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Privately owned parks in New Urbanist communities: A study of environmental privilege, equity, and inclusion

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ABSTRACT

Privately owned parks and public spaces (POPS) are increasingly common in New Urbanist (NU) communities. POPS raise concerns related to environmental privilege, equity, and inclusion; however, no investigation has fully analyzed whether POPS in NU communities cause these same concerns. This is particularly problematic because of NU's recognition as a sustainable planning paradigm and because NU proponents seek to establish mixed-income and ethnically diverse communities. Thus, this study examines how these 3 concerns about POPS play out in NU developments. In addition, it analyzes how municipal policies and real estate processes contribute to establishing POPS in NU communities. We find that concerns about environmental privilege, equity, and inclusion are well founded, and that reliance on POPS provides significant advantages for developers, residents, and municipalities alike, mostly because of cost savings and notions of exclusivity.

New Urbanist (NU) communities are often built with parks funded and managed by homeowner associations (HOAs) and other private or semiprivate entities. For example, of the 14 NU communities built in the Denver metropolitan region in the last 20 years, 12 have privately owned parks and public spaces (POPS). Across these 12 developments, POPS comprise, on average, 19.1% of total park acreage, a much higher percentage than that of Denver (4.5%), Boulder (0.002%), or any other city in the region. A similar phenomenon was uncovered in well-known NU communities located in the South and on the East Coast (Kohn, 2004) and in the Portland, Oregon, metropolitan area (Dong, 2015). Park systems in these neighborhoods generally include large public parks and small POPS paid for by developers, HOAs, or other private resident associations. In the United States, POPS have been established and maintained in exclusive subdivisions by residential associations since the 1800s (McKenzie, 1994). In more recent years, POPS in NU communities have been part of a broader trend of public space privatization in the United States that has resulted in a proliferation of corporate plazas, shopping malls, and park conservancies (Banerjee, 2001; Joassart-Marcelli, Wolch, & Salim, 2011; Kohn, 2004; Pincetl, 2003).

Common critiques of privately owned public spaces, including POPS, center on concerns about environmental privilege, equity in public funding, and inclusion (Banerjee, 2001; Kohn, 2004; Németh, 2009; Németh & Schmidt, 2011). Though these issues have been investigated for spaces like corporate plazas and shopping malls, no such research has systematically examined how POPS play out in the NU context. This is a particularly glaring omission given NU's stated goal of creating inclusive, diverse neighborhoods, and because NU-related tenets—such as a focus on walkability, form-based codes, and compact development—are becoming increasingly mainstream goals of

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traditional planning practice (The Congress for the New Urbanism, 1999; Hall & Porterfield, 2001; Lund, 2003; Speck, 2013; Talen, 2002, 2005, 2010; Till, 2001). In addition, because several NU communities are located adjacent to traditional neighborhoods, the fact that a substantial amount of space in an urban residential area is under the control of a HOA or other private body is worth further exploration.

This study investigates whether and how environmental privilege, equity, and inclusion play out in the context of NU developments. We also ask what is driving the provision of POPS in NU communities and find that POPS have mutual advantages for municipalities, developers, and residents of NU communities. After reviewing the main planning and design principles of the NU approach, we discuss the three main critiques of POPS. We then introduce the research methods, present the findings, and discuss how our results advance the literature on privately owned parks and public spaces.

New Urbanism

New Urbanism is broadly defined as an urban design and planning movement focused on growth management at the regional scale and on walkable mixed-use environments at the neighborhood scale (Talen, 2010). The main tenets of NU are a focus on sustainable development, an inclusive approach to housing that welcomes people of different socioeconomic status, a strong emphasis on mixed-use neighborhoods that foster walkability, and an abundant provision of open space, including pedestrian-accessible pocket parks (Lund, 2003; Talen, 2002, 2010). NU principles have received strong support by planners, urban designers, and developers alike, because they make for communities that are environmentally sensitive and economically viable, with strong social connections among their residents (Talen, 2002, 2010; Till, 2001). But NU has not been immune from critiques. The main detractors of NU developments have focused on their exclusivity due to high housing prices, the aesthetical uniformity of their "cookie-cutter" homes, their implicit emphasis on a "White" notion of community life, and their often suburban locations that disconnect them from transit (Kohn, 2004; Talen, 2010; Till, 2001). Though these criticisms are well founded, it is important to note that NU does not provide standards or a certification process; thus, some developments might be marketed as NU without fully adhering to the tenets of the movement (Talen, 2010).

As noted above, a central goal of NU is to create neighborhoods where residents have walking access to parks and open space (Lund, 2003; Talen, 2002; Till, 2001). In particular, NU planners often include a variety of green spaces in their developments, such as greenbelts, medium-size neighborhood parks, smaller pocket parks, and diffused green patches (Till, 2001). With NU advocates calling for mixed-income neighborhoods, the movement seeks to improve access to parks and other services for people of various socioeconomic status, thus indirectly contributing to more equitable park distribution (Talen, 2010).

