., Census), so the aggregated data were statistically weighted to ensure this combined sample was statistically representative of the larger population in the region. A four-way weighting design was implemented (county, age, gender, education), which brought these and other demographic characteristics (e.g., race / ethnicity, disability) in line and consistent with recent Census population data after weighting. It was not possible to weight by race / ethnicity because the Census categorizes both Slavic and Middle Eastern populations as White / Caucasian (i.e., traditionally well-served / white dominant), whereas one goal of this study was to consider these populations as traditionally underserved residents (i.e., communities of color).[3]

Taken together, this combined weighted sample allows generalizations about the entire population in this region (Multnomah, Clackamas, Washington counties) at the 95% confidence level with a margin of error of ± 1.7% (± 2.2% at the 99% confidence level). This means that 19 times out of 20, the results from this aggregated total sample are within ± 1.7% of those from the entire target population in this region (i.e., if a Census had been conducted). This is much better

[2] Comparisons between surveys were made for every item in the questionnaire. For traditionally underserved populations (i.e., communities of color), 71% of the tests for differences were not statistically significant and 29% were significant at $p \leq .05$, but these tests of significance are sensitive to the large sample sizes here. There were also no clear patterns in any differences. Most importantly, phi (ϕ), Cramer's V, and point-biserial correlation (r_{pb}) effect size statistics, which are much less sensitive to sample size issues, averaged only .14 for the 29% of tests that were statistically significant. Using guidelines from Cohen (1988) and Vaske (2008) for interpreting effect sizes, these values suggested the magnitude of most potential differences was "small" or "minimal," respectively. For the traditionally well-served (i.e., white dominant) population, 62% of the tests for differences were not statistically significant and 38% were significant at $p \leq .05$, but again, these tests of significance are sensitive to the large sample sizes here. There were also no clear patterns in any differences. In addition, phi (ϕ), Cramer's V, and point-biserial correlation (r_{pb}) effect size statistics averaged only .09 for the 38% of tests that were statistically significant, suggesting the strength of these differences was "small" or "minimal."

[3] Weights were calculated as: Weight = Population % / Sample % (Vaske, 2008).

than the conventional standard for most survey research associated with recreation, parks, and other protected areas, which is usually ± 5% at the 95% confidence level (Vaske, 2008).

RESULTS

Overview

This results section presents responses to the questions asked in the questionnaire with the findings mostly organized and presented in the order that questions appeared in the questionnaire. For each question, the text and tables present statistical differences between the traditionally underserved population (i.e., communities of color) and the traditionally well-served (i.e., white dominant) population first, then present the overall findings for the total combined sample across both of these populations. The traditionally underserved population (i.e., communities of color) represents individuals who reported being "Black / African American," "Hispanic / Latino / Spanish," "Asian / Asian American," "American Indian / Alaskan Native," "Native Hawaiian / Pacific Islander," "Slavic," and / or "Middle Eastern" (n = 557). The traditionally well-served (i.e., white dominant) population represents individuals who reported being "White / Caucasian" and no other race or ethnicity (n = 1,981).

Statistical tests and effect sizes were used for comparing these populations. Percentages, crosstabulations, and bivariate and multivariate inferential statistical tests (e.g., χ^2, t, F) were used. These tests produce p-values. Given the substantial number of variables measured in the questionnaire and the large combined sample size (n = 3,328), a significance cut-off level of $p \leq .001$ was adopted based on the Bonferroni correction procedure to reduce the possibility of false discoveries and multiple test bias (i.e., multiple comparison problem, family-wise error). If a p-value presented in this report is $p \leq .001$, a statistically significant relationship or difference was observed. If no statistically significant difference or relationship was observed, it is denoted with "ns" (i.e., not significant). In addition to these tests of significance, effect size statistics (e.g., phi ϕ, Cramer's V, point-biserial correlation r_{pb}, Cohen's d) were used for examining the strength of any relationships or differences. For most of these effect size statistics, an effect size of .10 typically suggests "minimal" (Vaske, 2008) or "weak" (Cohen, 1988) relationships or differences. Effect sizes of .30 are usually considered "medium" or "typical," and .50 or greater are usually "large" or "substantial" relationships or differences; larger effect sizes imply stronger relationships or differences (Cohen, 1988; Vaske, 2008). To highlight findings, data were often

recoded into major response categories (e.g., agree, disagree), but descriptive results of all uncollapsed questions (e.g., strongly, slightly agree) are provided in Appendix C.

Metro Parks and Natural Areas

Previous Visitation. Respondents were shown a map (embedded within the questionnaire) containing 15 of Metro's parks and natural areas, and asked if they had ever visited any of these places before. Table 1 shows there was a statistically significant difference between groups, with traditionally well-served residents (i.e., white dominant population) more likely to have visited Metro's parks and natural areas before (84%) compared to traditionally underserved residents (i.e., communities of color; 72%). In total across both groups combined, 80% of respondents had visited Metro's parks and natural areas before, whereas 20% had not visited previously.

Table 1. Previous visitation to Metro parks [a]
(Question 1: "The map above shows parks in the region that are managed by Metro. These are referred to as "Metro parks" in this survey. Have you ever visited any of these parks?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total
Yes (visited at least one Metro park before)	72	84	80
No (not visited any Metro parks)	28	16	20

[a] Cell entries are percentages (%). $\chi^2 = 40.75$, $p < .001$, $\phi = .14$.

Table 2. Frequency of visitation to Metro parks and natural areas in last 12 months [a]
(Question 1: "About how many times have you visited any of these parks in the last 12 months?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 or t value	p value	ϕ or r_{pb}
Number of visits in last 12 months				32.19	< .001	.14
0 visits	17	21	19			
1 visit	23	15	17			
2 visits	18	19	19			
3-4 visits	14	17	16			
5-9 visits	14	15	15			
10-19 visits	5	8	8			
20 or more visits	9	5	6			
Average (mean) number of visits	5.61	4.49	4.89	1.91	.057 (ns)	.06

[a] Cell entries are percentages (%) of those who have visited Metro parks and natural areas before, unless specified as averages / means. Cell entries represent those who have visited Metro parks and natural areas before (Table 1).

Respondents who had visited previously were then asked how many times they have visited any of these parks and natural areas in the last 12 months. Table 2 shows that, on average, the

traditionally underserved residents (i.e., communities of color) had visited Metro's parks and natural areas slightly more often (*M* [mean or average] = 5.61 visits) than the traditionally well-served residents (i.e., white dominant population; *M* = 4.49), but this was not a statistically significant difference. Across all respondents taken together, they had visited an average of 4.89 times in the last 12 months. The highest proportions, however, had made no visits (19%) or only one visit (17%) or two visits (17%) in the last 12 months.

Table 3. Metro parks and natural areas previously visited [a]
(Question 2: "Which of these Metro parks have you visited (shown on the map above)?")

Places visited	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
Oxbow Regional Park	53	59	57	6.28	.012 (ns)	.06
Blue Lake Regional Park	45	52	50	7.09	.008 (ns)	.06
Sauvie Island Boat Ramp	30 [b]	38 [b]	36 [b]	10.99	.001	.08
Cooper Mountain Nature Park	26	32	31	4.96	.026 (ns)	.05
Mount Talbert Nature Park	24	26	25	0.35	.553 (ns)	.01
Glendoveer Golf Course & Fitness Trail	23	31	29	10.94	.001	.08
Smith & Bybee Wetlands Natural Area	20	37	32	48.18	< .001	.16
Scouters Mountain Nature Park	14	12	12	1.70	.192 (ns)	.03
Chinook Landing Marine Park	11	14	13	3.48	.062 (ns)	.04
Broughton Beach	8	10	9	1.35	.245 (ns)	.03
Howell Territorial Park	6	8	8	1.40	.236 (ns)	.03
Graham Oaks Nature Park	5	12	10	20.18	< .001	.10
James Gleason Boat Ramp	4	5	5	0.68	.410 (ns)	.02
Canemah Bluff Nature Park	3	10	8	24.38	< .001	.11
Mason Hill Park	2	2	2	0.56	.454 (ns)	.02

[a] Cell entries are percentages (%) of those who have visited Metro parks and natural areas before (Table 1) who have visited this park or natural area. Column totals exceed 100% because respondents could select more than one park or natural area (i.e., check all that apply).

[b] May be inflated because although the questionnaire text said "Sauvie Island Boat Ramp," the map only said "Sauvie Island" and some respondents may have thought about the entire island rather than just the boat ramp.

Respondents who had visited previously were also asked which Metro parks and natural areas they have ever visited. Table 3 shows there were a few statistical differences between groups with the traditionally well-served residents (i.e., white dominant population) significantly more likely than the traditionally underserved population (i.e., communities of color) to have visited Sauvie Island Boat Ramp (38% vs. 30%), Smith and Bybee Wetlands Natural Area (37% vs. 20%), Glendoveer Golf Course and Fitness Trail (31% vs. 23%), Graham Oaks Nature Park (12% vs. 5%), and Canemah Bluff Nature Park (10% vs. 3%). It is important to note, however, that the percentages for Sauvie Island Boat Ramp may be inflated because although the

questionnaire text said "Sauvie Island Boat Ramp," the map only said "Sauvie Island" and some respondents may have thought about the entire island rather than just the boat ramp. Across all respondents taken together, the largest proportions and the majority had visited Oxbow Regional Park (57%) and Blue Lake Regional Park (50%) before. Approximately one-third of respondents had visited Smith and Bybee Wetlands Natural Area (32%), Cooper Mountain Nature Park (31%), and Glendoveer Golf Course and Fitness Trail (29%). The least popular Metro locations were Mason Hill Park (2%), Gleason Boat Ramp (5%), Howell Territorial Park (8%), Canemah Bluff Nature Park (8%), and Broughton Beach (9%).

Table 4. Favorite Metro park or natural area [a]
(Question 3: "What is your ONE favorite Metro park (shown on the map above)?")

Favorite park or natural area	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total
Oxbow Regional Park	28	26	26
Blue Lake Regional Park	15	14	14
Glendoveer Golf Course & Fitness Trail	12	6	8
Sauvie Island Boat Ramp	12 [b]	10 [b]	10 [b]
Cooper Mountain Nature Park	10	16	15
Mount Talbert Nature Park	10	6	7
Smith & Bybee Wetlands Natural Area	9	12	11
Graham Oaks Nature Park	2	3	3
Canemah Bluff Nature Park	1	3	2
Chinook Landing Marine Park	1	1	1
Scouters Mountain Nature Park	1	1	1
Howell Territorial Park	1	1	1
Broughton Beach	0	1	1
Mason Hill Park	0	1	1
James Gleason Boat Ramp	0	1	0

[a] Cell entries are percentages (%) of those who have visited Metro parks and natural areas before (Table 1). $\chi^2 = 51.50$, $p < .001$, $V = .17$.
[b] May be inflated because although the questionnaire text said "Sauvie Island Boat Ramp," the map only said "Sauvie Island" and some respondents may have thought about the entire island rather than just the boat ramp.

Respondents who had visited previously were then asked which Metro park or natural area was their favorite. Table 4 shows there were statistical differences between groups with both Mount Talbert Nature Park and Glendoveer Golf Course and Fitness Trail more likely to be considered favorites with underserved residents (i.e., communities of color; 10% – 12%) compared to well-served residents (i.e., white dominant population; 6%). Cooper Mountain Nature Park was more likely to be a favorite with well-served residents (i.e., white dominant population; 16%) compared to underserved residents (i.e., communities of color; 10%). In total across all respondents, Oxbow Regional Park was considered by the largest percentage to be their favorite

(26%), followed by Cooper Mountain Nature Park (15%), Blue Lake Regional Park (14%), and Smith and Bybee Wetlands Natural Area (11%). The areas considered by the fewest respondents to be their favorite were Gleason Boat Ramp (0%), Mason Hill Park (1%), Howell Territorial Park (1%), Broughton Beach (1%), Scouters Mountain Nature Park (1%), Chinook Landing Marine Park (1%), Canemah Bluff Nature Park (2%), and Graham Oaks Nature Park (3%).

Table 5. Frequency of visitation to favorite Metro park or natural area in last 12 months [a]
(Question 4: "About how many times have you visited this one favorite Metro park (from Question 3 above) in the last 12 months?")

Favorite park or natural area	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	*t* value	*p* value	r_{pb}
Cooper Mountain Nature Park	4.24	4.16	3.95	0.08	.937 (ns)	.01
Smith & Bybee Wetlands Natural Area	2.91	2.21	2.81	0.93	.352 (ns)	.07
Sauvie Island Boat Ramp	1.88 [b]	1.91 [b]	2.16 [b]	0.09	.925 (ns)	.01
Oxbow Regional Park	1.72	1.54	1.74	0.75	.453 (ns)	.04
Blue Lake Regional Park	0.88	1.28	1.17	1.36	.117 (ns)	.08
Total (across all Metro parks)	4.23	2.87	3.34	2.49	.013 (ns)	.07

[a] Cell entries are average (mean) number of visits in last 12 months for those who selected this as their favorite park or natural area (Table 4). Analyses only for parks or natural areas that were selected as their favorite for at least 10% of respondents (Table 4); the other parks and natural areas do not have enough respondents in each population for reliable analyses.

[b] May be inflated because although the questionnaire text said "Sauvie Island Boat Ramp," the map only said "Sauvie Island" and some respondents may have thought about the entire island rather than just the boat ramp.

Respondents who had visited previously were then asked how many times they have visited this favorite Metro park or natural area in the last 12 months. Table 5 shows the average number of visits to Metro parks and natural areas that were selected as their favorite for at least 10% of respondents (i.e., from Table 4); the other parks and natural areas did not have enough respondents in each population group for reliable analyses. Although the traditionally underserved respondents (i.e., communities of color) had visited their favorite Metro park or natural area more often in the last 12 months (M = 4.23 visits in last 12 months) than the well-served (i.e., white dominant population) respondents (M = 2.87), this difference and any differences between these groups in visitation to each park or natural area were not statistically significant. Across all respondents taken together, they had visited their favorite Metro park or natural area an average of 3.34 times in the last 12 months. The most frequently visited favorite Metro park or natural area was Cooper Mountain Nature Park (M = 3.95), followed by parks and natural areas such as Smith and Bybee Wetlands Natural Area (M = 2.81), Oxbow Regional Park (M = 1.74), and Blue Lake Regional Park (M = 1.17).

Preferred Improvements in Each Park and Natural Area. Respondents who had visited previously were also asked an open-ended (i.e., text responses) question, "what can Metro do to make this one favorite Metro park even better" (question 5 in the questionnaire). Given that these are qualitative (i.e., text-based) data, they should not be quantified into standardized metrics (e.g., percentages from 0% –100%). Responses, therefore, were grouped into larger themes and categories based on the general frequency that each theme was mentioned.

There were no clear differences between traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population), as the verbatim responses were similar for both groups. At Oxbow Regional Park, some of the most common responses included improving and increasing the number of trails (mentioned 26 times), providing more and better interpretive signs (mentioned 25 times), allowing dogs (mentioned 24 times), and providing more parking (mentioned 19 times). At Blue Lake Regional Park, frequent responses focused on improving water quality of the lake (mentioned 22 times), improving the restrooms (mentioned 10 times), and allowing dogs (mentioned 8 times). For Chinook Landing Marine Park, one common suggestion was to improve and provide more parking (mentioned 4 times). At both Broughton Beach and neighboring Gleason Boat Ramp, comments mainly focused on improving cleanliness (e.g., litter, broken glass; mentioned 12 times) and reducing parking costs (mentioned 6 times). For Smith and Bybee Wetlands Natural Area, some of the most common responses included expanding the trail system (mentioned 24 times), better water access and launch areas for kayaks and canoes (mentioned 14 times), better bicycle access (mentioned 14 times), additional wildlife viewing areas (e.g., observation points, blinds; mentioned 10 times), and ensuring adequate water levels (mentioned 10 times). At Sauvie Island Boat Ramp, comments included improving cleanliness (e.g., litter; mentioned 16 times), restrooms (mentioned 11 times), and safety (mentioned 6 times). For Howell Territorial Park, one common suggestion was to open the Bybee-Howell House for tours and visitation by the public (mentioned 4 times). At Mason Hill Park, the few suggestions included adding restrooms, improving parking, and allowing dogs (mentioned 1 time each). For Cooper Mountain Nature Park, comments included increasing the number of trails (mentioned 20 times), adding more benches and tables (mentioned 19 times), increasing parking (mentioned 17 times), expanding the size of the park (mentioned 12 times), and having more trails accessible from the bottom of the mountain / park (so people could end their walk with a downhill rather than a steep climb; mentioned 9 times). At Graham Oaks Nature Park, suggestions included better trail maintenance

(mentioned 7 times) and enforcing the current policy prohibiting dogs (mentioned 3 times). For Canemah Bluff Nature Park, comments mainly focused on increasing the number and connectivity of trails (mentioned 8 times), adding more interpretive signs and information (mentioned 5 times), and removing invasive species in favor of native species (mentioned 5 times). At Mount Talbert Nature Park, suggestions included improving and adding a few trails and trail markers (mentioned 8 times), and improving signs (mentioned 7 times). For Scouters Mountain Nature Park, one common suggestion was to increase the number of trails and connectivity of trails (mentioned 7 times). At Glendoveer Golf Course and Fitness Trail, comments included improving safety (e.g., more lighting; mentioned 10 times), restrooms (mentioned 9 times), and drainage (mentioned 5 times).

Connection to Nature. Respondents who had visited previously were also asked the extent they disagreed or agreed with the statement "when visiting this park, I usually feel a connection with nature." Table 6 shows respondent agreement with this statement for parks or natural areas that were selected as their favorite for at least 10% of respondents (i.e., from Table 4); the other parks and natural areas did not have enough respondents in each population group for reliable analyses. There were no statistical differences in responses between the traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population) at any of these parks and natural areas except Smith and Bybee Wetlands Natural Area where traditionally well-served residents (i.e., white dominant population) were more likely (99% agree) than traditionally underserved residents (i.e., communities of color; 74%) to feel a connection with nature when visiting. For all respondents combined across both of these groups, the park where the most agreed they feel a connection with nature is Cooper Mountain Nature Park (99%), whereas the park where the fewest feel a connection with nature is Blue Lake Regional Park (92%). Across all Metro parks and natural areas taken together, 94% of respondents agreed they feel a connection with nature when visiting these areas.

