LAWN MANAGEMENT FROM THE MESOSCALE:

HOW COMMUNITIES SHAPE RESIDENTIAL LAWN CARE IN BALTIMORE CITY

by

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LAWN MANAGEMENT FROM THE MESOSCALE:

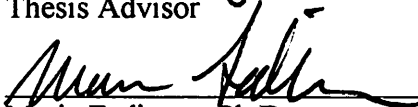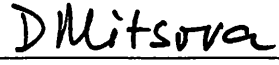HOW COMMUNITIES SHAPE RESIDENTIAL LAWN CARE IN BALTIMORE CITY
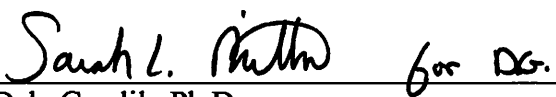
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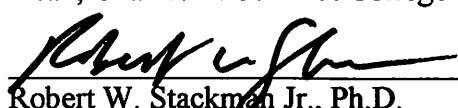
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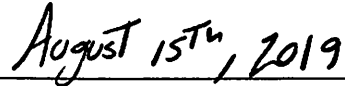
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ABSTRACT

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Traditional lawn care for suburban American households merits examination from both ecological and social perspectives. Such practices have potentially detrimental consequences on human and natural systems that will continue to grow with urbanization. Consequently, further characterization of the complex, multiscale processes in which lawn management decisions are rooted could enhance methods for encouraging the adoption of alternatives to industrialized lawn care. This study conceptualizes mesoscale, or neighborhood-level, influences on watering, fertilizing, and mowing practices in Baltimore city, through a modified grounded theory analysis of key informant interviews in Mount Washington, Westfield, and Park Circle. This study finds that mesoscale processes play a significant role in the residential lawn care of these neighborhoods. The applicable processes vary by the community's social cohesion and tenets. As socioeconomic status and social cohesion increases within the study area, the influence of

informal authority in residential lawn care increases. Results demonstrate potential policy

implications.

DEDICATION

To Joni, thank you for sharing your love of plants with me.

LAWN MANAGEMENT FROM THE MESOSCALE:

HOW COMMUNITIES SHAPE RESIDENTIAL LAWN CARE IN BALTIMORE CITY

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1. PROBLEM STATEMENT

Residential maintenance of the ideal "American Lawn" raises concern among stakeholders regarding potentially detrimental human health and ecological consequences, such as exposure to toxic chemicals, eutrophication, and greenhouse gas emissions (Robbins, 2007). These industrialized lawns require intensive resource inputs, including fertilizer, pesticide, and water, and can contribute to nonpoint source water pollution (Robbins, Polderman, and Birkenholtz, 2001). As the expansion of urban areas continues, the already approximately 10 to 16 million hectares of lawn across the continental U.S. increases steadily (Milesi et al., 2005). Researching the social dynamics responsible for lawn management decisions aids necessary understanding for the mitigation of lawn care's potentially growing biophysical repercussions.

Traditionally, social science theories regarding residential land management have focused on single-scale processes (Roy Chowdhury et al., 2011; Cook, Hall, and Larson, 2012). However, lawn care decision-making is rooted in dynamic, multiscalar socioeconomic and political processes, occurring both individually, within households, and broadly, across neighborhoods, cities, and states (Roy Chowdhury et al., 2011; Polsky et al., 2014; Harris et al., 2012; Harris et al., 2013). Therefore, it is important to engage beyond household, microscale study and incorporate the mesoscale influences of human behaviors.

The concept "ecology of prestige" describes how a household's land management

decisions may be influenced by its desire to uphold the prestige of its neighborhood and outwardly express membership in a given lifestyle group (Grove et al., 2014). This concept draws on studies of collective efficacy, whereby socially cohesive neighborhoods, those exhibiting mutual trust and solidarity among neighbors, have the greatest potential to realize informal social control (Sampson et al., 1997). For example, homeowners association (HOA) households within the Gwynn Falls watershed of Baltimore exhibited a positive relationship between social cohesion and fertilizer application rates (Fraser et al., 2013). Yet, such linkages to social cohesion have only been superficially examined. Further characterization of the relationship between social cohesion and lawn management from a multiscale perspective is necessary to shape residential policy interventions that mitigate ecological impacts from widespread industrial lawn care.