Privately owned parks and public spaces

The provision of POPS is an increasingly popular mechanism for creating publicly accessible space where it did not previously exist. This mechanism has been particularly well received in cash-strapped municipalities, but also in growing North American cities such as Austin, Calgary, Nashville, and Tampa (Novak, 2009). Most programs create incentives for property owners or developers to produce and maintain publicly accessible space at their expense in exchange for tax breaks or the right to add additional floor area that exceeds the standard zoning envelope (The New York City Department of City Planning, The Municipal Art Society of New York, & Kayden, 2000). New York City, in particular, has actively engaged with this process for more than a half century since the 1961 Zoning Resolution was approved; since then, developers have provided—and continue to manage and maintain—more than 525 privately owned plazas in Manhattan, Brooklyn, and

the Bronx (Mahony, 2016). But while increasing the total number and acreage of publicly accessible space in the city, these "bonus spaces," along with the hundreds of non-bonused, privately owned, publicly accessible "town centers" around the country, have been criticized for being more concerned with increasing profits than with protecting a broader public good (Kaysen, 2013; Kohn, 2004; Loukaitou-Sideris & Banerjee, 1998; Németh, 2009). Critics show how a variety of design decisions and behavioral restrictions limit the types of allowable behavior in such spaces, forcing some to ask exactly how "public" such spaces really are (Németh, 2012). In the context of public sector austerity, these spaces are becoming increasingly more common and acceptable mechanisms in the toolbox of municipal planners and developers.

Below we outline concerns related to environmental privilege, equity in public funding, and inclusion and democracy in POPS and suggest how these issues might play out in NU communities.

Environmental privilege

Environmental privilege is a subset of environmental justice thinking that moves the focus away from disproportionate environmental burdens borne by disadvantaged populations, such as living near polluting industry or nuisance-related businesses; instead, it places the emphasis on the fact that more affluent and powerful groups enjoy better access to positive community amenities such as schools, community centers, transportation facilities, and, important for the present article, parks and open spaces (Pulido, 2000; Wolch, Wilson, & Fehrenbach, 2005). Privilege, in this regard, means both the privilege of being able to live close to amenities and the power to advocate for such amenities to be located nearby.

Because POPS—especially those in dense urban areas or that receive floor area ratio bonuses—are produced and maintained by the private sector, they are most often located in areas of interest to the private sector and, due to their dependency on the development industry, are most often constructed during positive economic/market cycles (The New York City Department of City Planning et al., 2000). In a similar vein, parks in general, and POPS in particular, contribute to home value increases in a major way and can be an advantageous marketing strategy for developers espousing the merits of their projects (Dong, 2015; Mapes & Wolch, 2011). Thus, market-driven production of public goods can result in further stratification and disparities in amenity provision between valuable and neglected areas of the city, between "the poor that the market ignores and the well-to-do that it privileges" (Boyer, 1994, p. 204).

This is critical, because socioeconomic and ethnic inequities in park provision can have significant negative public health consequences (Rigolon, 2016). Having access to parks that are large, well equipped, aesthetically pleasing, and safe can promote physical activity and provide related public health benefits (Giles-Corti et al., 2005; McCormack, Rock, Toohey, & Hignell, 2010). High-quality large parks are particularly important for low-income communities of color, because Black and Latino children and adults in the United States have higher obesity rates compared to non-Hispanic Whites (Ogden, Carroll, Kit, & Flegal, 2014). With the increasing role of POPS and other semiprivate recreation opportunities, low-income ethnic minority communities are likely to experience additional disadvantages in access to physical activity opportunities and increased risk of negative public health consequences (Joassart-Marcelli et al., 2011).

Margaret Kohn (2004) suggests that because NU developments—which often have higher housing values than surrounding areas—generally contain more and better parks than those in more affordable neighborhoods, middle- and upper-class families are essentially purchasing the right to live near high-quality parks. Lower-income urban communities might be unlikely to benefit from this model of establishing parks, especially when most NU communities are sited in suburban and rural locations, and when they are conceived and perceived as self-sufficient enclaves (Kohn, 2004). Documented housing affordability issues in NU communities and socioeconomic and ethnic disparities in access to parks in U.S. cities reinforce these concerns about environmental privilege issues associated with POPS (Rigolon, 2016; Talen, 2010; Wolch, Byrne, & Newell, 2014).

Public funding and equity

Park privatization trends, which have raised equity concerns among planners and environmental justice advocates, can be linked to cuts in parks and recreation budgets faced by public agencies in recent years (Harnik & Martin, 2015; Joassart-Marcelli et al., 2011; Kohn, 2004). As city budgets have become increasingly constrained, funding for parks and public spaces has decreased considerably, whereas incentives for the provision of POPS have increased (The New York City Department of City Planning et al., 2000). But this reliance on POPS and other private services can allow communities to "opt out" of contributing to, or drawing on, municipal coffers, ultimately lowering the total amount of funding for projects throughout the city (Kohn, 2004). Katz (1998) finds that, in New York City, funding tends to be channeled to iconic parks operated through park conservancies, while other parks in lower-income areas languish. Thus, even short-term or project-specific reliance on the private sector to provide parks and public spaces can reduce the perceived or real need for broader capital improvement projects (Németh, 2009). In other words, the provision of POPS might help justify the drawdown of citywide funding for these critical facilities and their ongoing maintenance.

Inclusion and democracy

Reliance on POPS can also have a negative impact on a broader conception of democracy and inclusivity because of a lack of accountability or transparency in making rules around access and permitted activities. As The New York City Department of City Planning et al. (2000) suggest, the fact that private interests control POPS introduces an "axiomatic tension" for developers grappling with both profit motives and imperatives of social inclusion (p. 55). Legal protections such as First Amendment rights under the "public forum doctrine" do not necessarily extend to POPS, threatening the protection of civil liberties and free speech in these spaces (Németh, 2009). Attempts to attract a more "appropriate" user group for a publicly accessible park or plaza is often dependent on excluding those deemed to be less desirable, such as loitering teenagers or skateboarders (Németh, 2006). Indeed, regulations for POPS are often intentionally and specifically designed to exclude homeless persons (Kohn, 2004; Mitchell, 2003; Németh & Schmidt, 2011).