Table 6. Connection to nature at favorite Metro park or natural area [a]
(Question 6: "Thinking about this one favorite Metro park (from Question 3 above), to what extent do you disagree or agree with the statement 'When visiting this park, I usually feel a connection with nature'?")

Favorite park or natural area	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
Blue Lake Regional Park	98	90	92	4.21	.040 (ns)	.13
Sauvie Island Boat Ramp	98 [b]	96 [b]	96 [b]	0.46	.497 (ns)	.05
Oxbow Regional Park	96	98	97	0.33	.568 (ns)	.03
Cooper Mountain Nature Park	95	99	99	3.57	.059 (ns)	.15
Smith & Bybee Wetlands Natural Area	74	99	94	22.47	< .001	.40
Total (across all Metro parks)	93	95	94	2.34	.126 (ns)	.04

[a] Cell entries are percentages (%) of those who selected this as their favorite park or natural area and agreed or strongly agreed with the statement "when visiting this park, I usually feel a connection with nature." Analyses only for parks and natural areas that were selected as their favorite for at least 10% of respondents (Table 4); the other parks and natural areas do not have enough respondents in each population for reliable analyses.
[b] May be inflated because although the questionnaire text said "Sauvie Island Boat Ramp," the map only said "Sauvie Island" and some respondents may have thought about the entire island rather than just the boat ramp.

Place Attachment. Respondents who had visited previously were then asked the extent they disagreed or agreed with nine different statements measuring the concept of place attachment. Three of these statements measured the dimension of place dependence (e.g., "I would not substitute any other place for what I enjoy doing at this park"), three measured place identity (e.g., "I feel this park is a part of me"), and three measured social bonding (e.g., "Time spent at this park allows me to bond with my family or friends") (question 6 in the questionnaire). Given that no single questionnaire item perfectly measures an abstract and complex cognitive concept, such as place dependence or place identity, the three statements for each of these dimensions were combined into a composite index based on strong measurement reliability (Cronbach alpha reliability coefficients all over the accepted threshold of .60 – .65: place dependence = .79, place identity = .83, social bonding = .88; Vaske, 2008).

Table 7 shows the extent of agreement with these place dependence, place identity, and social bonding indices for Metro parks and natural areas that were selected as their favorite for at least 10% of respondents (i.e., from Table 4); the other parks and natural areas did not have enough respondents in each population group for reliable analyses. There were no statistically significant differences in social bonding, place identity, and place dependence between the underserved (i.e., communities of color) and well-served (i.e., white dominant population) residents at any of these parks and natural areas. Across all respondents in total and across all Metro parks and natural areas taken together, 78% of respondents agreed their favorite Metro park or natural area facilitates social relationships and experiences in a place (i.e., social bonding) and 65% agreed

their favorite park or natural area fosters emotional connections (i.e., place identity), but only 29% agreed they were dependent on their favorite Metro park or natural area to provide physical and geographic conditions that support their desired goals or activities (i.e., place dependence).

Table 7. Place dependence, place identity, and social bonding at favorite Metro park or natural area [a]

Favorite park or natural area	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
Place Dependence						
Oxbow Regional Park	41	27	31	6.74	.009 (ns)	.13
Cooper Mountain Nature Park	34	32	32	0.10	.755 (ns)	.02
Blue Lake Regional Park	27	23	23	0.38	.540 (ns)	.04
Sauvie Island Boat Ramp	27 [b]	17 [b]	20 [b]	1.93	.165 (ns)	.11
Smith & Bybee Wetlands Natural Area	18	19	19	0.04	.846 (ns)	.01
Total (across all Metro parks / natural areas)	36	27	29	10.69	.002 (ns)	.08
Place Identity						
Smith & Bybee Wetlands Natural Area	83	70	73	2.40	.121 (ns)	.11
Oxbow Regional Park	68	77	74	3.26	.071 (ns)	.09
Sauvie Island Boat Ramp	67 [b]	61 [b]	63 [b]	0.40	.527 (ns)	.05
Cooper Mountain Nature Park	62	73	69	1.84	.175 (ns)	.09
Blue Lake Regional Park	46	46	46	0.01	.998 (ns)	.01
Total (across all Metro parks / natural areas)	59	67	65	8.80	.003 (ns)	.07
Social Bonding						
Blue Lake Regional Park	90	89	90	0.01	.983 (ns)	.01
Oxbow Regional Park	89	84	84	1.28	.259 (ns)	.05
Sauvie Island Boat Ramp	87 [b]	78 [b]	79 [b]	1.97	.160 (ns)	.11
Smith & Bybee Wetlands Natural Area	85	72	74	2.76	.097 (ns)	.12
Cooper Mountain Nature Park	76	73	74	0.23	.629 (ns)	.03
Total (across all Metro parks / natural areas)	81	77	78	2.13	.145 (ns)	.04

[a] Cell entries are percentages (%) of those who selected this as their favorite park and agreed or strongly agreed with the combined items measuring place dependence, place identity, and social bonding (i.e., percent who feel dependence, identity, or bonding associated with the park). Place dependence is the importance of a place in providing physical and geographic features and conditions that support specific goals or desired activities, and was measured with three questionnaire variables (e.g., "I would not substitute any other place for what I enjoy doing at this park") that were combined for analysis. Place identity is an emotional connection to a location that occurs when an area is perceived as an essential part of one's self, and was measured with three questionnaire variables (e.g., "I feel this park is a part of me") that were combined for analysis. Social bonding involves attachment developed through social relationships and experiences in a place, and was measured with three questionnaire variables (e.g., "time spent at this park allows me to bond with my family or friends") that were combined for analysis. Analyses only for parks or natural areas that were selected as their favorite for at least 10% of respondents (Table 4); the other parks and natural areas do not have enough respondents in each population for reliable analyses.

[b] May be inflated because although the questionnaire text said "Sauvie Island Boat Ramp," the map only said "Sauvie Island" and some respondents may have thought about the entire island rather than just the boat ramp.

The location facilitating the most social bonding is Blue Lake Regional Park (90% agreed), whereas both Cooper Mountain Nature Park and Smith and Bybee Wetlands Natural Area are less likely to facilitate social bonding (74%). The Metro parks and natural areas that foster the

most place identity are Oxbow Regional Park (74%) and Smith and Bybee Wetlands Natural Area (73%), whereas the place fostering among the lowest identity is Blue Lake Regional Park (46%). Respondents were most dependent (i.e., place dependence) on Cooper Mountain Nature Park (32%) and Oxbow Regional Park (31%), and among the least dependent on Smith and Bybee Wetlands Natural Area (19%).

Most Convenient Times to Visit. Respondents were asked "If you could visit any of the Metro parks, what day(s) of the week would be most convenient to visit?" Table 8 shows there were no statistically significant differences between traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population) for Friday, Saturday, and Sunday. Most weekdays (Monday through Thursday), however, were significantly more convenient for traditionally well-served residents (i.e., white dominant population; 28% – 30%) compared to traditionally underserved residents (i.e., communities of color; 15% – 18%). Across all respondents combined across both of these groups, weekends were most convenient, with Saturday the most preferred (77%) followed by Sunday (68%). Weekdays were convenient for only 25% (Monday, Tuesday, Wednesday) to 34% (Friday) of all respondents.

Table 8. Days and times that are most convenient for visiting Metro parks and natural areas [a]
(Question 7: "If you could visit any of the Metro parks, what day(s) of the week would be most convenient to visit?")
(Question 8: "If you could visit any of the Metro parks, what time(s) of the day would be most convenient to visit?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
Day of the week						
Monday	17	28	25	29.22	< .001	.11
Tuesday	16	28	25	33.36	< .001	.12
Wednesday	15	28	25	49.47	< .001	.15
Thursday	18	30	27	38.25	< .001	.13
Friday	30	36	34	5.31	.021 (ns)	.05
Saturday	82	76	77	8.38	.004 (ns)	.06
Sunday	67	69	68	0.93	.336 (ns)	.02
Time of the day						
Early morning	28	23	25	5.26	.022 (ns)	.05
Late morning	63	65	65	0.94	.332 (ns)	.02
Early afternoon	67	70	69	1.70	.192 (ns)	.03
Late afternoon	40	48	45	10.98	.001	.07
Evening	23	26	25	2.33	.127 (ns)	.03

[a] Cell entries are percentages (%). Column totals exceed 100% because respondents could select more than one option for each (i.e., check all that apply).

Respondents were also asked "If you could visit any of the Metro parks, what time(s) of the day would be most convenient to visit?" Table 8 shows there were no statistically significant

differences between traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population) for all times except the late afternoon, which was preferred by slightly more well-served residents (i.e., white dominant population; 48%) than underserved residents (i.e., communities of color; 40%). Across all respondents taken together, the early afternoon (69%) and late morning (65%) were most convenient, whereas the evening and early morning were least convenient (25%).

Constraints to Visitation. The questionnaire measured 20 constraints associated with visiting Metro parks and natural areas. Respondents were asked the extent they disagreed or agreed that each made it difficult for them or their family to visit Metro parks and natural areas. Table 9 shows that traditionally underserved residents (i.e., communities of color) were significantly more likely than traditionally well-served residents (i.e., white dominant population) to agree they were constrained by: (a) lack of facilities and services at Metro parks and natural areas (e.g., not enough developed facilities / services [45% vs. 25% agreed], facilities difficult to access for people with disabilities or mobility issues [36% vs. 21%], no online reservations of picnic areas / shelters [35% vs. 18%]), (b) the number of rules and regulations at Metro parks and natural areas (28% vs. 19%), and (c) limited numbers of visitors, staff, and programs at these parks and natural areas representing diverse racial, ethnic, and cultural groups (18% – 27% vs. 6%).

Across all respondents in total, the most common constraints to visiting Metro parks and natural areas were lack of awareness, as 62% agreed they did not know what they can do at these parks and natural areas, and 58% agreed they did not know where these areas are located. Proximity was also a constraint for the majority of residents, with 52% agreeing these parks and natural areas are too far away or take too long to get to from home. Other constraints for respondents were lack of emotional attachment to these parks and natural areas (47%), not knowing where to get information about these places (46%), limited public transportation to some of these parks and natural areas (43%), and inability to take pets (e.g., dogs) to these places (40%). In addition, 30% of respondents agreed that Metro parks and natural areas are not the best places for the activities they enjoy doing. Another 30% also agreed there are not enough developed facilities and services at Metro parks and natural areas (e.g., picnic tables, barbeques, restrooms), but on the contrary, 25% agreed that these areas are not natural enough and have too much development already. The constraint with which the fewest respondents, in total, agreed was that these parks and natural areas did not feel welcoming (9%).

Table 9. Constraints making it difficult to visit Metro parks and natural areas [a]
(Question 9: "To what extent do you disagree or agree that each of the following make it difficult for you or your family to visit Metro parks?")

Constraints	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
I do not know enough about what I can do at Metro parks	64	62	62	1.31	.253 (ns)	.02
I do not know where Metro parks are located	61	58	58	1.61	.204 (ns)	.03
Visiting Metro parks is hard for me because they take too long to get to or are too far away	54	50	52	2.52	.112 (ns)	.03
I do not feel emotionally attached to any Metro parks	49	46	47	1.35	.245 (ns)	.03
I do not know where to get information about Metro parks	49	45	46	4.06	.044 (ns)	.04
There are not enough developed facilities / services at Metro parks (e.g., picnic tables, barbeques, picnic shelters, restrooms)	45	25	30	72.68	< .001	.19
There is no public transportation (e.g., buses) to the Metro parks I want to visit	43	43	43	0.01	.928 (ns)	.01
I cannot take pets (e.g., dogs) to Metro parks	37	42	40	3.89	.049 (ns)	.04
Facilities at Metro parks are difficult to access for people with disabilities / mobility issues	36	21	25	44.09	< .001	.16
Metro parks do not provide online reservations of picnic areas / shelters	35	18	23	57.05	< .001	.18
Metro parks have too many rules / regulations	28	19	22	16.51	< .001	.09
Metro parks do not have programs for people in my racial, ethnic, or cultural group	27	6	11	156.05	< .001	.30
The activities I enjoy doing are not available in Metro parks	26	20	22	9.46	.002 (ns)	.07
Metro parks are not the best places for the activities I enjoy doing	25	32	30	9.15	.002 (ns)	.07
I tend to avoid Metro parks because they are too crowded	25	20	22	6.33	.012 (ns)	.06
Metro parks are not natural enough (in other words, there is too much development now)	23	24	25	0.11	.740 (ns)	.01
Metro parks do not have enough staff representing my racial, ethnic, or cultural group	22	6	11	91.57	< .001	.23
Metro parks do not have enough visitors representing my racial, ethnic, or cultural group	18	6	10	69.59	< .001	.20
Metro parks do not feel welcoming to me or my family	10	9	9	0.01	.992 (ns)	.01
Other [b]	6	5	6	5.79	.096 (ns)	.08

[a] Cell entries are percentages (%) who agreed or strongly agreed that it made it difficult for them / their family to visit.
[b] Most common open-ended (written) responses were: available time / too busy, age / health, safety (e.g., crime, homeless populations in parks), limited mountain biking in these parks, limited horseback riding in these parks, and there are few parks on the west side of Portland.

Table 10. Most important constraints park managers need to address to make it easier to visit Metro parks and natural areas [a] *(Question 10: "From the list in Question 9 (above), please choose up to three that are the most important for park managers to address in order to make it easier for you or your family to visit Metro parks in the future")*

Constraints	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
I do not know enough about what I can do at Metro parks	44	33	36	19.41	< .001	.10
I did not know where Metro parks were located	33	35	34	0.63	.429 (ns)	.02
There are not enough developed facilities / services at Metro parks (e.g., picnic tables, barbeques, picnic shelters, restrooms)	25	13	16	46.55	< .001	.15
Visiting Metro parks is hard for me because they take too long to get to or are too far away	22	30	28	17.83	< .001	.09
I do not know where to get information about Metro parks	22	24	23	0.82	.366 (ns)	.02
There is no public transportation (e.g., buses) to the Metro parks I want to visit	20	19	19	0.19	.666 (ns)	.01
I cannot take pets (e.g., dogs) to Metro parks	14	21	19	13.71	< .001	.08
Facilities at Metro parks are difficult to access for people with disabilities / mobility issues	14	4	7	60.57	< .001	.18
I do not feel emotionally attached to any Metro parks	9	11	10	3.24	.072 (ns)	.04
I tend to avoid Metro parks because they are too crowded	9	9	9	0.01	.983 (ns)	.01
Metro parks do not provide online reservations of picnic areas / shelters	8	3	5	20.86	< .001	.10
Metro parks do not have programs for people in my racial, ethnic, or cultural group	8	1	3	57.41	< .001	.18
Metro parks do not have enough staff representing my racial, ethnic, or cultural group	8	1	3	67.66	< .001	.19
Metro parks have too many rules / regulations	7	4	5	4.43	.035 (ns)	.05
The activities I enjoy doing are not available in Metro parks	6	10	9	11.56	.001	.07
Metro parks do not have enough visitors representing my racial, ethnic, or cultural group	6	1	3	41.71	< .001	.15
Metro parks are not natural enough (in other words, there is too much development now)	5	11	10	15.98	< .001	.08
Metro parks are not the best places for the activities I enjoy doing	5	8	7	5.58	.018 (ns)	.05
Other	3	4	4	2.06	.152 (ns)	.03
Metro parks do not feel welcoming to me or my family	2	1	2	0.09	.763 (ns)	.01

[a] Cell entries are percentages (%) who chose this as one of three most important issues for managers to address. Column totals exceed 100% because respondents could select up to three.

Respondents were then asked to select up to three of these constraints they think are the most important for managers to address to make it easier to visit Metro parks and natural areas in the future. Table 10 shows that traditionally underserved residents (i.e., communities of color) were

more likely than traditionally well-served residents (i.e., white dominant population) to think managers should address: (a) limited information and knowledge about what people can do at Metro parks and natural areas (44% vs. 33%), (b) lack of developed facilities and services at these places (25% vs. 13%), (c) facilities at Metro parks and natural areas being difficult to access for people with disabilities or mobility issues (14% vs. 4%), (d) inability to make online reservations of picnic areas / shelters (8% vs. 3%), and (e) limited numbers of visitors, staff, and programs at these parks and natural areas representing diverse racial, ethnic, and cultural groups (6% – 8% vs. 1%). Traditionally well-served residents (i.e., white dominant population) were more likely than traditionally underserved residents (i.e., communities of color) to think managers should address Metro parks and natural areas taking too long to get to or being too far away (30% vs. 22%), the inability to take pets (e.g., dogs) to these places (21% vs. 14%), Metro parks and natural areas not being natural enough (i.e., too much development; 11% vs. 5%), and these places not offering their preferred activities (10% vs. 6%).

For all respondents in total, the most important constraints for managers to address are to let people know what they can do at these parks and natural areas (36%) and where these places are located (34%). Similarly, 23% want to know where to get information about these parks and natural areas. The fewest respondents thought that managers should address constraints associated with providing a more welcoming environment in these parks and natural areas (2%).

Information in Other Languages. The questionnaire asked respondents "do you think Metro should provide information in parks (e.g., signs, staff, programs) in languages other than English?" Table 11 shows there was no statistically significant difference in responses between the traditionally underserved (i.e., communities of color) and well-served residents (i.e., white dominant population). In total, 61% of respondents believed that information in Metro parks and natural areas (e.g., signs, staff, programs) should be provided in languages other than English, whereas 39% did not believe information should be in other languages. Those who believed that information should be provided in other languages were then asked to list up to three other languages that should be used in these parks and natural areas. The most common languages were Spanish (96%), Russian / Ukrainian (37%), Chinese (21%), and Vietnamese (20%).