2. PURPOSE STATEMENT

As part of the National Science Foundation's Long Term Ecological Research Program, this study examines the factors that influence lawn management behaviors at the neighborhood-level (mesoscale) in metropolitan Baltimore, with the underlying goal of contributing to the understanding of how nitrogen varies in residential landscapes. More specifically, I will investigate if there is a relationship between level of social cohesion and lawn management behaviors, at the mesoscale, which presents a key entry point for potential improvements in policy.

3. THEORY

3.1 Environmental considerations for lawns

As of 2005, residential, commercial, and institutional turf grass lawns accounted for 1.9% of total continental area in the United States, making turf grasses the largest irrigated crop in the U.S. (Milesi et al., 2005). Varieties of successful turf grasses include Kentucky Blue, Buffalograss, and Bermuda (Robbins, 2007; Jenkins, 1994). The biological properties of turf grasses make them a popular choice for application in lawns. Since turf grasses evolved under grazing conditions to grow from the base, shoot from the side, and maintain extensive root systems, they benefit from frequent cutting. At the very least, lawn trimming is required for turfgrass survival. Although, like any plant, the natural growth of turf grasses varies throughout the year and is dependent on seasonal conditions. Those who desire year-round, green lawns must meet continuous and changing demands that require ongoing labor and inputs (Robbins, 2007).

The iconic image of modern American lawns originated with F. Lamson-Schribner's definition in 1897: "Front lawns should have a smooth surface, be of a uniform color and texture, and have no weeds." (Jenkins, 1994, p. 99). Before World War II, this meant that homeowners used commercial drugs and chemicals as weed killers. After World War II, the tools to achieve the perfect lawn were refined with advances in pesticides, herbicides, fertilizers, and lawn care equipment. Manufacturers began to sell

herbicides and pesticides designed specifically for lawn care in the 1960's (Jenkins,

1994). According to Jenkins (1994), "Despite occasional warnings, Americans, believing

that if a product could be sold, it must be safe, embraced the new chemical products for

the home and yard." (p. 146). These chemicals included arsenic, chlordane, and DDT.

Rachel Carson's *Silent Spring* brought the deleterious effects of DDT to light, spurring

the modern environmental movement. While DDT was eventually banned, it was

replaced by other chemical substitutes and the number of chemical pesticides, herbicides,

and fertilizers continued to grow (Jenkins, 1994). In 1999, 49.2 million American

households purchased lawn and garden fertilizers and 37.4 million American households

purchased insect controls and chemicals, contributing to the $8.9 billion spent on lawn

care inputs and equipment (Robbins and Sharp, 2003).

Both fertilizers and pesticides are significant contributors to nonpoint source

water quality problems. Fertilizers can detrimentally affect the biological oxygen demand

in streams, which impacts the health of fish and macroinvertebrates. Pesticides that are

only mildly toxic to humans, such as diazinon, demonstrate greater toxicity for aquatic

life (Robbins et al., 2001). However, there are still many unknowns concerning the

application of lawn chemicals and human health. These include synergisms that arise

from combining chemicals, specific impacts throughout the human population, and

effects of long-term exposure (Robbins, 2007). On a broad ecological scale, use of these

chemicals to remove target and non-target insect and plant species from the environment

may increase adverse ecological effects, such as vulnerability to infestation and invasion

(Robbins, 2007).

Fertilizer, in particular, aids plant growth through supply of nitrogen, potassium, and phosphorus. While these nutrients are usually not deficient in unsubsidized lawns, homeowners are encouraged to apply fertilizer to maintain a consistent, emerald-colored lawn (Robbins, 2007; Jenkins, 1994). High-intensity fertilizer application can lead to overfertilization, which negatively impacts lawn health and may result in harmful runoff into nearby waterways. Leaching of nutrients into groundwater can also occur, increasing the presence of toxic elements and raising the nitrate-nitrogen value above the legal drinking water standard in underground water supplies (Robbins, 2007). A study in Baltimore County, MD found that nitrogen from fertilizer accounts for a large component of nitrogen input to the local watershed, but inputs can vary both spatially and temporally (Law et al., 2004).