So even when the rules and regulations in POPS might be similar to those in a publicly owned and managed space, private owners, HOAs, or other community organizations have the a priori ability to exclude certain types of activities and people from the space (Kohn, 2004; Németh, 2009). Because these rules and regulations are developed by private entities, their enforcement is often more variable than traditional, publicly owned space because private security guards "can operate outside the legal limits imposed on police" (Frieden & Sagalyn, 1989, p. 234). Rule-making also takes place behind closed doors, whereas regulations in public parks are traditionally established by municipal planning departments and are, at least theoretically, accountable to public oversight. Kristine Miller (2007) outlines several examples of how legal challenges to use regulations in POPS are very difficult in this context.

Although NU goals might suggest equal access to parks for everyone, establishing POPS on a relatively large scale raises inclusiveness concerns. Margaret Kohn (2004) reports examples of NU developments in which only local residents and guests are allowed to use privately owned parks and trails, further segregating populations and limiting recreation opportunities for ethnic and socioeconomic minorities in the United States.

Research questions

Several NU developments across the United States include POPS, but we know little about the processes that lead to their establishment. In addition, no investigation has specifically examined how POPS in NU communities might impact concerns about environmental privilege, equity, and inclusion. Do these concerns about POPS hold in NU contexts? And if we do see an increase in the

provision of POPS in NU developments, what can explain this trend? In this study, we address these two interrelated questions by focusing on NU communities located in the Denver metropolitan area. Although POPS are also sometimes constructed in other master planned developments, we focus on their placement in NU communities because of the movement's stated emphasis on inclusiveness; as such, we believe that NU communities should be held to a higher scrutiny than their non-NU counterparts (The Congress for the New Urbanism, 1999; Talen, 2002).

Methods

We used a qualitative-dominant mixed methods design (Leech & Onwuegbuzie, 2009) including a geospatial analysis of access to parks to study environmental privilege concerns. We also used qualitative methods to address issues of equity and inclusion, such as interviews with planners and reviews of plans, policies, and advertisements. We focus our empirical work on NU communities developed in the Denver metropolitan area over the last 20 years.

Site selection

The larger Denver metropolitan area is located in the Colorado Front Range, a linear urban region situated at the eastern foothills of the Rocky Mountain range. In our study, the larger Denver area includes the Denver–Aurora–Lakewood and Boulder metropolitan statistical areas, which are both part of Colorado's largest regional council, the Denver Regional Council of Governments (DRCOG). Metro Denver offers a compelling case study for an investigation of POPS in NU communities because the region is experiencing population and construction booms, because NU is a widely used model in infill and greenfield developments, and because of documented green space inequities (Rigolon & Flohr, 2014; Talen, 2010; U.S. Census Bureau, 2015).

The Denver region includes the largest share of Colorado's population growth, with the Denver–Aurora–Lakewood metro area experiencing a 10% population increase between 2010 and 2015 (U.S. Census Bureau, 2015). In addition, Colorado was among the states with the highest concentration of NU projects, including nationally known redevelopment projects such as the Stapleton Airport and Lowry Air Force Base in Denver (Mapes & Wolch, 2011; Talen, 2010). Although developments like Stapleton have received many accolades, they have also been criticized for housing affordability issues linked to plan implementation pitfalls (Duffy, Binder, & Skrentny, 2010). A small but growing literature has documented environmental justice issues in access to green spaces in Denver: Residents of low-income neighborhoods in the city have poorer access to parks and live in areas with less tree canopy than those in wealthier communities (Mennis, 2006; Rigolon & Flohr, 2014).

To sample NU developments in the Denver–Aurora–Lakewood and Boulder metropolitan statistical areas, we reviewed lists of projects updated by groups linked to the Congress for the New Urbanism (e.g., Better Cities and Towns, n.d.; The Congress for the New Urbanism Colorado, n.d.; The Town Paper, n.d.). We used this approach because there is no official database of NU developments, because the Congress of New Urbanism does not provide a certification for developments following NU standards (Talen, 2010). We identified 16 NU projects located in the Denver region and then excluded two developments in the early stages of construction and for which no demographic data are yet available. This resulted in 14 NU communities that were built in the last 20 years in metro Denver (see Table 1). Among these 14 projects, 12 included POPS, which amount to 19.1% of the entire park acreage in these communities (see Table 2). NU communities have much higher percentages of POPS compared to the cities where they are located, which highlights the growing role of POPS in these developments (see Table 2).

This study focuses on the 12 NU communities that include POPS, thus excluding Riverfront Park and Curtis Park in Denver (see Table 2). The 12 sampled developments are quite diverse in terms of population size, acreage, population density, and land use patterns (see Table 1). For example, populations range between Stapleton's 16,000 and Steelyards' 250 residents (see Table 1). In terms of character,

Table 1. NU developments in the denver region: Population and acreage.

City/development	Population	Acreage	Population density (people per acre)	Development type
Denver	682,545	98,819.93	6.91	
Stapleton	16,307	1,791.94	9.10	Infill
Lowry	9,062	1,650.55	5.49	Infill
Highland Garden Village	511	30.48	16.77	Infill
Riverfront Park	1,972	39.33	50.13	Infill
Curtis Park Hope VI	308	9.39	32.8	Infill
Lakewood	149,643	28,173.56	5.31	
Belmar	2,366	126.95	18.64	Infill
Aurora	359,407	98,577.46	3.65	
Tollgate Crossing	2,640	467.7	5.64	Greenfield
Commerce City	53,696	22,583.88	2.38	
Belle Creek	1,517	173.38	8.75	Greenfield
Westminster	112,090	21,657.72	5.18	
Bradburn Village	1,627	125	13.02	Greenfield
Boulder	105,112	16,486.65	6.38	
Holiday	1,062	55.53	19.12	Greenfield
Iris Hollow	380	7.25	52.41	Infill
Steelyards	250	9.5	26.32	Infill
Longmont	90,237	18,393.72	4.91	
Prospect	581	82.1	7.08	Greenfield
Englewood	30,359	4,255.85	7.13	
CityCenter Englewood	665	54.8	12.13	Infill

Table 2. NU developments in the Denver region: Park acreage.