Table 11. Preference for Metro to provide information in parks and natural areas in languages other than English [a]
(Question 11: "Do you think Metro should provide information in parks (e.g., signs, staff, programs) in languages other than English?" "If yes, what other languages should be used for information?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total
Yes (provide in other languages) [b]	65	62	61
No (provide only in English)	35	38	39

[a] Cell entries are percentages (%). $\chi^2 = 1.77$, $p = .184$ (ns), $\phi = .03$.
[b] Most preferred languages among those who said "yes" (total exceed 100% because respondents could select up to three): Spanish (96%), Russian / Ukrainian (37%), Chinese (21%), Vietnamese (20%), Japanese (4%), Arabic (3%), French (2%), Korean (2%). All others (e.g., German, Somali, Hindi, Braille) less than 1% each.

Changes in Visitation if Credit Cards are Required for Fees. Respondents were also asked "If Metro required only credit cards to pay park fees (e.g., parking, reservations), how would it change your visitation?" Table 12 shows that if Metro required only credit cards to pay fees (e.g., parking, reservations), traditionally underserved residents (i.e., communities of color; 28%) would be more likely than traditionally well-served residents (i.e., white dominant population; 17%) to visit Metro parks and natural areas less often. If credit cards are required, well-served residents (i.e., white dominant population; 66%) would be significantly more likely than underserved residents (i.e., communities of color; 54%) to visit the same amount. Across all respondents taken together, 63% would visit the same amount as they do now if Metro required only credit cards to pay fees, 20% would visit less often, and only 4% would visit more. Another 13% rarely visit these parks and natural areas, so this strategy would not matter to them.

Table 12. Change in visitation if Metro required only credit cards to pay fees (e.g., parking, reservations) [a]
(Question 12: "If Metro required only credit cards to pay park fees (e.g., parking, reservations), how would it change your visitation?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total
Visit the same as now	54	66	63
Visit less	28	17	20
Rarely visit Metro parks, so it does not matter	15	12	13
Visit more	3	5	4

[a] Cell entries are percentages (%). $\chi^2 = 42.67$, $p < .001$, $V = .14$.

Suggestions for Improving Metro Parks and Natural Areas. At the end of the questionnaire, respondents had an opportunity to provide open-ended (i.e., text responses) suggestions for improving Metro parks and natural areas, and how Metro can connect people with nature and the outdoors. Given that these are qualitative (i.e., text-based) data, they should not be quantified into standardized metrics (e.g., percentages from 0% – 100%). Responses, therefore, were

grouped into larger themes and categories based on the general frequency that each theme was mentioned.

There were no clear differences between traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population), as the verbatim responses were similar for both groups. The most common comments focused on respondent lack of awareness of Metro parks and natural areas, and the need for improving information and communication about these places (e.g., where they are located, how to access them, what activities are available), especially by increasing advertising and marketing (e.g., webpages, articles in newspapers, social media, apps, newsletters, direct mailings and emails; mentioned 101 times). The second most common comment focused on allowing pets (e.g., dogs) in Metro parks and natural areas (mentioned 71 times), although some visitors supported continued prohibition of pets (mentioned 22 times). A number of people also want improved access to these parks and natural areas, including increased public transportation to these places (mentioned 47 times). In addition, several respondents want existing parks and natural areas expanded and more parks and natural areas created, especially closer to urban areas and in the western and southwestern areas of the Portland metropolitan region (e.g., Washington County; mentioned 46 times). Issues of crime, safety, and homeless people camping in these parks and natural areas were also raised by a number of respondents (mentioned 37 times). Another frequent comment focused on providing more and better programming for children and youth (mentioned 32 times). Other common responses included: allowing more mountain biking (mentioned 31 times); increasing the number of staff-led (e.g., naturalists, experts) organized tours, classes, programs, and events in these parks and natural areas (mentioned 27 times); creating more trails and improving trail connectivity across different regions and agency jurisdictions (mentioned 21 times); reducing fees and offering free days and discounted rates for some groups (mentioned 20 times); encouraging more coordination among and clarifying differences between Metro parks and natural areas, and parks operated by other agencies (e.g., city, state) in the region (mentioned 14 times); improving signs (e.g., trail directional signs, maps; mentioned 12 times); continuing to focus on restoration and invasive species removal (mentioned 12 times); allowing horseback riding (mentioned 9 times); increasing parking at some of these parks and natural areas (mentioned 9 times); and hiring friendlier and more knowledgeable staff (mentioned 8 times).

All Parks and Natural Areas in the Portland Region

Previous Visitation. The rest of the questionnaire focused on all parks and natural areas in the Portland region in general, not just Metro sites. Respondents were asked "Now, we would like to ask about all parks or natural areas in the Portland region in general (not just Metro parks). About how many times have you visited parks or natural areas in the Portland region in the last 12 months?" Response options involved six categories from "never visited in the last 12 months (0 times per year)" to "two or more times a week (81 or more times per year)." Table 13 shows there was a significant difference between groups, with the traditionally underserved residents (i.e., communities of color) more likely to visit less than once a month (44% vs. 27%; 1 to 11 times per year) and the well-served residents (i.e., white dominant population) more likely to visit about once a month (22% vs. 13%; 12 to 18 times per year) or two or three times a month (23% vs. 14%; 19 to 45 times per year). Across all respondents in total, the largest proportions visited these areas less than once a month (32%), about once a month (20%), or about two or three times a month (20%). The fewest respondents visited two or more times a week (9%; 81 or more times per year) or never visited at all in the last 12 months (9%).

Table 13. Visitation to all parks or natural areas in the Portland region in general (not just Metro) in last 12 months [a]
(Question 13: "Now, we would like to ask about all parks or natural areas in the Portland region in general (not just Metro parks). About how many times have you visited parks or natural areas in the Portland region in the last 12 months?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total
Never visited in the last 12 months (0 times per year)	9	8	9
Less than once a month (1 to 11 times per year)	44	27	32
About once a month (12 to 18 times per year)	13	22	20
About two or three times a month (19 to 45 times per year)	14	23	20
About once a week (46 to 80 times per year)	9	11	11
Two or more times a week (81 or more times per year)	11	8	9

[a] Cell entries are percentages (%). $\chi^2 = 86.73$, $p < .001$, $V = .20$.

Constraints to Visitation. The questionnaire also measured 19 interpersonal, intrapersonal, and structural constraints associated with visiting parks and natural areas in the Portland region in general (not just Metro). Respondents were asked the extent they disagreed or agreed that each made it difficult for them or their family to visit these parks and natural areas. Table 14 shows that traditionally underserved residents (i.e., communities of color) were significantly more likely than well-served residents (i.e., white dominant population) to agree they were constrained by: (a) limited numbers of visitors and staff at these parks and natural areas representing diverse racial, ethnic, and cultural groups (22% vs. 3% agreed); (b) information only being in English

(9% vs. 3%); and (c) fear of prejudice from staff or other visitors at these areas based on personal experiences (6% vs. 3%) or the experiences of other people they know (8% vs. 4%).

Table 14. Constraints making it difficult to visit parks or natural areas in the Portland region in general (not just Metro) [a]
(Questions 14 and 16: "To what extent do you disagree or agree that each of the following make it difficult for you or your family to visit parks or natural areas in the Portland region?")

Constraints	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
I am too busy or do not have enough free time to visit parks or natural areas in the Portland region	55	48	50	7.23	.007 (ns)	.06
I fear crime in parks or natural areas in the Portland region	29	28	28	0.29	.590 (ns)	.01
The fees at parks or natural areas in the Portland region are too expensive for me	22	20	22	0.45	.504 (ns)	.02
Parks or natural areas in the Portland region do not have enough staff representing my racial, ethnic, or cultural group	22	3	8	158.60	< .001	.30
Parks or natural areas in the Portland region do not have enough visitors representing my racial, ethnic, or cultural group	22	3	8	154.88	< .001	.30
My partner or family is not interested in visiting parks or natural areas in the Portland region	20	17	17	3.65	.056 (ns)	.04
I do not have anyone to visit parks or natural areas in the Portland region with	19	14	16	9.63	.002 (ns)	.07
I do not feel safe going to parks or natural areas in the Portland region	18	13	15	8.75	.003 (ns)	.07
It is too expensive for me to travel to parks or natural areas in the Portland region	14	14	14	0.09	.763 (ns)	.01
Someone I recreate with is physically unable to visit parks or natural areas in the Portland region	13	11	12	1.10	.294 (ns)	.02
I am not interested in visiting parks or natural areas in the Portland region	13	9	11	5.15	.023 (ns)	.05
Poor health or physical limitations make it difficult for me to visit parks or natural areas in the Portland region	11	11	11	0.10	.750 (ns)	.01
I have a disability that makes it difficult for me to visit parks or natural areas in the Portland region	9	8	9	1.06	.304 (ns)	.02
Information (e.g., staff, signs, programs) at parks or natural areas in the Portland region is often only in English, making it difficult for me to visit	9	3	5	34.01	< .001	.14
Based on experiences of someone close to me, I fear prejudice from staff or other visitors at parks or natural areas in the Portland region	8	4	6	11.24	.001	.08
Parks or natural areas in the Portland region do not feel welcoming to me or my family	7	6	7	0.43	.511 (ns)	.01
I tend to avoid parks or natural areas in the Portland region because I am afraid of injury	7	6	6	2.23	.135 (ns)	.03
I am afraid of outdoor places such as parks or natural areas in the Portland region	6	7	7	1.55	.213 (ns)	.03
Based on my own personal experience, I fear prejudice from staff or other visitors at parks or natural areas in the Portland region	6	3	4	10.34	.001	.07

[a] Cell entries are percentages (%) who agreed or strongly agreed that it made it difficult for them / their family to visit.

Across all respondents taken together, the most common constraint or barrier to visiting parks and natural areas in the Portland region in general (not just Metro parks and natural areas) was, by far, lack of free time and being too busy to visit (50% agreed). Another 28% of respondents agreed their visitation was constrained by fear of crime in parks and natural areas in this region, and 22% agreed that fees at these areas also made it difficult to visit. In addition, 17% were constrained by their partners or family not being interested in visiting, and 16% did not have anyone with whom they could visit these areas. Constraints with which the fewest respondents in both groups agreed were fear of injury in parks and natural areas (6%), being afraid of outdoor places such as these areas (7%), and parks and natural areas not feeling welcoming (7%).

Respondents were then asked to select constraints they think are the most important for managers to address to make it easier to visit parks and natural areas in the Portland region in general (not just Metro parks and natural areas) in the future. Table 15 shows that traditionally underserved residents (i.e., communities of color) were more likely to think managers should address: (a) their lack of interest in visiting these areas (25% vs. 10%); (b) limited numbers of staff (28% vs. 7%) and visitors (21% vs. 4%) at these parks and natural areas representing diverse racial, ethnic, and cultural groups; and (c) fear of prejudice from staff or other visitors at these areas based on the experiences of other people they know (14% vs. 5%). Traditionally well-served residents (i.e., white dominant population) were more likely to think managers should address fear of crime in these parks and natural areas (71% vs. 61%), perceptions of not feeling safe going to these areas (51% vs. 39%), and these areas not feeling welcoming (17% vs. 10%).

For all respondents combined, the most important constraint for managers to address is fear of crime in parks or natural areas in the Portland region in general (69%). Similarly, 48% of all respondents think managers should address the perception of not feeling safe in these areas. In addition, 55% of respondents believed that managers should address the fact that residents have limited free time and are too busy to visit, although this would be challenging for agencies and managers to address directly. Another 37% of all respondents believed that managers should address the costs of fees at these parks and natural areas in the Portland region, which are too expensive for these respondents. Similarly, 22% said it is too expensive for them to travel to parks or natural areas in the Portland region in general.

Table 15. Most important constraints park managers need to address to make it easier to visit parks or natural areas in the Portland region in general (not just Metro) [a]
(Questions 15 and 17: "From the lists in Questions 14 and 16 (above), please choose up to three that are the most important for park managers to address in order to make it easier for you or your family to visit parks or natural areas in the Portland region in the future")

Constraints	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
I fear crime in parks or natural areas in the Portland region	61	71	69	10.38	.001	.10
I am too busy or do not have enough free time to visit parks or natural areas in the Portland region	52	58	55	4.90	.027 (ns)	.06
I do not feel safe going to parks or natural areas in the Portland region	39	51	48	14.13	< .001	.11
The fees at parks or natural areas in the Portland region are too expensive for me	39	34	37	3.62	.057 (ns)	.05
Parks or natural areas in the Portland region do not have enough staff representing my racial, ethnic, or cultural group	28	7	13	85.36	< .001	.29
I am not interested in visiting parks or natural areas in the Portland region	25	10	15	52.40	< .001	.19
It is too expensive for me to travel to parks or natural areas in the Portland region	24	21	22	1.96	.162 (ns)	.04
My partner or family is not interested in visiting parks or natural areas in the Portland region	21	15	16	8.91	.003 (ns)	.08
Parks or natural areas in the Portland region do not have enough visitors representing my racial, ethnic, or cultural group	21	4	9	73.04	< .001	.27
I do not have anyone to visit parks or natural areas in the Portland region with	20	15	16	5.02	.025 (ns)	.06
I am afraid of outdoor places such as parks or natural areas in the Portland region	14	19	17	2.95	.086 (ns)	.05
Information (e.g., staff, signs, programs) at parks or natural areas in the Portland region is often only in English, making it difficult for me to visit	14	10	11	4.25	.039 (ns)	.06
Based on experiences of someone close to me, I fear prejudice from staff or other visitors at parks or natural areas in the Portland region	14	5	8	24.32	< .001	.16
I tend to avoid parks or natural areas in the Portland region because I am afraid of injury	12	14	13	0.88	.348 (ns)	.03
I have a disability that makes it difficult for me to visit parks or natural areas in the Portland region	12	10	10	0.88	.348 (ns)	.02
Parks or natural areas in the Portland region do not feel welcoming to me or my family	10	17	15	10.60	.001	.10
Poor health or physical limitations make it difficult for me to visit parks or natural areas in the Portland region	8	13	12	7.37	.007 (ns)	.07
Based on my own personal experience, I fear prejudice from staff or other visitors at parks or natural areas in the Portland region	7	4	5	6.56	.010 (ns)	.08
Someone I recreate with is physically unable to visit parks or natural areas in the Portland region	4	12	9	25.35	< .001	.12

[a] Cell entries are percentages (%) who chose this as one of the most important issues for managers to address. Column totals exceed 100% because respondents could select multiple items.

Comparing Constraints Between Metro Parks and Natural Areas and All Parks and Natural Areas in the Portland Region. To facilitate some comparisons, the questionnaire contained three constraint items that were similarly worded for both Metro parks and natural areas and all parks and natural areas in the Portland region in general: (a) "do not feel welcoming to me or my family;" (b) "do not have enough staff representing my racial, ethnic, or cultural group;" and (c) "do not have enough visitors representing my racial, ethnic, or cultural group." Table 16 shows that, on average, respondents in both groups (i.e., traditionally underserved / communities of color, traditionally well-served / white dominant population) and in total across both of these groups combined disagreed that they were constrained from visiting both Metro parks and natural areas and all other parks and natural areas in the Portland region because these areas do not feel welcoming (M = 1.60 – 1.91 on a scale from 1 "strongly disagree" to 4 "strongly agree"); do not have enough staff representing their racial, ethnic, or cultural groups (M = 1.54 – 1.96); and do not have enough visitors representing their racial, ethnic, or cultural groups (M = 1.53 – 2.01). These results are consistent with the percentages reported in Tables 9 and 14 that showed only 3% – 22% agreed (78% – 97% disagreed) that these issues constrained visitation.

Table 16. Comparison of constraints between Metro parks and natural areas and all parks and natural areas in Portland [a]
(Question 9: "To what extent do you disagree or agree that each of the following make it difficult for you or your family to visit Metro parks?")
(Question 16: "To what extent do you disagree or agree that each of the following make it difficult for you or your family to visit parks or natural areas in the Portland region?")

Constraints	Metro Parks and Natural Areas	All Parks and Natural Areas in Portland Region	Paired *t* value	*p* value	*d*
Do not have enough staff representing my racial, ethnic, or cultural group					
Traditionally Underserved (Communities of Color)	1.96	1.86	3.85	< .001	.12
Traditionally Well-Served (White Dominant)	1.84	1.54	18.88	< .001	.52
Total	1.86	1.62	18.08	< .001	.36
Do not have enough visitors representing my racial, ethnic, or cultural group					
Traditionally Underserved (Communities of Color)	2.01	1.89	4.17	< .001	.15
Traditionally Well-Served (White Dominant)	1.79	1.53	17.42	< .001	.45
Total	1.84	1.61	16.87	< .001	.35
Do not feel welcoming to me or my family					
Traditionally Underserved (Communities of Color)	1.87	1.60	10.85	< .001	.43
Traditionally Well-Served (White Dominant)	1.91	1.67	14.33	< .001	.37
Total	1.90	1.66	17.21	< .001	.38

[a] Cell entries are means (i.e., averages) on 4-point scale from 1 "strongly disagree" to 4 "strongly agree"

Responses for Metro parks and natural areas, however, differed from responses for all parks and natural areas in the Portland region in general. On average, both traditionally underserved (i.e.,

communities of color) and well-served (i.e., white dominant population) residents were significantly less likely to disagree that they were constrained from visiting Metro parks and natural areas because of these three constraints (M = 1.79 – 2.01), and more likely to disagree that they were constrained from visiting all other parks and natural areas in the Portland region because of these constraints (M = 1.53 – 1.89). Effect size statistics show that the differences in responses for two of the constraints (not enough staff representing my racial, ethnic, or cultural group; not enough visitors representing my racial, ethnic, or cultural group) between Metro parks and natural areas and all other parks and natural areas in the Portland region were more pronounced for traditionally well-served residents (i.e., white dominant population). Differences in responses to the third constraint (not welcoming to me or my family) between Metro parks and natural areas and all other parks and natural areas in the Portland region were more pronounced for traditionally underserved residents (i.e., communities of color). In other words, traditionally well-served residents (i.e., white dominant population) were more likely to be constrained by there not being enough staff and / or visitors representing their racial, ethnic, or cultural group at Metro parks and natural areas compared to all other parks and natural areas in the Portland region. Traditionally underserved residents (i.e., communities of color) were more likely to be constrained by not feeling welcome at Metro parks and natural areas compared to all other parks and natural areas in the Portland region. Again, however, it is important to recognize that few respondents (i.e., only 3% – 22%) agreed that these three issues constrained their visitation.