Unfertilized lawns and forests present an opportunity to serve as nitrogen sinks and can be a recharge area for water containing elevated levels of nitrate-nitrogen from other sources (Gold et al., 1990). Recent comparison of urban grasslands, turfgrass ecosystems maintained by humans for recreation, to urban forests found that differences in nitrate leaching were not as large or consistent as expected (Groffman et al., 2009). Nitrogen retention is likely driven by active carbon cycling, with urban grasslands maintaining an extended growing season for young, actively growing vegetation. This also indicates the potential for nitrogen retention in lawns but requires further research into the factors controlling nitrogen retention, such as site conditions, lawn age, and clipping management (Groffman et al., 2009).

Moreover, lawn management plays an important role in the diversity of plant communities (Wheeler et al., 2017). While management behaviors may vary within and

between urban areas (Polsky et al., 2014), the resulting landscapes are ecologically homogenous (Groffman et al., 2014). In a comparison of lawn plant species composition across seven metropolitan cities, it was found that the lawns from each city were more similar to each other than to naturally-vegetated areas in the respective city (Wheeler et al., 2017). Lawn species richness and diversity decreased with fertilizer application and increasing household income, and increased with precipitation. This indicates a preference for uniform lawns that may be realized with higher household income (Wheeler et al., 2017). Given the homogenization in plant species, these communities have limited potential to support the diverse ecosystems that are necessary for place-specific conservation efforts.

Alternatives to industrialized lawn care may focus on increasing biodiversity, reducing standing water, conserving water inputs, and/or reducing chemical applications. Such practices include cultivation of native species, installation of rain gardens, adoption of xeriscape designs, and use of Integrated Pest Management. There are also homeowners who do not prescribe to typical lawn practices, by allowing "weeds" such as clover to grow, mowing less often, or accepting brown grass during times of drought. The above methods yield benefits like growth of edible products and attraction of wildlife, while requiring low maintenance and minimal inputs (Robbins, 2007). In many cases, these alternatives still allow for a cultivated, intentional appearance of the lawn. A study in Seattle sought to quantify the benefits of transitioning from an industrialized lawn to a lawn produced with a backyard compost system, no pesticides, and drought-tolerant species. The results conservatively estimated an annual household savings of

approximately $75 in public health, ecological, water conservation, and hazardous waste management benefits (Morris and Bagby, 2008).

Although the benefits of these practices may seem enticing, lawn alternatives are not widely accepted. In fact, many municipalities have regulations regarding grass height and types of vegetation grown in yards. Homeowner associations and neighbors may confront residents whose landscapes do not fit within the ideals of the community, sometimes seeking legal intervention to force compliance or taking action themselves (Robbins, 2007). As Ignatieva and Hedblom (2018) said, "the lawn has been an unquestioned norm". The solution lies in "how to accelerate people's understanding of sustainable alternatives and acceptance of a new vegetation aesthetic in urban planning and design" (Ignatieva and Hedblom, 2018).

With over 50% of American households applying fertilizer, 75% using chemical pesticides and insecticides, and most yards demonstrating over-watering (Cook et al., 2012), it is necessary to examine the motivations behind lawn care choices. In other words, why do lawn consumers choose to engage in their lawn care practices? The answer to this question lies in the multiscalar socioeconomic and political factors involved in lawn care decision-making.

3.2 Socioeconomic and political considerations for lawns

3.2.1 Microscale perspectives

Individual, residential decisions, such as those related to home maintenance, are partially determined by basic economic principles (Robbins et al., 2001). One example of these principles is rational choice theory, which states that individuals are rational actors and will make decisions that maximize utility and minimize loss. Essentially, people will act in their own self-interests to produce the greatest levels of satisfaction (Investopedia, 2018). For "voluntary" societal activities, individuals employ a personal value system to achieve such optimization (Starr, 1969, p. 1233). When applying these concepts to lawns, this means that individuals will choose lawn care based on personal preference and perceived possible benefits to their households. Homeowners, as consumers of lawns, adhere to cost-benefit constraints such as "available capital, land value, institutions, input costs, availability of time and labor, education, and socio-cultural backgrounds" (Robbins et al., 2001, p. 373). Therefore, variance in level of chemical inputs to lawns partially reflects the constrained purchasing power of lower-income households and partially reflects the view of lawn care as an investment in property value (Robbins et al., 2001).