City/development	Total acres of parks	Acres of public parks (%)	Acres of private parks (%)
Denver	4,692.81	4,480.27 (95.5)	212.54 (4.5)
Stapleton	319.11	259.2 (81.2)	59.91 (18.8)
Lowry	289.5	266.06 (91.9)	17.96 (9.1)
Highland Garden Village	4.56	0 (0)	4.56 (100)
Riverfront Park	0.77	0.77 (100)	0 (0)
Curtis Park Hope VI	0	0	0
Lakewood	6,228.75	6,212.57 (99.7)	16.18 (0.3)
Belmar	7.03	0 (0)	7.03 (100)
Aurora	7,924.38	6,781.34 (85.6)	1143.04 (14.4)
Tollgate Crossing	102.38	71.17 (69.5)	31.21 (30.5)
Commerce City	2,012.23	1,894.3 (94.1)	117.93 (5.9)
Belle Creek	20.1	11 (54.7)	9.1 (45.3)
Westminster	6,162.38	5,814.37 (94.4)	348.01 (5.6)
Bradburn Village	12.58	8.7 (69.1)	3.88 (30.9)
Boulder	3,510.38	3,499.86 (99.998)	10.52 (0.002)
Holiday	6.5	1.81 (27.85)	4.69 (72.15)
Iris Hollow	0.4	0 (0)	0.4 (100)
Steelyards	0.53	0 (0)	0.53 (100)
Longmont	674.14	664.95 (99.87)	9.19 (0.13)
Prospect	6.82	0 (0)	6.82 (100)
Englewood	255.26	251.1 (99.85)	4.16 (0.15)
CityCenter Englewood	0.6	0 (0)	0.6 (100)

some neighborhoods or their parts have a distinctively urban feel with large mixed-use areas (e.g., Stapleton, Lowry, and Belmar), many have a small-town feel (e.g., Prospect, Bradburn Village, and Holiday), and one is very suburban with predominantly single-family homes (Tollgate Crossing). These NU communities provide an interesting cross section of developments in the Denver region.

Geospatial analysis

To understand the impact of POPS in NU communities on the concept of *environmental privilege*, we compared park provision and park dependency, expressed through income and race and ethnicity, between NU communities with POPS and other neighborhoods in their city. We collected geospatial data sets describing open space, parcels, and municipal boundaries from the DRCOG (2016) and demographic data at the census block and block group levels from the U.S. Census Bureau (2014). Our analysis focused on developed parks and open space—for example, including sport facilities, play areas, and trails—and excluded open spaces for special events (e.g., arenas or motocross tracks) or those that require an admission fee (e.g., golf courses). In addition, we overlaid aerial photos and parcels with ownership data to digitize POPS not listed in the DRCOG data set and use development plans to draw the boundaries of the sampled communities. We also collected data describing total population, median household income, and population by ethnicity from the U.S. Census Bureau (2014; American Community Survey, 5-year estimates).

To understand whether residents of NU developments are in a position of privilege, we compared the percentage of people within a quarter mile of a park in NU developments to the same percentage in their city as a whole (i.e., park proximity); we compared acres of accessible public and private parks per 1,000 residents in NU developments to median acres of parks per 1,000 people of block groups (i.e., park acreage); and we compared median household income and percentage of non-Hispanic Whites between NU developments and their city (i.e., demographics). To calculate park proximity and park acreage metrics, we used Talen's (2003) minimum distance and container methods, respectively. Park proximity expresses the degree to which residents of a neighborhood are in walking distance of a park (a quarter mile), and the park acreage metric depicts the quantity of accessible park surface per person (Rigolon, 2016). Given the small sample size, we did not perform any inferential statistical tests for these comparisons, relying instead on simple descriptive statistics.

In addition, to understand who can afford to live in the sampled NU communities and in their cities, we reviewed inclusionary housing policies and affordable housing initiatives in these municipalities and examined their application, if any, in the NU neighborhoods. Finally, we analyzed rental housing options in the NU developments.

Document analysis and interviews

To understand the mechanisms that led to establishing POPS and to uncover their impact on equity and inclusion, we relied on interviews with planners and on secondary data consisting of real estate advertisements, HOA websites, small area plans, park policies, academic articles, media accounts, and site visits. We interviewed 10 planners working for planning and parks and recreation departments of the cities in which the sampled NU communities are located (see Table 1). Questions focused on park and land use policies that played a role in establishing POPS; real estate mechanisms that contribute to POPS; the intersection between the NU design principles and POPS; and park regulations in POPS. To understand the perspectives of developers, realtors, and HOAs, we collected advertisements from developers' and realtors' websites, including brochures, web pages, and videos, and gathered webpages from HOA sources, including information on POPS regulation, funding, and community character. To search online documentation about the sampled projects, we used an expression consisting of "[development name]" in combination with one of the following: "[development location]," "New Urbanism," "planning," "development," "project," "home owner association," "metropolitan district," "real estate," or "parks." We also collected policies on parkland

dedication and cash-in-lieu-of fees, park development fees, and inclusionary zoning from the municipal codes of the sampled cities, as well as information on any existing affordable housing programs. Cash-in-lieu-of fees are amounts of money that developers can choose to pay as an alternative to dedicating parkland; park development fees are payments that cover the construction costs of new parks or improvements to existing green spaces. A list of these documents is provided in the online supplemental Appendix.