Making These Areas More Welcoming. Respondents were asked an open-ended (i.e., text responses) question, "what would make parks or natural areas in the Portland region feel more welcoming to you" (question 18 in the questionnaire). Given these are qualitative (i.e., text-based) data, they should not be quantified into standardized metrics (e.g., percentages from 0% – 100%). Responses, therefore, were grouped into larger themes and categories based on the general frequency that each theme was mentioned.

There were no clear differences between traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population), as the verbatim responses were similar for both groups. The most common responses focused on addressing safety and security issues, especially homeless camping, crime (e.g., theft from vehicles), and drug use in parks and natural areas, with many respondents also suggesting possible approaches for addressing these issues to make parks feel safer (e.g., increased visible staff presence and / or police patrols and enforcement, more lighting in parks, installing emergency call boxes;

mentioned 327 times). Another common response focused on dramatically increasing information, advertising, and other promotional materials so that residents could more easily learn where parks and natural areas are located, how to access these areas, and activities they can do in these areas (mentioned 144 times). A large number of comments also focused on improving informational signs, directional signs and maps, interpretive information, and staff orientation (e.g., welcome greeters) in parks and natural areas (mentioned 121 times). Another common response focused on improving accessibility to parks and nature areas (e.g., public transportation) and also within these areas (e.g., for the elderly, for individuals with disabilities; mentioned 111 times). Another frequent comment among respondents was their desire for dogs to be allowed (especially on-leash with active enforcement of this policy) in these parks and natural areas (mentioned 96 times), although there were some residents who did not want dogs allowed (mentioned 27 times). Many respondents also believed these areas would be more welcoming if the fees were reduced or eliminated (mentioned 76 times). More activities allowed in parks and nature areas (e.g., mountain biking, horseback riding) were also requested by several respondents (mentioned 65 times). More and cleaner restrooms that were kept open year-round was also important for people (mentioned 56 times). In addition, a number of comments focused on providing more and better parking in parks and natural areas (mentioned 49 times). Another comment among respondents was that they wanted existing parks and natural areas expanded and also more new places created, especially in the western part of the region (e.g., Washington county; mentioned 34 times). Residents also wanted more staff and visitors representing diverse populations to make these areas more welcoming (mentioned 33 times).

Interest in Experiences. The questionnaire asked respondents how interested they were in having various experiences in parks or natural areas in the Portland region. Table 17 shows that traditionally underserved residents (i.e., communities of color) more interested than traditionally well-served residents (i.e., white dominant population) in cleaning up / caring for trails (54% vs. 46% moderately or very interested), harvesting seeds or planting native plants (52% vs. 42%), and storytelling in nature (33% vs. 25%). Among all respondents taken together, they were most interested in stargazing (62%), wetland canoe or kayaking tours (55%), guided walks in natural areas (50%), cleaning up / caring for trails (48%), harvesting seeds or planting native plants (44%), and collecting data about nature or wildlife to help scientific research (43%). Residents were least interested in storytelling in nature (e.g., sharing stories, songs, performances; 26%),

searching for mushrooms (37%), and practicing art in nature (e.g., drawing, painting, writing, photography; 37%).

Table 17. Interest in experiences in parks or natural areas in the Portland region in general (not just Metro) [a]
(Question 19: "When visiting parks or natural areas in the Portland region, how interested are you in experiencing each of the following?")

Experiences	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
Stargazing (observing stars / planets)	66	61	62	4.13	.042 (ns)	.04
Wetland canoe or kayaking tours	57	55	55	1.01	.316 (ns)	.02
Guided walks in natural areas (e.g., seeing birds, wildlife, wildflowers)	56	48	50	9.55	.002 (ns)	.07
Cleaning up / caring for trails	54	46	48	11.82	.001	.07
Harvesting seeds or planting native plants	52	42	44	17.61	< .001	.09
Collecting data about nature or wildlife to help scientific research	44	43	43	0.47	.494 (ns)	.02
Practicing art in nature (e.g., drawing, painting, writing, photography)	41	37	37	3.21	.073 (ns)	.04
Searching for mushrooms	39	37	37	1.47	.225 (ns)	.03
Storytelling in nature (e.g., sharing stories, songs, performances)	33	25	26	15.87	< .001	.09
Other [b]	7	8	8	2.25	.133 (ns)	.03

[a] Cell entries are percentages (%) who were moderately or very interested.
[b] Most common open-ended (written) responses were: activities for young children / youth, walking / hiking, road cycling and off-road / mountain biking, walking dogs, learning about the area and its history, self-guided trails, bird watching / bird counts, fishing / fly fishing, horseback riding, identifying animal tracks / wildlife tracking, orienteering, yoga, invasive species removal / restoration.

Interest in Sources of Information. Respondents were also asked how interested they were in receiving information about parks and natural areas in the Portland region from various sources. Table 18 shows that information accessed with a smartphone using apps, codes, or websites was of more interest to underserved residents (i.e., communities of color; 69% vs. 58% moderately or very interested), whereas printed brochures or guides that can be carried around were of significantly more interest to well-served residents (i.e., white dominant population; 70% vs. 63%). For all residents in total, they were most interested in receiving information from maps of parks (90%), signs with directions for how to get to parks or move around inside parks (83%), and educational / interpretive signs in parks (79%). A majority of residents was also interested in receiving information from printed brochures or guides that can be carried around (68%), displays in visitor centers (62%), and information accessed with a smartphone using apps, codes, or websites (60%). Residents were least interested in receiving information from speaking with park staff / personnel (35%) and organized programs such as tours and interpretive talks (47%).

Table 18. Interest in sources of information in parks or natural areas in the Portland region in general (not just Metro) [a] *(Question 20: "When visiting parks or natural areas in the Portland region, how interested are you in the following sources of information?")*

Sources of information	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
Maps of parks	89	91	90	0.96	.327 (ns)	.02
Signs with directions for how to get to parks or move around inside parks	84	83	83	0.69	.408 (ns)	.02
Educational / interpretive signs in parks	78	80	79	0.56	.456 (ns)	.02
Information accessed with a smartphone using apps, codes, or websites	69	58	60	21.14	< .001	.10
Printed brochures or guides you can carry with you	63	70	68	10.69	.001	.07
Displays in visitor centers	59	63	62	1.96	.162 (ns)	.03
Organized educational programs (e.g., tours, interpretive talks)	47	47	47	0.01	.948 (ns)	.01
Speaking with park staff / personnel	31	37	35	6.36	.012 (ns)	.05
Other [b]	2	1	2	1.92	.179 (ns)	.02

[a] Cell entries are percentages (%) who were moderately or very interested.
[b] Most common open-ended (written) responses were: websites with online information accessed on a computer, not just a smartphone app; email or text updates; direct mailings; social media; historical information.

Interest in Learning Topics. The questionnaire then asked respondents how interested they were in learning about various topics in parks and natural areas in the Portland region. Table 19 shows there was only one statistically significant difference between traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population), as the underserved residents (i.e., communities of color) were significantly more interested in learning about how agencies such as Metro manage and care for their land (70% vs. 61% moderately or very interested). Across all residents taken together, they were most interested in learning about plants, animals, or birds of the region (86%); water quality in the region's streams and rivers (77%); natural processes such as floods and fires (74%); what activities or events can be done at nearby parks and natural areas (73%); the role of nature in healthy or livable communities (73%); and significance of land to Native American communities (73%). Residents were least interested in learning about soils or how soils are formed (60%), how agencies such as Metro manage and care for their land (64%), how humans used the land in the past such as for agriculture and forest management (66%), and climate change (69%).

Table 19. Interest in learning about topics in parks or natural areas in the Portland region in general (not just Metro) [a] *(Question 21: "When visiting parks or natural areas in the Portland region, how interested are you in learning about the following topics?")*

Learning topics	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
Plants, animals, or birds of the region	83	87	86	3.75	.053 (ns)	.04
Water quality in the region's streams / rivers	80	75	77	4.95	.026 (ns)	.05
What activities or events you can do at nearby parks or natural areas	78	73	73	6.13	.013 (ns)	.05
Natural processes (e.g., floods, fires)	77	74	74	3.74	.053 (ns)	.04
The role of nature in healthy or livable communities	76	73	73	1.11	.293 (ns)	.02
Climate change	72	69	69	1.64	.201 (ns)	.03
Significance of the land to Native American communities	70	75	73	6.11	.013 (ns)	.05
How agencies such as Metro manage / care for their land	70	61	64	15.25	< .001	.08
How humans used the land in the past (includes agriculture and forest management)	64	67	66	1.61	.204 (ns)	.03
Soils or how soils are formed	64	58	60	6.03	.014 (ns)	.05
Other [b]	2	1	1	3.02	.067 (ns)	.02

[a] Cell entries are percentages (%) who were moderately or very interested.

[b] Most common open-ended (written) responses were: pet (e.g., dog) friendly areas or parks, what is being done to reduce crime and improve safety in parks, costs to operate parks and how they are funded, invasive species control and restoration, how the public can get involved, community projects (e.g., community gardens), best hiking trails, plans for the park's future.

Interest in Learning Skills. Respondents were also asked how interested they were in learning about various skills in parks and natural areas in the Portland region. Table 20 shows that traditionally underserved residents (i.e., communities of color) were more interested than traditionally well-served residents (i.e., white dominant population) in learning outdoor survival skills (68% vs. 59% moderately or very interested), how to camp overnight safely (55% vs. 44%), how or where to fish (50% vs. 38%), and archery basics (45% vs. 33%). For all respondents in total, the majority was interested in learning how to identify plants or trees for fun, food, and / or healing (77%); how to identify animal tracks or signs of wildlife (72%); outdoor survival skills (e.g., shelter, water, fire, flood; 61%); natural gardening skills for home (57%); and how to hike safely (51%). Residents were least interested in learning how to lead or teach groups outdoors (25%), archery basics (36%), and how or where to fish (42%).

Table 20. Interest in learning skills in parks or natural areas in the Portland region in general (not just Metro) [a]
(Question 22: "When visiting parks or natural areas in the Portland region, how interested are you in learning about the following skills?")

Learning skills	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
How to identify plants or trees (e.g., for fun, food, healing)	74	79	77	6.03	.014 (ns)	.05
Outdoor survival skills (e.g., shelter, water, fire, flood)	68	59	61	16.26	< .001	.09
How to identify animal tracks or signs of wildlife	67	74	72	9.27	.002 (ns)	.07
Natural gardening skills for home	58	57	57	0.52	.469 (ns)	.02
How to camp overnight safely	55	44	47	20.90	< .001	.11
How or where to fish	50	38	42	23.99	< .001	.11
How you or your family can hike safely	46	54	51	9.56	.002 (ns)	.07
Archery basics	45	33	36	30.53	< .001	.12
How to use a map with a compass (basic orienteering)	42	45	44	1.81	.179 (ns)	.03
How to lead or teach groups outdoors	28	24	25	3.68	.055 (ns)	.04
Other [b]	1	1	1	0.56	.453 (ns)	.02

[a] Cell entries are percentages (%) who were moderately or very interested.
[b] Most common open-ended (written) responses were: how to birdwatch / ID skills, how to horseback ride, how to mountain bike (i.e., off-road riding skills), photography skills, crafting skills (e.g., basket making), wild / native plant species identification.

Activity Participation. Respondents were asked how often they participate in various different activities when visiting parks and natural areas in the Portland region (on a 4-point scale from "never" to "often"). Table 21 shows that camping (e.g., tents, cabins, recreational vehicles; 44% vs. 36% participate sometimes or often), fishing (26% vs. 19%), and field sports and games (e.g., soccer, baseball, softball, football; 31% vs. 14%) were significantly more popular among traditionally underserved residents (i.e., communities of color). A number of other activities were significantly more popular among traditionally well-served residents (i.e., white dominant population), including: (a) hiking or walking for pleasure (85% vs. 75%); (b) relaxing, hanging out, or escaping the weather / heat (66% vs. 57%); (c) jogging, running, or walking for exercise (66% vs. 55%); (d) wildlife watching, birding, or nature study (54% vs. 41%); (e) visiting nature centers, historic sites, or related facilities (52% vs. 35%); (f) swimming or wading (42% vs. 33%); (g) non-motorized boating such as canoeing, kayaking, rowing, paddling, and rafting (29% vs. 20%); and (h) participating in nature education programs such as talks and tours (22% vs. 15%). Across all respondents in total, the activities in which the majority participated most often were hiking or walking for pleasure (83%); relaxing, hanging out, or escaping the weather / heat (63%); jogging, running, or walking for exercise (63%); and wildlife watching, birding, or

nature study (51%). Another 48% participated in picnicking, barbequing, or family gatherings; 47% visited nature centers, historic sites, or related facilities; and 40% went swimming or wading in these areas. The least popular activities were horseback riding (4%); motor boating (4%); disc golf (11%); field sports and games such as soccer, baseball, softball, or football (19%); participating in nature education programs such as talks and tours (19%); fishing (21%); and non-motorized boating such as canoeing, kayaking, rowing, paddling, and rafting (27%).

Table 21. Activity participation in parks or natural areas in the Portland region in general (not just Metro) [a]
(Question 23: "How often do you participate in each of the following activities when visiting parks or natural areas in the Portland region?")

Activities	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
Hiking or walking for pleasure	75	85	83	28.18	< .001	.12
Relaxing, hanging out, or escaping weather / heat	57	66	63	17.57	< .001	.09
Jogging, running, or walking for exercise	55	66	63	21.51	< .001	.10
Picnicking, barbecuing, or family gatherings	47	48	48	0.20	.652 (ns)	.01
Camping (e.g., tents, cabins, recreational vehicles)	44	36	38	11.38	.001	.07
Wildlife watching, birding, or nature study	41	54	51	31.19	< .001	.12
Photography, painting, or drawing	37	40	39	1.92	.166 (ns)	.03
Visiting nature centers, historic sites, or related facilities	35	52	47	52.32	< .001	.15
Enjoying playgrounds or other facilities often used by children	35	38	37	1.65	.199 (ns)	.03
Swimming or wading	33	42	40	14.28	< .001	.08
Field sports or games (e.g., soccer, baseball, softball, football)	31	14	19	78.50	< .001	.20
Bicycling (road bike or mountain bike)	30	32	31	0.92	.337 (ns)	.02
Fishing for fun or for food	26	19	21	14.71	< .001	.08
Non-motorized boating (e.g., canoe, kayak, row, paddle, raft)	20	29	27	18.51	< .001	.09
Participating in nature education programs (e.g., talks, tours)	15	22	19	16.10	< .001	.08
Disc golf	14	10	11	6.56	.010 (ns)	.06
Motorized boating	11	11	11	0.03	.854 (ns)	.01
Horseback riding	4	4	4	0.10	.749 (ns)	.01
Other [b]	1	1	1	1.32	.215 (ns)	.02

[a] Cell entries are percentages (%) who reported participating sometimes or often.
[b] Most common open-ended (written) responses were: dog walking, geocaching, mushroom hunting, and tennis.

Respondents were then asked to specify the one main activity they do most often when visiting parks and natural areas in the Portland region. Table 22 shows that camping (6% vs. 2%) and field sports or games (4% vs. 1%) were slightly more popular among traditionally underserved residents (i.e., communities of color). Hiking or walking for pleasure was slightly more common

among traditionally well-served residents (i.e., white dominant population; 53%) compared to underserved residents (i.e., communities of color; 48%). Across all respondents taken together, the most common main activity, by far, is hiking or walking for pleasure (52%). In addition, 10% participate most often in jogging, running, or walking for exercise, and 8% enjoy the playgrounds or other facilities often used by children. The least common main activities are participating in nature education programs (e.g., talks, tours; 0%); photography, painting, or drawing (1%); motorized boating (1%); horseback riding (1%); visiting nature centers, historic sites, or related facilities (1%); disc golf (1%); field sports or games (e.g., soccer, baseball, softball, football; 1%); non-motorized boating (e.g., canoe, kayak, row, paddle, raft; 1%); and swimming or wading (1%).

Table 22. Most frequent activity in parks or natural areas in the Portland region in general (not just Metro) [a]
(Question 24: "From the list in Question 23 (above), please choose the ONE activity that you do most often when visiting parks or natural areas in the Portland region")

Most frequent activity	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total
Hiking or walking for pleasure	48	53	52
Jogging, running, or walking for exercise	10	11	10
Enjoying playgrounds or other facilities often used by children	9	8	8
Camping (e.g., tents, cabins, recreational vehicles)	6	2	4
Relaxing, hanging out, or escaping the weather / heat	5	3	3
Picnicking, barbecuing, or family gatherings	4	3	3
Field sports or games (e.g., soccer, baseball, softball, football)	4	1	1
Wildlife watching, birding, or nature study	3	5	4
Bicycling (road bike or mountain bike)	3	4	4
Fishing for fun or for food	2	1	2
Swimming or wading	2	1	1
Disc golf	2	1	1
Non-motorized boating (e.g., canoe, kayak, row, paddle, raft)	1	2	1
Other	1	2	1
Visiting nature centers, historic sites, or related facilities	1	1	1
Horseback riding	1	1	1
Photography, painting, or drawing	1	1	1
Motorized boating	0	1	1
Participating in nature education programs (e.g., talks, tours)	0	0	0

[a] Cell entries are percentages (%). $\chi^2 = 81.37$, $p < .001$, $V = .20$.