To analyze interview transcripts and narrative secondary data, we used a combination of constant comparison analysis (CCA) and keywords-in-context (Leech & Onwuegbuzie, 2007). CCA provided a general understanding of the real estate and park policy mechanisms that led to POPS, and keywords-in-context allowed us to analyze more in-depth the context in which some keywords, such as "park" and "community," are used. For the CCA process, we used a combination of codes from the literature—such as concepts related to parks, the neighborhood, and the environment—as well as codes that emerged from the data (Mapes & Wolch, 2011).

Findings

POPS and environmental privilege

POPS in the sampled NU communities raise environmental privilege concerns, particularly in some of the largest and most ethnically diverse cities of the Denver region. Residents in all NU developments have better access to parks in terms of proximity than those in the rest of the city (see Table 3). This is expected due to NU's focus on the provision of walkable pocket parks (Lund, 2003). The eight developments with a higher median household income than their city experience environmental privilege with regard to park proximity. In addition, 9 out of 12 (75%) of NU communities have more available park acreage per 1,000 people than the median value for their city's census block

Table 3. Demographic and access to parks variables for the sampled NU developments and cities.

City/development	Median household income ($)	Percentage of non-Hispanic Whites	Proximity: % of People within ¼ mile of a park	Acres of parks per 1,000 people (for cities, median value for census block groups)
Denver	51,800	52.90	76.57	0
Stapleton	124,247	71.07	100	19.56
Lowry	90,681	74.26	100	31.94
Highland Garden Village	42,302[a]	78.51[a]	100	8.92
Lakewood	56,134	70.20	82.88	2.57
Belmar	79,032	53.25	100	2.97
Aurora	52,275	47.30	83.49	4.26
Tollgate Crossing	109,522	81.15	100	38.78
Commerce City	64,672	45.80	85.29	0
Belle Creek	61,209[a]	59.51[a]	100	13.24
Westminster	66,300	68.10	96.56	15.89
Bradburn Village	103,900[a]	72.23[a]	100	7.73
Boulder	58,062	82.70	87.47	1.45
Holiday	66,696[a]	70.95[a]	100	6.12
Iris Hollow	25,625[a]	63.78[a]	100	1.05
Steelyards	65,139[a]	77.97[a]	100	2.12
Longmont	60,218	67.50	74.57	2.25
Prospect	119,926[a]	96.02[a]	100	11.73
Englewood	47,046	75	79.32	1.07
CityCenter Englewood	45,689[a]	62.88[a]	100	0.90

Note. [a]Data describing the census block group where developments are located.

groups. Among these nine NU developments, seven also have a higher median household income than their city, putting their residents in a position of privilege in terms of park acreage due to the presence of POPS. Among the NU developments that do not experience environmental privilege, two communities have lower income and lower park acreage than their cities (Iris Hollow and CityCenter Englewood). Although these communities contribute to park inequities in their municipalities, their POPS, albeit very small, serve lower-income communities.

The most egregious cases of environmental privilege occur in NU developments located in Denver, Aurora, and Longmont. For example, Denver's Stapleton and Lowry have a substantially higher median household income ($124,247 and $90,681) and percentage of non-Hispanic White people (71.07 and 74.26%) than the city ($51,800 and 52.90%), as well as a notably higher percentage of people within walking distance of a park (100 versus 76.57%) and also more park acreage per person than their city (see Table 3). In particular, Stapleton and Lowry have 19.56 and 31.94 acres of parks per 1,000 residents, whereas half of Denver's block groups do not include any park at all. Similar environmental privilege issues related to park acreage are evident for Aurora's Tollgate Crossing and Longmont's Prospect. Most of these developments include both publicly and privately owned parks; however, POPS often comprise a substantial percentage of the development's green space and contribute significantly to walking access to parks (see Tables 2 and 3). In fact, all residents of the sampled NU developments live within a quarter mile of a park, because these communities include several small POPS that contribute to a more diffused park service.

The provision of affordable housing options in the sampled NU communities sheds light on the socioeconomic groups they include, which can help us understand how POPS might contribute to environmental privilege. NU developments with POPS are more affluent than their cities when municipalities do not have effective affordable housing programs or inclusionary housing policies or when developments do not include a significant percentage of rental housing. In particular, the City of Boulder (2000) affordable housing initiatives led to substantial socioeconomic diversity in the city's three NU communities, with household incomes below or slightly above the city median value[1] (see Table 3). For example, 42% of Holiday's housing units are permanently affordable, including for-sale and rental units for households making 20 to 60% of the area median income (Boulder Housing Partners, n.d.). Conversely, Denver's inclusionary housing ordinance, which serves the middle class by requiring for-sale units affordable at 80% of area median income, failed to create socioeconomic diversity in Stapleton and Lowry, which have income levels largely above Denver's median (City and County of Denver, 2010). In addition, Aurora, Commerce City, Lakewood, Longmont, and Westminster do not currently have inclusionary housing programs or effective affordable housing requirements, which might help explain the high socioeconomic status of their NU communities (see the online supplemental Appendix). Finally, rental housing options also play a role in shaping neighborhoods demographics. The relatively low median household income in Highland Garden Village, Belle Creek, and CityCenter Englewood can be explained by their significant percentages of rental units in multifamily housing buildings (ranging from 40 to 100%), some of which are dedicated to low-income seniors (see the online supplemental Appendix). This analysis shows the importance of including housing policies and initiatives when studying how parks serve different socioeconomic groups.