Preferences for Picnic Areas and Shelters. The questionnaire asked respondents whether they prefer: (a) first-come-first-served (non-reservable) picnic areas / shelters, or (b) reservable (in advance) picnic areas / shelters when looking for a place in a park to picnic and gather. Table 23 shows there were no statistically significant differences in these preferences between

traditionally underserved (i.e., communities of color) and well-served (i.e., white dominant population) respondents. For all respondents in total, 59% prefer first-come-first-served (non-reservable) picnic areas / shelters, whereas 41% prefer these to be reservable (in advance).

Table 23. Preferences for picnic areas and shelters in parks [a]
(Question 25: "When looking for a place in a park to picnic and gather, which of the following two options would you prefer the most?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total
First-come-first-served (non-reservable) picnic areas / shelters	61	58	59
Reservable (in advance) picnic areas / shelters	39	42	41

[a] Cell entries are percentages (%). $\chi^2 = 1.32$, $p = .250$ (ns), $\phi = .03$.

Interest in Jobs, Internships, and Volunteering. Respondents were also asked how interested they were in various job, internship, and volunteering opportunities in parks and nature. Table 24 shows that traditionally underserved residents (i.e., communities of color) were significantly more interested (45% moderately or very interested) than traditionally well-served residents (i.e., white dominant population; 37%) in paid jobs or internships in parks and nature for youth. For all respondents in total, however, fewer than 40% were moderately or very interested in job, internship, and volunteering opportunities in parks and nature. The largest proportions of respondents were interested in paid jobs or internships in parks and nature for youth (39%), and volunteer (unpaid) opportunities in parks and nature for adults (31%). Only 28% of respondents were interested in paid jobs or internships in parks and nature for adults, and volunteer (unpaid) opportunities in parks and nature for youth. And, only 27% of respondents were interested in learning about careers in the parks and nature field. Respondents were least interested in learning about how to work as a contractor or consultant for parks and nature agencies (22%).

Table 24. Interest in jobs, internships, and volunteering in parks and nature [a]
(Question 26: "In general, how interested are you in each of the following?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total	χ^2 value	*p* value	ϕ
Paid jobs or internships in parks and nature for youth	45	37	39	13.68	< .001	.08
Volunteer (unpaid) opportunities in parks and nature for adults	31	32	31	0.64	.424 (ns)	.02
Volunteer (unpaid) opportunities in parks and nature for youth	31	28	28	1.47	.226 (ns)	.03
Paid jobs or internships in parks and nature for adults	30	28	28	0.79	.374 (ns)	.02
Learning about careers in the parks and nature field	27	27	27	0.12	.732 (ns)	.01
Learning about how to work as a contractor / consultant for parks and nature agencies	24	21	22	2.99	.084 (ns)	.04

[a] Cell entries are percentages (%) who were moderately or very interested.

Connections with Nature. Respondents were asked two open-ended (i.e., text responses) questions associated with their connections with nature. First, they were asked "what words or short phrases would you associate with the word *nature*" (question 27 in the questionnaire)? Respondents could list up to three words or short phrases. Given these are qualitative (i.e., text-based) data, they should not be quantified into standardized metrics (e.g., percentages from 0% – 100%). Responses, therefore, were grouped into larger themes and categories based on the general frequency that each theme was mentioned.

There were no clear differences between traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population), as the verbatim responses were similar for both groups. Responses focused on both non-human and human themes and words / phrases. The most common *non-human* themes and words / phrases involved: (a) plants, trees, forests, and greenspaces (mentioned 713 times); (b) animals / wildlife and birds (mentioned 534 times); (c) natural beauty and scenery (mentioned 531 times); (d) the broader environment, natural world (i.e., earth), life / balance of life, and ecosystems (mentioned 316 times); (e) fresh or clean air (mentioned 285 times); and (f) clean water, rivers, lakes, and streams (mentioned 187 times).

The most common *human* themes and words / phrases focused on nature being a place that: (a) provides a sense of calm, peace, quiet, serenity, relaxation, and tranquility (mentioned 924 times); (b) is refreshing, rejuvenating, restorative, invigorating, and provides health, healing, joy, and happiness for the soul (mentioned 413 times); (c) hosts activities for recreation, exploration, exercise, and fun (e.g., hiking, trails, bicycling, camping, fishing; mentioned 308 times); (d) has

open spaces to be outside or outdoors (mentioned 225 times); (e) is unspoiled by humans (i.e., left alone) with minimal development (mentioned 216 times); (f) provides human connections to the natural world and spiritual connectedness (mentioned 160 times); (g) is important, necessary, and essential for human survival (mentioned 152 times); (h) allows people to get away, escape, and have freedom (mentioned 112 times); (i) is endangered, diminishing, threatened, vanishing, fragile, and jeopardized due to human actions (mentioned 93 times); (j) needs to be protected, preserved, conserved, and cared for by humans with a sense of stewardship (mentioned 92 times); (k) offers solitude and is uncrowded (i.e., few other people; mentioned 78 times); (l) can be used for education and learning (mentioned 25 times); and (m) provides opportunities for social connections with family and friends (mentioned 22 times).

Second, residents were then asked "what makes you feel personally connected to nature" (question 28 in the questionnaire)? Verbatim responses were generally consistent with all of these human and non-human themes and words / phrases, and again were similar between traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population).

Demographic and Residential Characteristics

The questionnaire contained several demographic questions that, just like all data and results in this report, were weighted by county, age, gender, and education to bring these and other demographic characteristics (e.g., race / ethnicity, disability) in line and consistent with the most recent Census population data after weighting. This weighting approach was discussed in the methods section earlier. The tables and text below provide weighted demographic results for the sample. For comparison purposes, the footnotes in each table provide the most recent Census information for the entire population of residents of the Portland Metropolitan region (i.e., Multnomah, Washington, Clackamas Counties). Given that the sample data were weighted by this Census information, demographic characteristics of the total sample across all respondents taken together are generally consistent with the entire population of residents in this region.

Table 25 shows that although the traditionally underserved respondents (i.e., communities of color) were slightly more likely to be male (54%) and the traditionally well-served respondents (i.e., white dominant population) were slightly more likely to be female (53%), this difference was not statistically significant at $p \leq .001$. Across all respondents taken together and generally

consistent with the most recent Census information, 50% of respondents were female, 50% were male, <1% identified as transgender, and <1% did not identify as male, female, or transgender.

Table 25. Gender of respondents [a]
(Question 29: "How do you describe yourself?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total [b]
Male	54	47	50
Female	46	53	50
Transgender	< 1	< 1	< 1
I do not identify as male, female, or transgender	< 1	< 1	< 1

[a] Cell entries are percentages (%). $\chi^2 = 10.72$, $p = .002$ (ns), $V = .07$.
[b] Census (2015 American Community Survey) for the study region = 49% male, 51% female.

Table 26 shows there were statistically significant differences in age between the groups, as the traditionally underserved residents (i.e., communities of color) were slightly younger (e.g., M = 43 years) than the traditionally well-served residents (i.e., white dominant population; M = 50 years). Across all respondents in total and generally consistent with the most recent Census information, the average age of residents was 48 years old with the largest proportions between 30 and 39 (23%), and 40 and 49 (22%) years of age.

Table 26. Age of respondents [a]
(Question 30: "What is your age?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total [b]	χ^2 or t	p value	V or r_{pb}
Adult age categories				225.49	< .001	.33
18 – 29 years old [c]	24	5	11			
30 – 39 years old	20	25	23			
40 – 49 years old	18	24	22			
50 – 59 years old	19	14	16			
60 – 69 years old	13	20	17			
70 – 79 years old	4	10	9			
80 or older	2	2	2			
Average adult age (mean years)	43	50	48	9.37	< .001	.21

[a] Cell entries are percentages (%) unless specified as averages (means).
[b] Census (2015 American Community Survey) for the study region = 16% 18-29, 22% 30-39, 19% 40-49, 17% 50-59, 15% 60-69, 7% 70-79, 4% 80 or older.
[c] Nobody under 18 years of age was allowed to be sampled due to university institutional review board (IRB) regulations on research involving human subjects.

Table 27 shows that traditionally underserved respondents (i.e., communities of color; 48%) were significantly more likely than traditionally well-served residents (i.e., white dominant

population; 31%) to have at least one child under the age of 18 in their household, especially two (20% vs. 13%), three (5% vs. 2%), or four or more children (7% vs. 1%). For all respondents taken together and generally consistent with the most recent Census information, two-thirds of respondents (65%) did not currently have any children under the age of 18 living in their household, whereas 15% had one child under the age of 18 in their household, 14% had two children, and 7% had three or more children under the age of 18 in their household.

Table 27. Number of children under the age of 18 living in household [a]
(Question 31: "How many children under the age of 18 live in your household?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total [b]	χ^2 or t	p value	V or r_{pb}
Number of children under 18				94.31	< .001	.21
0 children (none)	52	69	65			
1 child	16	15	15			
2 children	20	13	14			
3 children	5	2	3			
4 children	6	1	3			
5 or more children	1	0	1			
Average number (mean)	1.02	0.53	0.67	8.68	< .001	.21

[a] Cell entries are percentages (%) unless specified as averages (means).
[b] Census (2015 American Community Survey) for the study region = 71% no children, 29% at least 1 child.

Table 28 shows there was no statistically significant difference between traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population) in the proportions living with a physical, mental, or emotional disability. Across all respondents in total and generally consistent with the most recent Census information, 87% were not currently living with a physical, mental, or emotional disability, and 13% were living with a disability.

Table 28. Respondents with a physical, mental, or emotional disability [a]
(Question 32: "Do you live with a physical, mental, or emotional disability?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total [b]
No (does not live with a disability)	86	87	87
Yes (lives with a disability)	14	13	13

[a] Cell entries are percentages (%). $\chi^2 = 0.07$, $p = .786$ (ns), $\phi = .01$.
[b] Census (2015 American Community Survey) for the study region = 88% no disability, 12% disability.

Table 29 shows that for all respondents taken together, the largest proportion (71%) reported being White / Caucasian (but not Slavic or Middle Eastern), followed by Hispanic / Latino /

Spanish (11%), Asian / Asian American (8%), Slavic (5%), American Indian / Alaskan Native (2%), Black / African American (2%), Middle Eastern (1%), and Native Hawaiian / Pacific Islander (1%). These results are generally consistent with the most recent Census information. All of the White / Caucasian (but not Slavic or Middle Eastern) respondents (i.e., 100% of the 71%) were considered to be traditionally well-served (i.e., white dominant population) because they identified as "White / Caucasian" and no other race or ethnicity. The remaining 29% were considered to be traditionally underserved (i.e., communities of color) because they identified with at least one race or ethnicity other than "White / Caucasian." Among this underserved population (i.e., communities of color), 38% reported being Hispanic / Latino / Spanish, 26% were Asian / Asian American, 17% reported being Slavic, 7% were American Indian / Alaskan Native, 5% reported being Black / African American, 3% were Middle Eastern, and 2% were Native Hawaiian / Pacific Islander.

Table 29. Race / ethnicity of respondents [a]
(Question 33: "When asked to identify your racial or ethnic identity, how do you identify?")
(Question 34: "Do you consider yourself to be Slavic (from Russia, Belarus, Ukraine, Poland, Czech Republic, Slovakia, Slovenia, Croatia, Serbia, Bosnia and Herzegovina, Montenegro, Macedonia, or Bulgaria)?")
(Question 35: "Do you consider yourself to be Middle Eastern (from Egypt, Iran, Turkey, Iraq, Saudi Arabia, Yemen, Syria, United Arab Emirates, Jordan, Palestine, Israel, Lebanon, Oman, Kuwait, Qatar, Bahrain, or Cyprus)?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total [b]
White / Caucasian (not Slavic or Middle Eastern)	0 [c]	100 [c]	71
Hispanic / Latino / Spanish	38	0	11
Asian / Asian American	26	0	8
Slavic [d]	17	0	5
American Indian / Alaskan Native	7	0	2
Black / African American	5	0	2
Middle Eastern [e]	3	0	1
Native Hawaiian / Pacific Islander	2	0	1
Other	2	0	1

[a] Cell entries are percentages (%).

[b] Census (2015 American Community Survey) for the study region = 76% White / Caucasian (but this also includes Slavic and Middle Eastern because Census does not separate these), 12% Hispanic / Latino / Spanish, 7% Asian / Asian American, 3% Black / African American, < 1% American Indian / Alaskan Native, < 1% Native Hawaiian / Pacific Islander.

[c] The traditionally underserved population was categorized in the analysis to represent individuals who reported being "Black / African American," "Hispanic / Latino / Spanish," "Asian / Asian American," "American Indian / Alaskan Native," "Native Hawaiian / Pacific Islander," "Slavic," and / or "Middle Eastern." The traditionally well-served population represents individuals who reported being only "White / Caucasian" and no other race or ethnicity.

[d] From Russia, Belarus, Ukraine, Poland, Czech Republic, Slovakia, Slovenia, Croatia, Serbia, Bosnia and Herzegovina, Montenegro, Macedonia, or Bulgaria.

[e] From Egypt, Iran, Turkey, Iraq, Saudi Arabia, Yemen, Syria, United Arab Emirates, Jordan, Palestine, Israel, Lebanon, Oman, Kuwait, Qatar, Bahrain, or Cyprus.

Table 30 shows that among the traditionally underserved respondents (i.e., communities of color), 71% spoke English most often in their homes, followed by Spanish (14%), Russian (4%), and various other languages. Almost all of the traditionally well-served residents (i.e., white dominant population) spoke English most often in their homes (99%). Across all respondents in total and reasonably consistent with the most recent Census information, the largest proportion of respondents (91%) spoke English most often in their homes, followed by Spanish (4%) and various other languages (e.g., Russian, Vietnamese).

Table 30. Household language of respondents [a]
(Question 36: "What is the language spoken most in your home?")

Language spoken most in home	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total [b]
English	71	99	91
Spanish	14	1	4
Other [c]	6	< 1	2
Russian	4	0	1
Vietnamese	1	0	< 1
Cantonese	1	0	< 1
Mandarin	1	0	< 1
Japanese	1	< 1	< 1
Korean	< 1	0	< 1
French	< 1	< 1	< 1
Arabic	< 1	0	< 1
African languages (e.g., Somali, Swahili, Zulu)	< 1	0	< 1

[a] Cell entries are percentages (%). $\chi^2 = 408.96$, $p < .001$, $V = .44$.
[b] Census (2015 American Community Survey) for the study region = 82% English, 18% Non-English (other language), but the Census question is different (i.e., "language you are most proficient"), not what language is spoken most in home.
[c] Most common open-ended (written) responses were: Laos, Ukrainian, Burmese, Hmong.

Table 31 shows that traditionally underserved respondents (i.e., communities of color) were significantly more likely than traditionally well-served residents (i.e., white dominant population) to have less than high school (4% vs. 0%), some high school (12% vs. 1%), or a high school diploma or GED (25% vs. 21%) as their highest level of education. Conversely, traditionally well-served residents (i.e., white dominant population) were significantly more likely than traditionally underserved respondents (i.e., communities of color) to have earned higher education experience such as some college, an Associates degree, or a 2-year technical degree (34% vs. 30%); a bachelor's degree (21% vs. 13%); some postgraduate work (7% vs. 4%); or a postgraduate degree (e.g., masters, PhD, law, doctor; 16% vs. 12%) as their highest level of education. For all respondents taken together and generally consistent with the most recent Census information, the largest proportions of respondents had some college, an

Associates degree, or a 2-year technical degree (33%); a high school diploma or GED (22%); a bachelor's degree (19%); or a postgraduate degree (e.g., masters, PhD, law, doctor; 15%).

Table 31. Highest education level of respondents [a]
(Question 37: "What is your highest level of educational experience?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total [b]
Less than high school	4	0	1
Some high school	12	1	4
High school diploma or GED	25	21	22
Some college or Associates or 2-year technical degree	30	34	33
Bachelor's degree	13	21	19
Some postgraduate work	4	7	7
Postgraduate degree (e.g., masters, PhD, law, doctor)	12	16	15
Other [c]	< 1	< 1	< 1

[a] Cell entries are percentages (%). $\chi^2 = 205.34$, $p < .001$, $V = .31$.
[b] Nobody under 18 years of age was allowed to be sampled due to university institutional review board (IRB) regulations on research involving human subjects, which explains the slightly lower percentages for less than or some high school.
Census (2015 American Community Survey) for the study region (Census questions have slightly different categories) = 9% less than high school graduate or some high school; 19% high school diploma / GED; 32% some college, Associates, or technical; 25% Bachelor's or some postgraduate work; 14% postgraduate degree.
[c] Most common open-ended (written) responses were: homeschooled, post-baccalaureate, theater arts.

Table 32. Annual household income of respondents [a]
(Question 38: "Which of the following broad categories best describes your annual household income before taxes?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total [b]
Less than $10,000	2	3	3
$10,000 to $19,999	8	3	4
$20,000 to $29,999	10	6	7
$30,000 to $49,999	19	12	14
$50,000 to $74,999	23	25	25
$75,000 to $99,999	15	19	18
$100,000 to $149,999	15	20	17
$150,000 or more	8	13	12

[a] Cell entries are percentages (%). $\chi^2 = 84.73$, $p < .001$, $V = .21$.
[b] Census (2015 American Community Survey) for the study region (Census questions have slightly different categories and cutpoints such as $15,000 to $24,999, $25,000 to $34,999) = 5% less than $10,000, 32% $10,000 to $49,999 (4 Census categories combined to line up with above cutpoint), 19% $50,000 to $74,999, 14% $75,000 to $99,999, 16% $100,000 to $149,999, 14% $150,000 or more (2 Census categories).