POPS and equity

POPS established in NU communities bring mutual benefits to cities, developers, and residents of these neighborhoods. First, POPS allow cities to save money on park maintenance, because HOAs and other authorities take care of small parks, which are generally inefficient to manage and maintain for cities. In some cities, the reliance on POPS was fostered by a lack of park-friendly policies requiring public land for parks or park development fees, which often resulted in depleted park budgets. Second, parks help developers sell homes, because more green space increases the marketability of NU communities (Kohn, 2004). And third, residents can define the rules for using

POPS through their HOAs, which allows them to tacitly exclude unwanted visitors from their parks. These policy and real estate mechanisms not only lead to some of the highlighted environmental privileges but raise equity concerns related to public funding and issues of democracy and inclusiveness. With some public agencies struggling to provide public services like parks, private developers establish POPS that only benefit the consumers who can afford a home in a few master planned communities.

POPS advantages for cities include reduced operation and maintenance burdens, particularly for small parks, and the chance of obtaining cash-in-lieu-of fees while still having POPS in new NU developments. Public parkland dedication requirements and park development fees create favorable conditions to establish POPS, even though such park policies vary greatly among the sampled cities. Cities with significant greenfield land generally require public parkland dedication for new subdivisions (e.g., Aurora and Westminster), often based on a formula that factors in the estimated future population (e.g., 12 park acres per 1,000 projected residents in Westminster). On the other hand, cities without much available greenfield land, where developments most often occur in infill sites, do not require dedicated parkland (e.g., Denver and Boulder). POPS that are voluntarily established by developers are particularly advantageous for cities without public parkland requirements.

Cities without park-friendly policies, especially Denver, tend to have limited park budgets, because developers of infill projects do not have to contribute to public parkland dedication or park development fees. Interviews with local planners highlight that park maintenance is a large part of park budgets due to Colorado's dry climate. In addition, pocket parks raise maintenance issues for park agencies, as explained by a Denver planner:

> Small parks are inefficient to maintain. If the city is offered small parks [from developers], like one-acre parks, they often will not take them. The city will generally take parks if they are large enough, something around five acres. Maintaining small parks is expensive and inefficient because maintenance crews would have to drive to several places, while working in only a few large parks would optimize their time.

Clearly, parks and recreation departments can be reluctant to acquire new public parks—especially if small—because of budgetary concerns and maintenance inefficiencies. Rather, park agencies prefer to leave small parks in new developments under the property and management of HOAs (e.g., Stapleton and Lowry) or metropolitan districts (e.g., Bradburn Village and Belle Creek). Metropolitan districts are quasimunicipal agencies established to operate public services, including parks, that municipalities or counties would not be able to run otherwise (State of Colorado, 2013). These districts are generally funded through property taxes, bonds, and service charges and are administered by a board of directors made up of people owning property within the district (State of Colorado, 2013). Similar to HOAs, metropolitan districts collect money from homeowners to improve park provision within master planned communities beyond what cities could accomplish. This shows that POPS property status varies across different levels of privateness, from completely private ownership by HOAs to semiprivate ownership by metropolitan districts.

POPS can even be directly mandated by local park and subdivision policies. The municipal ordinances and design guidelines of some cities in the Denver region require private parks and recreation centers for new developments (e.g., Commerce City and Westminster), similar to policies established in Las Vegas (McKenzie, 2005). For example, Commerce City mandates that 3% of the usable land area (i.e., residential areas excluding streets) is dedicated as POPS (City of Commerce City, 2009). These policies specify that POPS need to be owned and maintained by HOAs or metro districts and that private parks and recreational facilities are intended primarily for the enjoyment of neighborhood residents. These requirements show that some cities explicitly delegate park provision to developers and HOAs.

Although policy requirements matter for parkland dedication and park budgets, most development processes for the NU communities we studied involved negotiations between cities and developers. Flexible park policies in most of the sampled cities allowed developers to pay a cash-in-lieu-of fee (calculated based on the land's market value) instead of dedicating land for public

parks (see the online supplemental Appendix). When developers establish POPS, waiving the park-land dedication requirement for cash is advantageous for cities: They obtain funds they can spend in nearby parks and the residents of the new developments still enjoy good park access through POPS, as in Belmar, Prospect, and Bradburn Village. The cash-in-lieu-of fee option was more popular in projects for which municipalities and developers aimed to achieve higher residential densities than the city average (e.g., Belmar and Prospect).

As a result, some NU developments do not include any public parks at all; in such communities, POPS represent the only accessible green spaces (e.g., Highland Garden Village, Belmar, Steelyards, CityCenter Englewood, and Prospect). Longmont's Prospect is the only project without public parks to have a higher park acreage per 1,000 resident than the median value in its city. This shows that HOA-owned and -managed POPS in affluent master planned communities can provide more acres of parks per person than traditional municipal park systems. If this privately run system were replicated in more neighborhoods, it might contribute to further disincentivizing cities to provide critical public services.

In addition, parks, including POPS, help developers sell homes. Interviews with local planners and our analysis of advertisements showed that parks are used as a significant marketing strategy for NU communities. In particular, developers are often willing to create POPS because they can provide a level of service that cities could not otherwise attain. As a Denver park planner suggests: "[Stapleton's HOA] maintains parks at a standard that is above what we can do. That's a strategy they use to draw people to the neighborhood. Having a good park system helps sell houses. Most developers will tell you that."

Developers in Colorado and elsewhere have been leveraging the marketing power of parks for a long time. As another park planner describes, "If you look at historical subdivisions of Denver, their plat map generally shows a mythical park. Developers put parks in the plat maps to attract potential buyers." Although not all of these "mythical parks" were actually built, early examples of parks used to market developments date back to the 1870s in Denver (Leonard & Noel, 1990).

These trends continue today. Parks were the only neighborhood attribute mentioned in the advertisements of all sampled projects, which highlights the major role of green space in branding these NU developments. Not surprisingly, the projects with more parks, with large parks, and with a significant number of POPS strongly capitalized on parks in their advertisements, with Denver's Stapleton and Lowry dedicating brochures and webpages to them. Parks are key to neighborhood identity, as expressed in Stapleton's brochure: "In so many ways, parks are what make Stapleton … Stapleton" (Forest City, 2016, p. 2).

The park attributes that were highlighted most often include proximity to parks (11 developments), parks as gathering spaces (7), the quantity of parks (5), and parks as places for outdoor recreation (5). Availability of nearby parks was mentioned most often, with expressions such as "nearby," "just around the corner," "extension of your yard," and "just footsteps away from your home." Regarding park acreage, developments with large parks like Stapleton and Lowry highlighted the size of their park system, whereas others like Belle Creek, Bradburn Village, and Highland Garden Village emphasized the quantity and the diversity of parks in the neighborhood, underscoring their "dizzying array" of open space environments. To market parks as social magnets, advertisements often described POPS as the neighborhood "living room," as "shared green spaces" that partially replace private yards, and as places for community events (e.g., Bradburn Village, Holiday, and Stapleton). Developers also marketed parks for their capacity to support outdoor recreation and active lifestyles, emphasizing connections to the "great outdoors" for developments that have open space and trails within or adjacent to them (e.g., Bradburn Village, Lowry, and Stapleton), likely in attempts to appeal to the many outdoor recreation enthusiasts living in Colorado. Phrases such as "explore," "outdoors," "work out," and "fresh air" were repeatedly used in relation to parks.

Development websites and brochures rarely mentioned private park ownership and management, although some references to POPS were found in HOA and metro district websites (e.g., Holiday, Lowry, Stapleton, and Tollgate Crossing—see the online supplemental Appendix). Conversely, preferential or exclusive access to recreation centers and pools was highlighted

more openly in advertisements (e.g., Belle Creek, Bradburn Village, Stapleton, and Tollgate Crossing). Finally, other amenities that were featured in the advertisements included mixed use and walkability (11 projects), multiple housing options (10), a sense of community (8), and environmental sustainability (6).

POPS and inclusion

POPS bring multiple benefits to the residents of NU communities, including the opportunity to define park regulations that can exclude unwanted outsiders, the possibility to enjoy well-maintained parks, the enhancement of property values (for homeowners), and the possibility for HOAs to easily host community events in parks. POPS regulations, in particular, raise significant concerns related to inclusion and democracy. In most developments we analyzed, POPS are primarily or exclusively for the use of the local residents, and advertisements often portray private pocket parks as semiprivate extensions of front yards. With rising concerns about homeless people occupying parks in some of the studied cities, HOAs and metro districts "want their parks to be for the residents and not for unwanted uses or visitors," a sentiment expressed by a Denver planner. Because the board of directors of HOA and metro districts are only composed of people owning properties in these neighborhoods, homeowners have the opportunity to design park rules to keep "undesirable" people from using their POPS.

Regulations in some developments explicitly exclude nonresidents, with the exception of guests, from private parks and recreation centers. For example, Lowry's "parks are … open to private use by Lowry residents and their guests" (Lowry Community Master Association, n.d.), and private gyms and pools are exclusively or preferentially available for residents of Bradburn Village, Tollgate Crossing, Belle Creek, and Stapleton (see the online supplemental Appendix for other regulations). Other developments (e.g., Stapleton and Belmar) have POPS rules that prohibit behaviors that might be associated with homeless people and with teenagers. For example, Stapleton's Master Community Association (n.d.) prohibits "leaving personal property in park overnight," "camping overnight" (without a permit), and "skateboarding or inline skating." In addition, some of the sampled developments tend to be self-sufficient entities that are physically separated from the surrounding neighborhoods by large arterial streets, thus creating additional barriers to park use for nonresidents, as in the case of Stapleton (Duffy et al., 2010).

The exclusivity of POPS is particularly problematic because our analysis shows that they can provide above-average park service in terms of proximity, design, and maintenance. In addition, because quality parks enhance property values, the HOA fees or metro districts mill levy that homeowners pay for POPS are worthwhile investments (Crompton, 2004). Another advantage for residents is the opportunity to attend formal and informal events in POPS. Interviews with local planners revealed that HOAs can use POPS for community events without the need to apply for permits from public agencies. For example, food and alcohol sales do not have to navigate the complex permitting systems that would be necessary in public parks, because such events are held on private land.

Discussion

This study highlights that POPS in NU communities raise concerns related to environmental privilege, equity, and inclusion. POPS in these communities contribute to creating two distinct recreation systems: private parks and recreation centers for those who can afford them and public parks for those who cannot, thus further contributing to the segregation of recreation and leisure activities. These inequities in funding and service provision reflect other public–private disparities observed for K-12 schools along socioeconomic and racial and ethnic lines (Braun, Jenkins, & Grigg, 2006).

Our analysis shows that these concerns might stem from the mutual benefits that POPS bring to cities, developers, and residents of NU communities. Regarding environmental privilege, we find that POPS in NU developments often contribute to better levels of park service in terms of park proximity and acreage for their more affluent non-Hispanic White residents. We note that cities without parkland dedication policies and with ineffective housing affordability initiatives might be more likely to have environmental privilege issues related to POPS in NU communities; thus, analyzing park and housing policies provides a clearer picture of where and why environmental privilege might occur.