Table 32 shows that traditionally underserved respondents (i.e., communities of color) were more likely than traditionally well-served respondents (i.e., white dominant population) to earn lower annual household incomes before taxes, such as $10,000 to $19,999 (8% vs. 3%), $20,000 to $29,999 (10% vs. 6%), and $30,000 to $49,999 (19% vs. 12%). Conversely, traditionally well-

served respondents (i.e., white dominant population) were significantly more likely than traditionally underserved respondents (i.e., communities of color) to earn higher amounts, such as $75,000 to $99,999 (19% vs. 15%), $100,000 to $149,999 (20% vs. 15%), and $150,000 or more (13% vs. 8%). Across all respondents in total and reasonably consistent with the most recent Census information, 28% earned less than $50,000 in annual household income before taxes, whereas 72% earned more than $50,000. The largest proportions earned $50,000 to $74,999 (25%), $75,000 to $99,999 (18%), and $100,000 to $149,999 (17%) per year.

Table 33. Residential county of respondents [a]
(Question 39: "What county do you live in?")

	Traditionally Underserved (Communities of Color)	Traditionally Well-Served (White Dominant Population)	Total [b]
Multnomah	42	46	44
Washington	41	28	32
Clackamas	17	25	23
Other [c]	1	2	2

[a] Cell entries are percentages (%). $\chi^2 = 38.54$, $p < .001$, $V = .13$.
[b] Census (2015 American Community Survey) for the study region = 46% Multnomah, 31% Washington, 23% Clackamas.
[c] Most common open-ended (written) responses were: Clark (WA), Yamhill, Columbia, Marion.

Finally, Table 33 shows that traditionally underserved respondents (i.e., communities of color; 41%) were significantly more likely than traditionally well-served respondents (i.e., white dominant population; 28%) to live in Washington County, whereas traditionally well-served respondents (i.e., white dominant population) were slightly more likely than traditionally underserved respondents (i.e., communities of color) to be from Multnomah (46% vs. 42%) and Clackamas (25% vs. 17%) Counties. For all respondents taken together and generally consistent with the most recent Census information, 44% lived in Multnomah County, 32% were from Washington County, 23% lived in Clackamas County, and 2% were from other locations.

Taken together, these results show that compared to the traditionally well-served respondents (i.e., white dominant population), the traditionally underserved respondents (i.e., communities of color) were younger, had more children under the age of 18 currently living in their household, spoke more languages other than just English at home, were less educated, had lower annual household incomes, and were more likely to live in Washington County.

CONCLUSION

Taken together, these results showed that although there were some differences between traditionally underserved residents (i.e., communities of color) and traditionally well-served residents (i.e., white dominant population), there were more similarities than differences. In total, 63% of the statistical tests showed no significant differences between these two groups, whereas 37% showed statistically significant differences. In addition, there were no clear differences between these groups in their responses to all of the open-ended (i.e., text responses) questions.

In terms of differences, traditionally underserved residents (i.e., communities of color) were less likely to have visited Metro's parks and natural areas before, and they also visited other parks and natural areas in the Portland region (not just Metro) less often. These residents were more likely to agree they were constrained from visiting Metro's parks and natural areas because of perceived lack of facilities and services (e.g., not enough developed facilities and services, difficult access for people with disabilities or mobility issues, lack of online reservations of picnic areas and shelters), the number of rules and regulations, and limited numbers of visitors, staff, and programs representing diverse racial, ethnic, and cultural groups. These residents were also more likely to agree they were constrained from visiting other parks and natural areas in the Portland region (not just Metro) for similar reasons, including limited numbers of visitors and staff representing diverse racial, ethnic, and cultural groups; information only being in English; and fear of prejudice from staff or other visitors at these areas based on personal experiences or the experiences of other people they know.

Traditionally underserved residents (i.e., communities of color) were also more likely to think managers should address limited information and knowledge about what residents can do at Metro parks and natural areas, lack of developed facilities and services at these areas, facilities at these areas being difficult to access for people with disabilities or mobility issues, inability to make online reservations of picnic areas and shelters, and the limited numbers of visitors, staff, and programs at these parks and natural areas representing diverse racial, ethnic, and cultural groups. Similarly, these residents were also more likely to think managers of other parks and natural areas in the Portland region (not just Metro) should address their lack of interest in visiting these areas; limited numbers of staff and visitors representing diverse racial, ethnic, and cultural groups; and fear of prejudice from staff or other visitors at these areas based on the experiences of other people they know.

These traditionally underserved residents (i.e., communities of color) were also less likely to visit Metro parks and natural areas on most weekdays and would be less likely to visit these areas if Metro required only credit cards to pay fees (e.g., parking, reservations). They were also more interested in cleaning up and caring for trails, harvesting seeds or planting native plants, and storytelling in nature. In addition, they were more interested in receiving information about parks and natural areas via a smartphone using apps, codes, or websites, and learning about outdoor survival skills, how to camp overnight safely, how or where to fish, archery basics, and how agencies manage and care for their land. Camping (e.g., tents, cabins, recreational vehicles), fishing, and field sports and games (e.g., soccer, baseball, softball, football) were more popular with underserved residents (i.e., communities of color). Finally, these residents were more interested in paid jobs or internships in parks and nature for youth.

Traditionally well-served residents (i.e., white dominant population), on the other hand, were more likely to have visited Metro's parks and natural areas before (especially Smith and Bybee Wetlands Natural Area, Glendoveer Golf Course and Fitness Trail, Graham Oaks Nature Park, and Canemah Bluff Nature Park), but think managers should still address these areas taking too long to get to or being too far away, not being natural enough (i.e., too much development), not offering their preferred activities, and not allowing pets (e.g., dogs). In terms of other parks and natural areas in the Portland region (not just Metro), these residents were also likely to visit more often, but think managers should still address fear of crime in these parks and natural areas, perceptions of not feeling safe going to these places, and these areas not feeling welcoming. A number of activities were more popular among these residents, including hiking or walking for pleasure; relaxing, hanging out, or escaping the weather / heat; jogging, running, or walking for exercise; wildlife watching, birding, or nature study; visiting nature centers, historic sites, or related facilities; swimming or wading; non-motorized boating (e.g., canoeing, rowing, kayaking, paddling, rafting); and nature education programs such as guided talks and tours.

Despite these differences between traditionally underserved residents (i.e., communities of color) and well-served residents (i.e., white dominant population), there were far more similarities than differences. Results of these two groups taken together, for example, showed that 80% of respondents had visited Metro's parks and natural areas before, visiting an average of almost five times in the last 12 months. Weekends and both late morning and early afternoon were preferred times for visiting these areas. The largest proportions of respondents had visited Oxbow Regional Park and Blue Lake Regional Park before, with Oxbow Regional Park considered by

the largest percentage to be their favorite site. The most frequently visited favorite Metro park or natural area was Cooper Mountain Nature Park, which is also where the most respondents agreed they feel a connection with nature. Across all Metro parks and natural areas taken together, 94% of respondents agreed they feel a connection with nature when visiting. More than three-quarters of respondents agreed their favorite Metro park or natural area facilitates social relationships and experiences (especially Blue Lake Regional Park), and two-thirds agreed their favorite Metro park or natural area fosters emotional connections (especially Oxbow Regional Park and Smith and Bybee Wetlands Natural Area), but fewer than one-third agreed they were dependent on their favorite Metro park or natural area to provide physical conditions that support desired goals or activities (especially Cooper Mountain Nature Park and Oxbow Regional Park).

The most common constraints or barriers to visiting Metro parks and natural areas were lack of awareness (i.e., not knowing what to do at these areas, where these areas are located), proximity (i.e., too far away, take too long to get to), lack of emotional attachment to these areas, not knowing where to get information about these places, limited public transportation to some of these areas, and inability to take pets (e.g., dogs) to these places. The constraint with which the fewest respondents agreed was that Metro parks and natural areas did not feel welcoming. The most important constraints that respondents want managers to address are to let people know what they can do at Metro parks and natural areas, where these places are located, and where to get information about these places. The fewest respondents thought that managers need to address constraints associated with providing a more welcoming environment in these areas.

In terms of other parks and natural areas in the Portland region (not just Metro), the largest proportions of respondents visited less than once a month, about once a month, or about two or three times a month. The most common constraint or barrier to visiting other parks or natural areas in the Portland region was, by far, lack of free time and being too busy to visit. Other important constraints were fear of crime in parks and natural areas in this region, and costs of fees at these places that make it difficult to visit. The most important constraints that residents want managers to address are fear of crime and perceptions of not feeling safe in parks and natural areas in the Portland region. Similarly, the most common responses associated with making parks and natural areas in the Portland region (not just Metro) more welcoming focused on addressing safety and security issues, especially the homeless camping, crime (e.g., theft from vehicles), and drug use in these areas (e.g., increased visible staff presence and / or police patrols and enforcement, more lighting in parks, installing emergency call boxes).

Other common suggestions for making these areas more welcoming focused on increasing information, advertising, and other promotional materials so residents could more easily learn where parks and natural areas are located, how to access these areas, and activities they can do in these areas. Improving informational signs, directional signs and maps, interpretive information, and staff orientation (e.g., welcome greeters) within parks and natural areas was another common suggestion for making these areas more welcoming. In fact, respondents were most interested in receiving information from maps of parks, signs with directions for how to get to parks or move around inside parks, and educational or interpretive signs in parks. A majority of residents was also interested in receiving information from printed brochures or guides (that can be carried around), displays in visitor centers, and information accessed with a smartphone using apps, codes, or websites. The majority of respondents thought agencies such as Metro should provide information in parks and natural areas in languages other than just English (e.g., Spanish).

Respondents were most interested in learning about plants, animals, or birds of the region; water quality in the region's streams and rivers; natural processes such as floods and fires; what activities or events can be done at nearby parks or natural areas; the role of nature in healthy or livable communities; the significance of the land to Native American communities; how to identify plants or trees for fun, food, and / or healing; how to identify animal tracks or signs of wildlife; outdoor survival skills (e.g., shelter, water, fire, flood); and how agencies manage and care for their land. Fewer than 40% of respondents, however, were interested in job, internship, and volunteering opportunities in parks and nature.

The majority of respondents were interested in participating in stargazing, wetland canoe or kayaking tours, and guided walks in parks and natural areas in the Portland region. The activities in which respondents participated most often, however, were hiking or walking for pleasure; relaxing, hanging out, or escaping the weather / heat; jogging, running, or walking for exercise; and wildlife watching, birding, or nature study. Picnicking, barbequing, and family gatherings were also popular among respondents, with the majority preferring first-come-first-served (non-reservable) picnic areas and shelters. By far the most common single main activity in parks and natural areas in the Portland region, however, is hiking or walking for pleasure.

All of these activities can facilitate connections to nature. When asked to identify words or phrases associated with connections to nature, the most common human themes among respondents focused on nature: (a) providing a sense of calm, peace, quiet, serenity, relaxation,

and tranquility; (b) being refreshing, rejuvenating, restorative, invigorating, and providing health, joy, and happiness for the soul; and (c) hosting activities for recreation, exploration, and exercise (e.g., hiking, mountain biking, camping, fishing). The most common non-human themes associated with nature involved: (a) plants, trees, forests, and greenspaces; (b) animals / wildlife and birds; and (c) natural beauty and scenery.

These results improve understanding of resident needs and behaviors associated with parks and natural areas in the Portland region, and can be used for informing current and future agency planning, decision making, management strategies, and policies. These findings also contribute to the body of recent community-focused research associated with parks and natural areas in the Portland region (e.g., Baur et al., 2013a, 2013b; Dresner et al., 2015; Houck, 2016; Kovacs, 2012). Additional research, however, is needed to continue improving understanding of resident needs and behaviors associated with parks and natural areas in the Portland region, especially among traditionally underserved groups such as communities of color. Data from this project and findings discussed in this report serve as a starting point, but more complex and nuanced analyses are possible for contributing to a greater understanding. This project, for example, is currently supporting graduate student research that is examining the following questions:

- Are there any relationships among constraints or barriers to visitation, attachment to parks, and frequency of visitation, and if so, do they differ between traditionally underserved (i.e., communities of color) and well-served residents (i.e., white dominant population)?
- To what extent does frequency of visitation mediate any relationships between constraints and attachment to parks, and does this differ between traditionally underserved (i.e., communities of color) and well-served residents (i.e., white dominant population)?
- Do constraints and attachment to parks differ spatially (i.e., geographically) across the Portland metropolitan region?
- Does any of this spatial variation in constraints and attachment to parks differ between traditionally underserved (i.e., communities of color) and well-served residents (i.e., white dominant population)?

Answers to these research questions and results of this graduate student research will be reported in additional publications in the future (e.g., university thesis, presentations at conferences, refereed articles in scientific journals).

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APPENDIX A: QUESTIONNAIRE

Your opinions about Metro parks and natural areas

Important questions for Portland-area residents

Please complete this survey and return it in the envelope as soon as possible

Participation is voluntary and responses are confidential

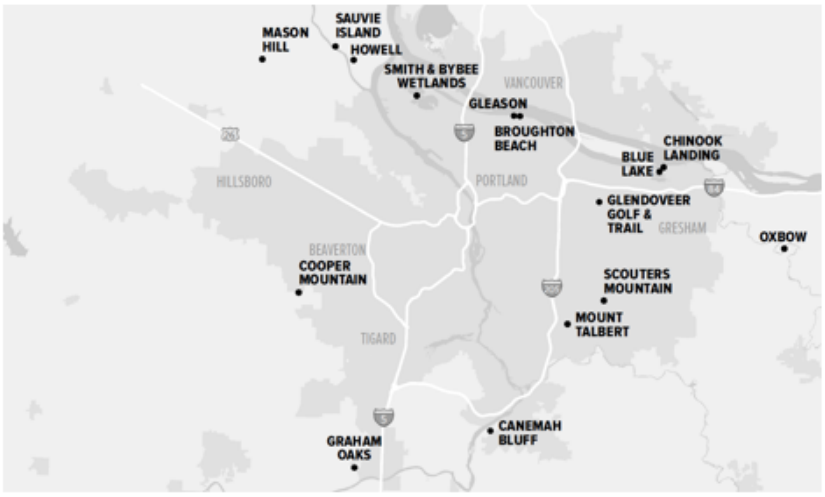
Thank you for your participation!

A study conducted by:

OSU Oregon State University

Metro

We are conducting this survey to learn about your opinions regarding parks and natural areas in the Portland region. Your input is important and will assist managers. ***Please complete this survey and return it in the addressed and postage-paid envelope.***



1. The map above shows parks in the region that are managed by Metro. These are referred to as "***Metro parks***" in this survey. Have you ever visited ***any*** of these parks? **(check *ONE*)**

   ☐ No → if no, please skip to question 7 on the next page

   ☐ Yes → if yes, about how many times have you visited any of these parks ***in the last 12 months***? **(write number)** _____ time(s)

2. Which of these Metro parks have you visited (shown on the map above)? **(check *ALL THAT APPLY*)**

☐ ***A.*** Oxbow Regional Park	☐ ***F.*** Smith & Bybee Wetlands Natural Area	☐ ***K.*** Graham Oaks Nature Park
☐ ***B.*** Blue Lake Regional Park	☐ ***G.*** Sauvie Island Boat Ramp	☐ ***L.*** Canemah Bluff Nature Park
☐ ***C.*** Chinook Landing Marine Park	☐ ***H.*** Howell Territorial Park	☐ ***M.*** Mount Talbert Nature Park
☐ ***D.*** Broughton Beach	☐ ***I.*** Mason Hill Park	☐ ***N.*** Scouters Mountain Nature Park
☐ ***E.*** James Gleason Boat Ramp	☐ ***J.*** Cooper Mountain Nature Park	☐ ***O.*** Glendoveer Golf Course & Fitness Trail

3. From Question 2 above, what is your ***ONE*** favorite Metro park (shown on the map above)? **(write *ONE* letter)**

   Letter for your favorite Metro park _____

4. About how many times have you visited this one favorite Metro park (from Question 3 above) ***in the last 12 months***? _____ time(s)

5. What can Metro do to make this one favorite Metro park (from Question 3 above) even better? **(write response)** _____

   _____

6. Thinking about this one favorite Metro park (from Question 3 above), to what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Agree	Strongly Agree
When visiting this park, I usually feel a connection with nature.	1	2	3	4
I feel this park is a part of me.	1	2	3	4
Visiting this park says a lot about who I am.	1	2	3	4
The more often I visit this park, the more I feel emotionally attached to this park.	1	2	3	4
I would not substitute any other place for what I enjoy doing at this park.	1	2	3	4
No other park can compare to this park.	1	2	3	4
The more often I visit this park, the better it becomes for what I like to do.	1	2	3	4
Time spent at this park allows me to bond with my family or friends.	1	2	3	4
Visiting this park allows me to spend time with people who are close to me.	1	2	3	4
The more often I visit this park, the more I associate it with special people in my life.	1	2	3	4

7. If you could visit any of the Metro parks, what ***day(s) of the week*** would be most convenient to visit? **(check *ALL THAT APPLY*)**

☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday

8. If you could visit any of the Metro parks, what ***time(s) of the day*** would be most convenient to visit? **(check *ALL THAT APPLY*)**

☐ Early Morning ☐ Late Morning ☐ Early Afternoon ☐ Late Afternoon ☐ Evening

9. To what extent do you disagree or agree that each of the following make it difficult for you or your family to visit Metro parks? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Agree	Strongly Agree
A. I do not know enough about what I can do at Metro parks.	1	2	3	4
B. Before receiving this survey, I did not know where Metro parks were located.	1	2	3	4
C. I do not know where to get information about Metro parks.	1	2	3	4
D. The activities I enjoy doing are not available in Metro parks.	1	2	3	4
E. Visiting Metro parks is hard for me because they take too long to get to or are too far away.	1	2	3	4
F. There is no public transportation (e.g., buses) to the Metro parks I want to visit.	1	2	3	4
G. I do not feel emotionally attached to any Metro parks.	1	2	3	4
H. Metro parks are not the best places for the activities I enjoy doing.	1	2	3	4
I. I cannot take pets (e.g., dogs) to Metro parks.	1	2	3	4
J. I tend to avoid Metro parks because they are too crowded.	1	2	3	4
K. There are not enough developed facilities / services at Metro parks (e.g., picnic tables, barbeques, picnic shelters, restrooms).	1	2	3	4
L. Metro parks do not provide online reservations of picnic areas / shelters.	1	2	3	4
M. Facilities at Metro parks are difficult to access for people with disabilities / mobility issues.	1	2	3	4
N. Metro parks are not natural enough (in other words, there is too much development now).	1	2	3	4
O. Metro parks have too many rules / regulations.	1	2	3	4
P. Metro parks do not feel welcoming to me or my family.	1	2	3	4
Q. Metro parks do not have enough *staff* representing my racial, ethnic, or cultural group.	1	2	3	4
R. Metro parks do not have enough *visitors* representing my racial, ethnic, or cultural group.	1	2	3	4
S. Metro parks do not have *programs* for people in my racial, ethnic, or cultural group.	1	2	3	4
T. Other (write response) _____	1	2	3	4