Regarding public funding and equity, we argue that cities might support privatized models of park provision because they take pressure off public coffers. Given the mutual advantages for developers, cities, and residents, it is likely that POPS will continue to be established in upscale master planned communities. Our study confirms that municipalities might be willing to overlook park equity goals to cope with reduced public budgets for recreation (Joassart-Marcelli et al., 2011). With the current construction boom in the Denver region, POPS can contribute to reshaping the landscape of the provision of park and recreation services.

In terms of inclusion, we show that POPS in NU communities—like other POPS—maintain exclusivity by prohibiting behaviors normally associated with teenagers and people experiencing homelessness and by limiting public access to recreational facilities such as pools and gyms. As in other NU communities, POPS in the sampled developments were advertised as privatized commodities for a non-Hispanic White middle-class public, who can tailor recreation opportunities to their needs by writing POPS regulations (Till, 2001). Our study also uncovers the important role of private park agencies like Stapleton's Master Community Association and metropolitan districts, which confirms previous findings on other NU communities such as Harmony in Florida (Mapes & Wolch, 2011).

Our findings also suggest several recommendations for equity-oriented planning practice. Addressing environmental privilege issues linked to POPS would require expanding requirements for public parkland dedication and park fees or extending the benefits of POPS to underserved populations.

First, the negative impact of POPS on environmental privilege could be mitigated or eliminated by providing good park provision in low-income communities of color. This would require innovative funding strategies to acquire substantial amounts of land in poor inner-city neighborhoods. With stagnant public budgets for parks, several U.S. cities have implemented the aforementioned parkland dedication or cash-in-lieu-of fees policies (Harnik & Martin, 2015; Joassart-Marcelli et al., 2011). Planners we interviewed reported that parkland dedication policies have been the most effective way for cities in Colorado to establish new publicly accessible parks; however, public agencies have not always been successful at creating parks through these policies (Harnik & Yaffe, 2005). And though parks created through land dedication mostly benefit the residents of new communities—which tend to be developed in wealthy or gentrifying areas—cash-in-lieu-of and park development fees could be used address citywide park inequities. In many cities, however, these funds need to be spent in close proximity (0.5 to 2 miles) to the developments from which they were collected, which limits the possibility to address park disparities (Crompton, 2010; Harnik & Yaffe, 2005). It is therefore important that cities enlarge the geographic range where these fees can be spent. For example, a recent advocacy effort in Los Angeles led to expanding the service radii where cash-in-lieu-of fees for parks can be used (City of Los Angeles, 2016; Spivack, Yañez, & Bodke, 2014).

Second, POPS would not raise environmental privilege concerns if they were accessible to underserved communities. Effective inclusionary housing policies and affordable housing initiatives would help bring socioeconomic and ethnic diversity to park-rich NU communities. With the exception of Boulder, however, affordable housing requirements in the sampled cities were either inadequate or lacking entirely. When public subsidy is not available, Talen (2010) suggests that incentivizing density and small units can improve housing affordability in NU developments. An alternative to increasing diversity in park-rich master planned neighborhoods is making POPS more

accessible from surrounding neighborhoods, thus increasing their real and perceived inclusiveness. To achieve this goal, municipal codes and design guidelines could require POPS to be located near the perimeters of new developments, which could be perceived as welcoming public spaces rather than semiprivate extensions of front yards. In addition, cities could incentivize developers to design POPS with features that boost their publicness, such as clear entrance points from public sidewalks and multiple seating options and microclimates (Németh & Schmidt, 2007). Finally, POPS could be made more accessible to residents of nearby neighborhoods by defining complete street policies that require effective pedestrian connections between new developments and adjacent areas. Many of these proposed strategies could raise conflicts between equity advocates and developers and likely require substantial grassroots efforts.

Limitations and future research

The small sample size of the selected NU developments limits the generalizability of this study's findings on environmental privilege. Future investigations on POPS could focus on a larger sample of NU developments in growing regions of the United States and could uncover a more complete picture of the impact of private parks and recreation facilities. Nonetheless, we believe that a small sample size was appropriate to conduct an in-depth investigation into the policies and real estate strategies that make POPS advantageous for cities, developers, and residents of NU communities. Future studies could also more comprehensively assess whether POPS contribute to lower public funding for parks by analyzing the long-term impacts of POPS in a larger sample. Moreover, observational studies comparing park use in POPS and public parks could provide a deeper understanding of how POPS affect inclusion of more disadvantaged residents and nonresidents living nearby. Future investigations could also compare how the three concerns related to POPS might differ between NU communities and other master planned developments.

Conclusions

This study aimed to uncover whether and how POPS in NU communities raise concerns related to environmental privilege, equity, and inclusion. Based on a geospatial analysis, expert interviews, and document analysis, we find that these three concerns are well founded and that NU residents, cities, and developers strongly support POPS. Specifically, we find that residents of most of the affluent NU communities in the Denver region experience environmental privilege, because they have more parks in walking distance as well as more acres of parks per resident than their surrounding cities. We also show that POPS are beneficial for cities, which can save money because open space is maintained by HOAs or metropolitan districts. This model raises equity concerns because it might validate budget cuts in recreation and other public services, thus indirectly contributing to their widespread privatization. Interviews with planners reveal that residents of NU communities might favor POPS because they can define park rules to exclude unwanted users. Given these findings, we believe that POPS will continue to be a strong presence in NU communities.

Note

1. Boulder's median household income is reduced by the large student body attending the University of Colorado Boulder, which comprises approximately 22% of the city's population (Boulder Economic Council, 2011).

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