10. From the list in Question 9 (above), please choose up to ***three*** that are the most important for park managers to address in order to make it easier for you or your family to visit Metro parks in the future. **(write up to *three letters* from the question above)**

Letter(s) _____ _____ _____

11. Do you think Metro should provide information in parks (e.g., signs, staff, programs) in languages other than English? **(check *ONE*)**

☐ No

☐ Yes → if yes, what other languages should be used for information? **(write up to three)** _____ _____ _____

12. If Metro required only credit cards to pay park fees (e.g., parking, reservations), how would it change your visitation? **(check *ONE*)**

☐ I would visit less ☐ I would visit the same as now ☐ I would visit more ☐ I don't visit Metro parks, so it doesn't matter

13. Now, we would like to ask about ***all parks or natural areas in the Portland region in general (not just Metro parks)***. About how many times have you visited parks or natural areas in the Portland region ***in the last 12 months*****? (check *ONE*)**

- ☐ Never visited in the last 12 months (0 times per year)
- ☐ Less than once a month (1 to 11 times per year)
- ☐ About once a month (12 to 18 times per year)
- ☐ About two or three times a month (19 to 45 times per year)
- ☐ About once a week (46 to 80 times per year)
- ☐ Two or more times a week (81 or more times per year)

14. To what extent do you disagree or agree that each of the following make it difficult for you or your family to visit parks or natural areas in the Portland region? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Agree	Strongly Agree
A. I am not interested in visiting parks or natural areas in the Portland region.	1	2	3	4
B. The *fees* at parks or natural areas in the Portland region are too expensive for me.	1	2	3	4
C. It is too expensive for me to *travel to* parks or natural areas in the Portland region.	1	2	3	4
D. I am too busy or do not have enough free time to visit parks or natural areas in the Portland region.	1	2	3	4
E. Poor health or physical limitations make it difficult for me to visit parks or natural areas in the Portland region.	1	2	3	4
F. I have a disability that makes it difficult for me to visit parks or natural areas in the Portland region.	1	2	3	4
G. I do not have anyone to visit parks or natural areas in the Portland region with.	1	2	3	4
H. My partner or family is not interested in visiting parks or natural areas in the Portland region.	1	2	3	4
I. Someone I recreate with is physically unable to visit parks or natural areas in the Portland region.	1	2	3	4

15. From the list in Question 14 (above), please choose up to ***three*** that are the most important for park managers to address in order to make it easier for you or your family to visit parks or natural areas in the Portland region in the future. **(write up to *three letters*)**

Letter(s) _____ _____ _____

16. To what extent do you disagree or agree that each of the following make it difficult for you or your family to visit parks or natural areas in the Portland region? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Agree	Strongly Agree
A. Parks or natural areas in the Portland region do not feel welcoming to me or my family.	1	2	3	4
B. I am afraid of outdoor places such as parks or natural areas in the Portland region.	1	2	3	4
C. I do not feel safe going to parks or natural areas in the Portland region.	1	2	3	4
D. I fear crime in parks or natural areas in the Portland region.	1	2	3	4
E. I tend to avoid parks or natural areas in the Portland region because I am afraid of injury.	1	2	3	4
F. Information (e.g., staff, signs, programs) at parks or natural areas in the Portland region is often only in English, making it difficult for me to visit.	1	2	3	4
G. Parks or natural areas in the Portland region do not have enough *staff* representing my racial, ethnic, or cultural group.	1	2	3	4
H. Parks or natural areas in the Portland region do not have enough *visitors* representing my racial, ethnic, or cultural group.	1	2	3	4
I. Based on my *own personal experience*, I fear prejudice from staff or other visitors at parks or natural areas in the Portland region.	1	2	3	4
J. Based on *experiences of someone close to me*, I fear prejudice from staff or other visitors at parks or natural areas in the Portland region.	1	2	3	4

17. From the list in Question 16 (above), please choose up to ***three*** that are the most important for park managers to address in order to make it easier for you or your family to visit parks or natural areas in the Portland region in the future. **(write up to *three letters*)**

Letter(s) _____ _____ _____

18. What would make parks or natural areas in the Portland region feel more welcoming to you? **(write response)** _____

_____

19. When visiting parks or natural areas in the Portland region, how interested are you in ***experiencing*** each of the following? **(circle one number for *EACH*)**

	Not Interested	Slightly Interested	Moderately Interested	Very Interested
Guided walks in natural areas (e.g., seeing birds, wildlife, wildflowers).	1	2	3	4
Wetland canoe or kayaking tours.	1	2	3	4
Practicing art in nature (e.g., drawing, painting, writing, photography).	1	2	3	4
Storytelling in nature (e.g., sharing stories, songs, performances).	1	2	3	4
Harvesting seeds or planting native plants.	1	2	3	4
Collecting data about nature or wildlife to help scientific research.	1	2	3	4
Cleaning up / caring for trails.	1	2	3	4
Stargazing (observing stars / planets).	1	2	3	4
Searching for mushrooms.	1	2	3	4
Other (write response) _____	1	2	3	4

20. When visiting parks or natural areas in the Portland region, how interested are you in the following ***sources of information***? **(circle one number for *EACH*)**

	Not Interested	Slightly Interested	Moderately Interested	Very Interested
Speaking with park staff / personnel.	1	2	3	4
Signs with directions for how to get to parks or move around inside parks.	1	2	3	4
Educational / interpretive signs in parks.	1	2	3	4
Maps of parks.	1	2	3	4
Printed brochures or guides that you can carry with you.	1	2	3	4
Information accessed with a smartphone using apps, codes, or websites.	1	2	3	4
Organized educational programs (e.g., tours, interpretive talks).	1	2	3	4
Displays in visitor centers.	1	2	3	4
Other (write response) _____	1	2	3	4

21. When visiting parks or natural areas in the Portland region, how interested are you in learning about the following ***topics***? **(circle one number for *EACH*)**

	Not Interested	Slightly Interested	Moderately Interested	Very Interested
How humans used the land in the past (includes agriculture and forest management).	1	2	3	4
Significance of the land to Native American communities.	1	2	3	4
The role of nature in healthy or livable communities.	1	2	3	4
Climate change.	1	2	3	4
Plants, animals, or birds of the region.	1	2	3	4
Soils or how soils are formed.	1	2	3	4
Natural processes (e.g., floods, fires).	1	2	3	4
Water quality in the region's streams / rivers.	1	2	3	4
How agencies such as Metro manage / care for their land.	1	2	3	4
What activities or events you can do at nearby parks or natural areas.	1	2	3	4
Other (write response) _____	1	2	3	4

22. When visiting parks or natural areas in the Portland region, how interested are you in learning about the following ***skills***? **(circle one number for *EACH*)**

	Not Interested	Slightly Interested	Moderately Interested	Very Interested
How to use a map with a compass (basic orienteering).	1	2	3	4
Outdoor survival skills (e.g., shelter, water, fire, flood).	1	2	3	4
How to identify plants or trees (e.g., for fun, food, healing).	1	2	3	4
How to identify animal tracks or signs of wildlife.	1	2	3	4
How you or your family can hike safely.	1	2	3	4
How to camp overnight safely.	1	2	3	4
How to lead or teach groups outdoors.	1	2	3	4
Natural gardening skills for home.	1	2	3	4
How or where to fish.	1	2	3	4
Archery basics.	1	2	3	4
Other (write response) _____	1	2	3	4

23. How often do you participate in each of the following activities when visiting parks or natural areas in the Portland region? **(circle one number for *EACH*)**

	Never	Once or Twice	Sometimes	Often
A. Hiking or walking for pleasure.	1	2	3	4
B. Jogging, running, or walking for exercise.	1	2	3	4
C. Picnicking, barbecuing, or family gatherings.	1	2	3	4
D. Relaxing, hanging out, or escaping the weather / heat.	1	2	3	4
E. Bicycling (road bike or mountain bike).	1	2	3	4
F. Horseback riding.	1	2	3	4
G. Camping (e.g., tents, cabins, recreational vehicles).	1	2	3	4
H. Fishing for fun or for food.	1	2	3	4
I. Swimming or wading.	1	2	3	4
J. Motorized boating.	1	2	3	4
K. Non-motorized boating (e.g., canoe, kayak, row, paddle, raft).	1	2	3	4
L. Field sports or games (e.g., soccer, baseball, softball, football).	1	2	3	4
M. Disc golf.	1	2	3	4
N. Wildlife watching, birding, or nature study.	1	2	3	4
O. Photography, painting, or drawing.	1	2	3	4
P. Participating in nature education programs (e.g., talks, tours).	1	2	3	4
Q. Visiting nature centers, historic sites, or related facilities.	1	2	3	4
R. Enjoying playgrounds or other facilities often used by children.	1	2	3	4
S. Other (write response) _____	1	2	3	4

24. From the list in Question 23 (above), please choose the ***ONE*** activity that you do most often when visiting parks or natural areas in the Portland region. **(write letter)**

Letter for most common activity _____

25. When looking for a place in a park to picnic and gather, which of the following two options would you prefer the most? **(check *ONE*)**

☐ First-come-first-served (non-reservable) picnic areas / shelters ☐ Reservable (in advance) picnic areas / shelters

26. In general, how interested are you in each of the following? **(circle one number for *EACH*)**

	Not Interested	Slightly Interested	Moderately Interested	Very Interested
Paid jobs or internships in parks and nature for *adults*.	1	2	3	4
Paid jobs or internships in parks and nature for *youth*.	1	2	3	4
Learning about careers in the parks and nature field.	1	2	3	4
Learning about how to work as a contractor / consultant for parks and nature agencies.	1	2	3	4
Volunteer (unpaid) opportunities in parks and nature for *adults*.	1	2	3	4
Volunteer (unpaid) opportunities in parks and nature for *youth*.	1	2	3	4

27. What words or short phrases would you associate with the word "nature?" **(write up to three responses on the lines below)**

    _____ _____ _____

28. What makes you feel personally connected to nature? **(write response)** _____

29. How do you describe yourself? ☐ Male ☐ Female ☐ Transgender ☐ I do not identify as male, female, or transgender

30. What is your age? **(write age)** _____ years old

31. How many children under the age of 18 live in your household? **(write number, or 0 if you have none)** _____ child(ren)

32. Do you live with a physical, mental, or emotional disability? **(check *ONE*)** ☐ No ☐ Yes

33. When asked to identify your racial or ethnic identity, how do you identify? **(check *ALL THAT APPLY*)**

    ☐ White / Caucasian ☐ Hispanic / Latino / Spanish ☐ American Indian / Alaskan Native ☐ Other (write response)
    ☐ Black / African American ☐ Asian / Asian American ☐ Native Hawaiian / Pacific Islander _____

34. Do you consider yourself to be Slavic (from Russia, Belarus, Ukraine, Poland, Czech Republic, Slovakia, Slovenia, Croatia, Serbia, Bosnia and Herzegovina, Montenegro, Macedonia, or Bulgaria)? **(check *ONE*)**

    ☐ No
    ☐ Yes

35. Do you consider yourself to be Middle Eastern (from Egypt, Iran, Turkey, Iraq, Saudi Arabia, Yemen, Syria, United Arab Emirates, Jordan, Palestine, Israel, Lebanon, Oman, Kuwait, Qatar, Bahrain, or Cyprus)? **(check *ONE*)**

    ☐ No
    ☐ Yes

36. What is the language spoken most in your home? **(check *ONE*)**

    ☐ English ☐ Vietnamese ☐ Japanese ☐ Arabic
    ☐ Spanish ☐ Cantonese ☐ Korean ☐ African language(s) (e.g., Somali, Swahili, Hausa, Zulu)
    ☐ Russian ☐ Mandarin ☐ French ☐ Other (write response) _____

37. What is your highest level of educational experience? **(check *ONE*)**

    ☐ Less than high school ☐ Bachelor's degree
    ☐ Some high school ☐ Some postgraduate work
    ☐ High school diploma or GED ☐ Post-graduate degree (e.g., masters, PhD, law, medical doctor)
    ☐ Some college or an Associates or 2-year technical degree ☐ Other (write response) _____

38. Which of the following broad categories best describes your annual household income before taxes? **(check *ONE*)**

    ☐ Less than $10,000 ☐ $50,000 to $74,999
    ☐ $10,000 to $19,999 ☐ $75,000 to $99,999
    ☐ $20,000 to $29,999 ☐ $100,000 to $149,999
    ☐ $30,000 to $49,999 ☐ $150,000 or more

39. What county do you live in? ☐ Multnomah ☐ Washington ☐ Clackamas ☐ Other (write response) _____

40. What is your zip code? **(write response)** _____

Do you have any other comments about Metro parks or how Metro can help connect you with nature and the outdoors? If so, please write your comments in the space below.

THANK YOU! PLEASE RETURN THIS SURVEY AS SOON AS POSSIBLE IN THE ENVELOPE PROVIDED!

APPENDIX B: NON-RESPONSE BIAS CHECK QUESTIONNAIRE

ID number: _____

Opening Script

Hello, my name is _____. I'm calling from Oregon State University regarding a questionnaire about parks and natural areas in the Portland region that was sent to your address a few weeks ago.

We have noticed that you have not responded, but your input is very valuable. Instead, we would like you to answer just a few quick questions, which will take less than 2 minutes to complete.

If no (refusal): Sorry to bother you; have a good evening. (hang up and record response code)

If yes: Thank you; I have just a few short questions.

(1). About how many times have you visited parks or natural areas in the Portland region in the last 12 months?

- ☐ Never visited in the last 12 months
- ☐ Less than once a month
- ☐ About once a month
- ☐ About two or three times a month
- ☐ About once a week
- ☐ Two or more times a week

(2). To what extent do you disagree or agree that:
you are too busy or do not have enough free time to visit parks or natural areas in the Portland region?

Strongly Disagree Disagree Agree Strongly Agree

(3). To what extent do you disagree or agree that:
the fees at parks or natural areas in the Portland region are too expensive for you?

Strongly Disagree Disagree Agree Strongly Agree

(4). To what extent do you disagree or agree that:
you do not feel safe going to parks or natural areas in the Portland region?

Strongly Disagree Disagree Agree Strongly Agree

(5). To what extent do you disagree or agree that:
parks or natural areas in the Portland region do not have enough visitors representing your racial, ethnic, or cultural group?

Strongly Disagree Disagree Agree Strongly Agree

(6). When visiting parks or natural areas in the Portland region, how interested are you in:
speaking with park staff or personnel?

Not Interested Slightly Interested Moderately Interested Very Interested

(7). When visiting parks or natural areas in the Portland region, how interested are you in:
learning about how humans used the land in the past (includes agriculture and forest management)?

Not Interested Slightly Interested Moderately Interested Very Interested

(8). When asked to identify your racial or ethnic identity, how do you identify? You can select more than one.

- ☐ White or Caucasian
- ☐ Black or African American
- ☐ Hispanic, Latino, or Spanish
- ☐ Asian or Asian American
- ☐ American Indian or Alaskan Native
- ☐ Native Hawaiian or Pacific Islander
- ☐ Other (write response) _____

(9). Do you consider yourself to be Slavic (from Russia, Belarus, Ukraine, or Eastern European countries)?

☐ No ☐ Yes

(10). Do you consider yourself to be Middle Eastern (from Egypt, Iran, Turkey, Iraq, Saudi Arabia, Yemen, Syria, United Arab Emirates, Jordan, Palestine, Israel, Lebanon, Oman, Kuwait, Qatar, Bahrain, Cyprus)?

☐ No ☐ Yes

(11). Finally, what is your age? _____ years old

(12). Record their gender (ask if unsure): ☐ Male ☐ Female ☐ Transgender ☐ Not identify as any of these

Ending Script: That's all the questions that I have; thank you for your time and have a great evening.

APPENDIX C: UNCOLLAPSED TOTAL PERCENTAGES

Your opinions about Metro parks and natural areas

Important questions for Portland-area residents

Please complete this survey and return it in the envelope as soon as possible

Participation is voluntary and responses are confidential

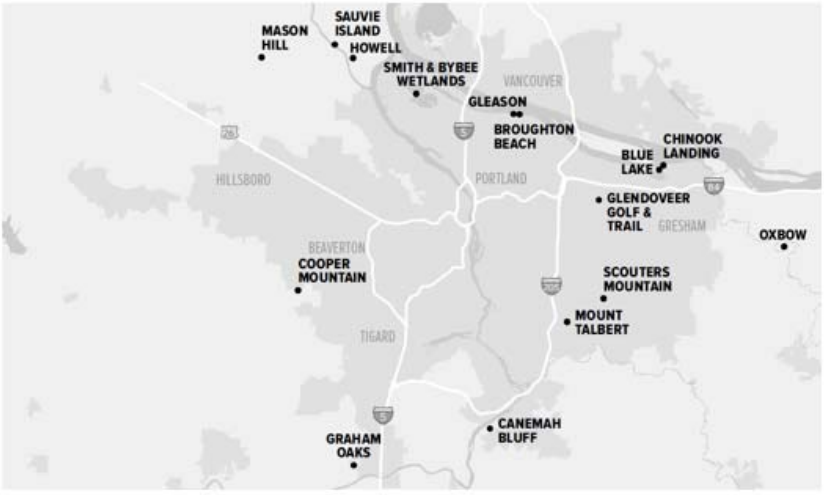
Thank you for your participation!

A study conducted by:

OSU Oregon State University

Metro

We are conducting this survey to learn about your opinions regarding parks and natural areas in the Portland region. Your input is important and will assist managers. ***Please complete this survey and return it in the addressed and postage-paid envelope.***



1. The map above shows parks in the region that are managed by Metro. These are referred to as "***Metro parks***" in this survey. Have you ever visited ***any*** of these parks? **(check *ONE*)**

   20% No → if no, please skip to question 7 on the next page

   80% Yes → if yes, about how many times have you visited any of these parks ***in the last 12 months***? see Table 2 time(s)

2. Which of these Metro parks have you visited (shown on the map above)? **(check *ALL THAT APPLY*)**

57% ***A.*** Oxbow Regional Park	32% ***F.*** Smith & Bybee Wetlands Natural Area	10% ***K.*** Graham Oaks Nature Park
50% ***B.*** Blue Lake Regional Park	36% ***G.*** Sauvie Island Boat Ramp	8% ***L.*** Canemah Bluff Nature Park
13% ***C.*** Chinook Landing Marine Park	8% ***H.*** Howell Territorial Park	25% ***M.*** Mount Talbert Nature Park
9% ***D.*** Broughton Beach	2% ***I.*** Mason Hill Park	12% ***N.*** Scouters Mountain Nature Park
5% ***E.*** James Gleason Boat Ramp	31% ***J.*** Cooper Mountain Nature Park	29% ***O.*** Glendoveer Golf Course & Fitness Trail

3. From Question 2 above, what is your ***ONE*** favorite Metro park (shown on the map above)? **(write *ONE* letter)**

   Letter for your favorite Metro park see Table 4

4. About how many times have you visited this one favorite Metro park (from Question 3 above) ***in the last 12 months***? see Table 5 time(s)

5. What can Metro do to make this one favorite Metro park (from Question 3 above) even better? **(write response)** see Appendix D

   _____

6. Thinking about this one favorite Metro park (from Question 3 above), to what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Agree	Strongly Agree
When visiting this park, I usually feel a connection with nature.	2%	4%	53%	42%
I feel this park is a part of me.	4	33	52	11
Visiting this park says a lot about who I am.	5	35	52	9
The more often I visit this park, the more I feel emotionally attached to this park.	3	27	55	15
I would not substitute any other place for what I enjoy doing at this park.	13	62	20	6
No other park can compare to this park.	16	63	18	3
The more often I visit this park, the better it becomes for what I like to do.	5	39	52	4
Time spent at this park allows me to bond with my family or friends.	4	15	63	19
Visiting this park allows me to spend time with people who are close to me.	4	18	61	18
The more often I visit this park, the more I associate it with special people in my life.	6	43	44	8

7. If you could visit any of the Metro parks, what ***day(s) of the week*** would be most convenient to visit? **(check *ALL THAT APPLY*)**

   25% Monday 25% Tuesday 25% Wednesday 27% Thursday 34% Friday 77% Saturday 68% Sunday

8. If you could visit any of the Metro parks, what ***time(s) of the day*** would be most convenient to visit? **(check *ALL THAT APPLY*)**

   25% Early Morning 65% Late Morning 69% Early Afternoon 45% Late Afternoon 25% Evening

9. To what extent do you disagree or agree that each of the following make it difficult for you or your family to visit Metro parks? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Agree	Strongly Agree
A. I do not know enough about what I can do at Metro parks.	7%	31%	50%	12%
B. Before receiving this survey, I did not know where Metro parks were located.	13	29	40	18
C. I do not know where to get information about Metro parks.	15	40	38	8
D. The activities I enjoy doing are not available in Metro parks.	15	63	16	6
E. Visiting Metro parks is hard for me because they take too long to get to or are too far away.	9	39	41	11
F. There is no public transportation (e.g., buses) to the Metro parks I want to visit.	9	48	33	10
G. I do not feel emotionally attached to any Metro parks.	13	40	36	11
H. Metro parks are not the best places for the activities I enjoy doing.	14	57	25	5
I. I cannot take pets (e.g., dogs) to Metro parks.	17	43	26	14
J. I tend to avoid Metro parks because they are too crowded.	13	65	19	3
K. There are not enough developed facilities / services at Metro parks (e.g., picnic tables, barbeques, picnic shelters, restrooms).	12	58	27	3
L. Metro parks do not provide online reservations of picnic areas / shelters.	12	65	21	2
M. Facilities at Metro parks are difficult to access for people with disabilities / mobility issues.	9	66	23	2
N. Metro parks are not natural enough (in other words, there is too much development now).	10	66	21	4
O. Metro parks have too many rules / regulations.	15	63	19	4
P. Metro parks do not feel welcoming to me or my family.	23	68	8	2
Q. Metro parks do not have enough *staff* representing my racial, ethnic, or cultural group.	26	63	9	2
R. Metro parks do not have enough *visitors* representing my racial, ethnic, or cultural group.	29	62	7	2
S. Metro parks do not have *programs* for people in my racial, ethnic, or cultural group.	28	61	9	3
T. Other (write response) see Table 9	1	2	1	5

10. From the list in Question 9 (above), please choose up to ***three*** that are the most important for park managers to address in order to make it easier for you or your family to visit Metro parks in the future. **(write up to *three letters* from the question above)**

    Letter(s) see Table 10 see Table 10 see Table 10

11. Do you think Metro should provide information in parks (e.g., signs, staff, programs) in languages other than English? **(check *ONE*)**

    39% No

    61% Yes → if yes, what other languages should be used for information? **(write up to three)** see Table 11 see Table 11 see Table 11

12. If Metro required only credit cards to pay park fees (e.g., parking, reservations), how would it change your visitation? **(check *ONE*)**

    20% I would visit less 63% I would visit the same as now 4% I would visit more 13% I don't visit Metro parks

13. Now, we would like to ask about ***all parks or natural areas in the Portland region in general (not just Metro parks)***.
About how many times have you visited parks or natural areas in the Portland region ***in the last 12 months***? **(check *ONE*)**

9% Never visited in the last 12 months (0 times per year)	20% About two or three times a month (19 to 45 times per year)
32% Less than once a month (1 to 11 times per year)	11% About once a week (46 to 80 times per year)
20% About once a month (12 to 18 times per year)	9% Two or more times a week (81 or more times per year)

14. To what extent do you disagree or agree that each of the following make it difficult for you or your family to visit parks or natural areas in the Portland region? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Agree	Strongly Agree
A. I am not interested in visiting parks or natural areas in the Portland region.	58%	32%	7%	3%
B. The *fees* at parks or natural areas in the Portland region are too expensive for me.	23	55	16	5
C. It is too expensive for me to *travel to* parks or natural areas in the Portland region.	26	60	10	4
D. I am too busy or do not have enough free time to visit parks or natural areas in the Portland region.	14	36	42	8
E. Poor health or physical limitations make it difficult for me to visit parks or natural areas in the Portland region.	45	44	9	2
F. I have a disability that makes it difficult for me to visit parks or natural areas in the Portland region.	54	38	7	2
G. I do not have anyone to visit parks or natural areas in the Portland region with.	36	49	13	3
H. My partner or family is not interested in visiting parks or natural areas in the Portland region.	37	45	14	3
I. Someone I recreate with is physically unable to visit parks or natural areas in the Portland region.	46	43	9	2

15. From the list in Question 14 (above), please choose up to ***three*** that are the most important for park managers to address in order to make it easier for you or your family to visit parks or natural areas in the Portland region in the future. **(write up to *three letters*)**

Letter(s) see Table 15 see Table 15 see Table 15

16. To what extent do you disagree or agree that each of the following make it difficult for you or your family to visit parks or natural areas in the Portland region? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Agree	Strongly Agree
A. Parks or natural areas in the Portland region do not feel welcoming to me or my family.	42%	51%	5%	2%
B. I am afraid of outdoor places such as parks or natural areas in the Portland region.	56	37	6	1
C. I do not feel safe going to parks or natural areas in the Portland region.	41	45	12	3
D. I fear crime in parks or natural areas in the Portland region.	33	39	24	4
E. I tend to avoid parks or natural areas in the Portland region because I am afraid of injury.	50	44	6	1
F. Information (e.g., staff, signs, programs) at parks or natural areas in the Portland region is often only in English, making it difficult for me to visit.	54	42	4	1
G. Parks or natural areas in the Portland region do not have enough *staff* representing my racial, ethnic, or cultural group.	49	43	7	2
H. Parks or natural areas in the Portland region do not have enough *visitors* representing my racial, ethnic, or cultural group.	49	43	7	2
I. Based on my *own personal experience*, I fear prejudice from staff or other visitors at parks or natural areas in the Portland region.	57	39	3	1
J. Based on *experiences of someone close to me*, I fear prejudice from staff or other visitors at parks or natural areas in the Portland region.	57	38	5	1

17. From the list in Question 16 (above), please choose up to ***three*** that are the most important for park managers to address in order to make it easier for you or your family to visit parks or natural areas in the Portland region in the future. **(write up to *three letters*)**

Letter(s) see Table 15 see Table 15 see Table 15

18. What would make parks or natural areas in the Portland region feel more welcoming to you? **(write response)** see Appendix F

19. When visiting parks or natural areas in the Portland region, how interested are you in ***experiencing*** each of the following? **(circle one number for *EACH*)**

	Not Interested	Slightly Interested	Moderately Interested	Very Interested
Guided walks in natural areas (e.g., seeing birds, wildlife, wildflowers).	20%	30%	29%	21%
Wetland canoe or kayaking tours.	20	25	29	26
Practicing art in nature (e.g., drawing, painting, writing, photography).	33	30	22	15
Storytelling in nature (e.g., sharing stories, songs, performances).	43	31	18	8
Harvesting seeds or planting native plants.	25	31	28	17
Collecting data about nature or wildlife to help scientific research.	24	33	27	16
Cleaning up / caring for trails.	19	34	34	13
Stargazing (observing stars / planets).	14	24	37	25
Searching for mushrooms.	40	23	21	16
Other (write response) see Table 16	1	0	1	7

20. When visiting parks or natural areas in the Portland region, how interested are you in the following ***sources of information***? **(circle one number for *EACH*)**

	Not Interested	Slightly Interested	Moderately Interested	Very Interested
Speaking with park staff / personnel.	24%	41%	25%	10%
Signs with directions for how to get to parks or move around inside parks.	4	13	38	45
Educational / interpretive signs in parks.	5	16	41	38
Maps of parks.	3	7	33	57
Printed brochures or guides that you can carry with you.	11	21	32	36
Information accessed with a smartphone using apps, codes, or websites.	18	22	26	34
Organized educational programs (e.g., tours, interpretive talks).	19	34	29	17
Displays in visitor centers.	8	30	41	21
Other (write response) see Table 17	0	1	1	2

21. When visiting parks or natural areas in the Portland region, how interested are you in learning about the following ***topics***? **(circle one number for *EACH*)**

	Not Interested	Slightly Interested	Moderately Interested	Very Interested
How humans used the land in the past (includes agriculture and forest management).	10%	25%	40%	26%
Significance of the land to Native American communities.	9	18	35	38
The role of nature in healthy or livable communities.	10	17	37	36
Climate change.	15	16	31	39
Plants, animals, or birds of the region.	4	11	34	51
Soils or how soils are formed.	13	27	37	23
Natural processes (e.g., floods, fires).	7	19	40	35
Water quality in the region's streams / rivers.	6	18	38	39
How agencies such as Metro manage / care for their land.	11	26	38	25
What activities or events you can do at nearby parks or natural areas.	6	20	38	36
Other (write response) see Table 18	0	0	1	2

22. When visiting parks or natural areas in the Portland region, how interested are you in learning about the following ***skills***? **(circle one number for *EACH*)**

	Not Interested	Slightly Interested	Moderately Interested	Very Interested
How to use a map with a compass (basic orienteering).	22%	34%	27%	18%
Outdoor survival skills (e.g., shelter, water, fire, flood).	14	25	35	26
How to identify plants or trees (e.g., for fun, food, healing).	6	17	35	42
How to identify animal tracks or signs of wildlife.	7	21	37	34
How you or your family can hike safely.	18	31	29	22
How to camp overnight safely.	26	28	27	20
How to lead or teach groups outdoors.	47	28	16	9
Natural gardening skills for home.	16	27	30	27
How or where to fish.	34	25	22	20
Archery basics.	38	26	20	15
Other (write response) see Table 19	0	0	1	1

23. How often do you participate in each of the following activities when visiting parks or natural areas in the Portland region? **(circle one number for *EACH*)**

	Never	Once or Twice	Sometimes	Often
A. Hiking or walking for pleasure.	7%	11%	27%	56%
B. Jogging, running, or walking for exercise.	22	16	28	34
C. Picnicking, barbecuing, or family gatherings.	18	34	37	10
D. Relaxing, hanging out, or escaping the weather / heat.	14	23	42	22
E. Bicycling (road bike or mountain bike).	48	21	22	9
F. Horseback riding.	91	6	2	2
G. Camping (e.g., tents, cabins, recreational vehicles).	39	23	27	11
H. Fishing for fun or for food.	60	19	15	6
I. Swimming or wading.	34	26	28	11
J. Motorized boating.	77	13	7	4
K. Non-motorized boating (e.g., canoe, kayak, row, paddle, raft).	45	28	19	8
L. Field sports or games (e.g., soccer, baseball, softball, football).	57	25	14	5
M. Disc golf.	72	17	9	3
N. Wildlife watching, birding, or nature study.	27	22	29	22
O. Photography, painting, or drawing.	42	20	26	13
P. Participating in nature education programs (e.g., talks, tours).	51	30	17	3
Q. Visiting nature centers, historic sites, or related facilities.	19	34	34	13
R. Enjoying playgrounds or other facilities often used by children.	41	22	21	16
S. Other (write response) see Table 20	1	0	0	1

24. From the list in Question 23 (above), please choose the ***ONE*** activity that you do most often when visiting parks or natural areas in the Portland region. **(write letter)**

Letter for most common activity see Table 21

25. When looking for a place in a park to picnic and gather, which of the following two options would you prefer the most? **(check *ONE*)**

59% First-come-first-served (non-reservable) picnic areas / shelters 41% Reservable (in advance) picnic areas / shelters

26. In general, how interested are you in each of the following? **(circle one number for *EACH*)**

	Not Interested	Slightly Interested	Moderately Interested	Very Interested
Paid jobs or internships in parks and nature for *adults*.	47%	25%	13%	16%
Paid jobs or internships in parks and nature for *youth*.	41	20	20	19
Learning about careers in the parks and nature field.	48	25	15	12
Learning about how to work as a contractor / consultant for parks and nature agencies.	60	19	12	9
Volunteer (unpaid) opportunities in parks and nature for *adults*.	35	34	19	12
Volunteer (unpaid) opportunities in parks and nature for *youth*.	46	26	16	13

27. What words or short phrases would you associate with the word "nature?" **(write up to three responses on the lines below)**
see Appendix G see Appendix G see Appendix G

28. What makes you feel personally connected to nature? **(write response)** see Appendix H

29. How do you describe yourself? 50% Male 50% Female <1% Transgender <1% I do not identify as male, female, or transgender

30. What is your age? **(write age)** see Table 25 years old

31. How many children under the age of 18 live in your household? **(write number, or 0 if you have none)** see Table 26 child(ren)

32. Do you live with a physical, mental, or emotional disability? **(check *ONE*)** 87% No 13% Yes

33. When asked to identify your racial or ethnic identity, how do you identify? **(check *ALL THAT APPLY*)**

80% White / Caucasian	11% Hispanic / Latino / Spanish	2% American Indian / Alaskan Native	1% Other (write response)
2% Black / African American	8% Asian / Asian American	1% Native Hawaiian / Pacific Islander	_____

34. Do you consider yourself to be Slavic (from Russia, Belarus, Ukraine, Poland, Czech Republic, Slovakia, Slovenia, Croatia, Serbia, Bosnia and Herzegovina, Montenegro, Macedonia, or Bulgaria)? **(check *ONE*)**
95% No
5% Yes

35. Do you consider yourself to be Middle Eastern (from Egypt, Iran, Turkey, Iraq, Saudi Arabia, Yemen, Syria, United Arab Emirates, Jordan, Palestine, Israel, Lebanon, Oman, Kuwait, Qatar, Bahrain, or Cyprus)? **(check *ONE*)**
99% No
1% Yes

36. What is the language spoken most in your home? **(check *ONE*)**

91% English	<1% Vietnamese	<1% Japanese	<1% Arabic
4% Spanish	<1% Cantonese	<1% Korean	<1% African language(s) (e.g., Somali, Swahili, Hausa, Zulu)
1% Russian	<1% Mandarin	<1% French	2% Other (write response) see Table 29

37. What is your highest level of educational experience? **(check *ONE*)**

1% Less than high school	19% Bachelor's degree
4% Some high school	7% Some postgraduate work
22% High school diploma or GED	15% Post-graduate degree (e.g., masters, PhD, law, medical doctor)
33% Some college or an Associates or 2-year technical degree	<1% Other (write response) see Table 30

38. Which of the following broad categories best describes your annual household income before taxes? **(check *ONE*)**

3% Less than $10,000	25% $50,000 to $74,999
4% $10,000 to $19,999	18% $75,000 to $99,999
7% $20,000 to $29,999	17% $100,000 to $149,999
14% $30,000 to $49,999	12% $150,000 or more

39. What county do you live in? 44% Multnomah 32% Washington 23% Clackamas 2% Other (write response) see Table 32

40. What is your zip code? **(write response)**

Do you have any other comments about Metro parks or how Metro can help connect you with nature and the outdoors?
If so, please write your comments in the space below.

See Appendix E

THANK YOU! PLEASE RETURN THIS SURVEY AS SOON AS POSSIBLE IN THE ENVELOPE PROVIDED!