In practice, people do not always behave as rational actors. Research demonstrates that homeowners who employ resource-intensive lawn care practices tend to be more worried about chemical usage than those who do not employ such practices (Robbins, 2007). Furthermore, fertilizer and pesticide use is positively correlated with knowledge of the risks associated with their application (Robbins, 2007). This means that lawn care choices cannot be viewed as a direct result of rational, economic decision-making. To explain the normalization of industrialized chemical lawn care that has occured throughout the United States, broader forces must be taken into account (Robbins et al., 2001).

3.2.2 Macroscale interpretation

In contrast to individual choice, "involuntary" societal activities are those that individuals participate in based on imposition from the society in which one lives (Starr, 1969). Determination of these activities is typically associated with controlling groups such as governments but could also be associated with thought leaders and authoritative bodies. When examining social acceptability of these activities, historical trends may be a more significant indicator than existing trade-offs (Starr, 1969). As applied to lawn care, this means that the longstanding tradition of the American lawn could supersede individualized trade-offs related to human and ecological health. With this mindset, Robbins takes a macroscale approach to industrialized lawn care, aligning its perpetuation to societal responsibilities that arise from the political ecology of urban areas (Robbins et al., 2001).

Robbins contends that American lawn care has a normative aesthetic, influenced by "a complex combination of family economics, consumer culture, housing markets, and contemporary aesthetics" (Robbins et al., 2001). Widespread commercial marketing and community standards drive residents to continue industrialized lawn inputs of capital and labor, even when residents exhibit feelings of anxiety. This depicts Robbins' concept of "Lawn People", individuals who are fully aware of the associated ecological and health consequences of industrialized lawn care, yet partake in such practices due to cultural obligation (Robbins, 2007). In a sense, this means that to engage in these practices is an involuntary societal activity that people do not freely choose.

With the increasing export of American consumer aesthetics, the pervasiveness of the perfectly manicured, monocultural lawn, and the processes involved in creating it, is of global concern (Robbins et al., 2001). Robbins (2007) argues that a political understanding, one that accounts for the lawn's connection to community-oriented collective good, is necessary to combat the status of this culturally-ingrained symbol. However, lawn care choices cannot be explained from solely an individualistic perspective nor a national approach (Roy Chowdhury et al., 2011; Polsky et al., 2014). Robbins' view ignores drivers of behavior from the mesoscale point of view, in between the microscale and macroscale. If Robbins' "Turfgrass Subjects" (Robins, 2007, p. 16) evolve from community standards then the conditions under which community standards are created and may vary spatially should be explored. For this, it is necessary to examine the organization of neighborhoods through suburbanization.

3.2.3 Mesoscale explanations: Suburbanization

Lawns gained prominence through the generation of American suburbs. Beginning in the mid 1800's with the advent of the railroad, suburbia represented expansive freedom and mobility. The concept of sprawl appealed to families who wanted the best of both city and country life, associating suburbs with wholesome domesticity: healthy, clean, and large expanses (Teaford, 2008). Similarly, the monocultural, well-kept American lawn reflected notions of social responsibility. Advertising in the 1920's associated the perfect front lawn with being a good neighbor, citizen, and family man (Jenkins, 1994).

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While the suburbs appealed to upper middle class ideals of nature, home, family, and peace, their success can be attributed to the commercial interests that followed residents. Industrial giants and large-scale manufacturing encouraged an influx of capital and laborers to these new communities (Teaford, 2008). It became typical for immigrant workers of the same race or ethnicity to cluster. This phenomenon was observed by Park and Burgess, from The Chicago School, in 1925 and led them to create one of the first urban land use models, known as the concentric zones model (Vicino, 2008; Park, Burgess, and McKenzie, 1984). The model employs concentric circles that expand from a central business district to demonstrate how expansion and succession occurs, otherwise known as suburbanization. Park and Burgess correlate each zone with a change in social organization, sorting individuals by residence and occupation. They illustrate neighborhoods differentiated by segregation, stating that individuals with specialized traits attract others who are similar (Park et al., 1984). This model has demonstrated limited realistic applications, critiqued in part for its exclusion of non-spatial considerations, limited set of drivers, and narrowly defined concept of "city" (Grove et al., 2015). However, it addresses the underpinning of reference group behavior theory.

3.2.4 Mesoscale explanations: Reference groups

Hyman coined the term "reference groups" in 1942, defining them as the social groups that people relate themselves to and that embody values which people model their behavior on (Merton, 1968). Shibutani (1955) identifies reference groups as the internalization of culture, otherwise known as the perspectives that characterize societies.

These perspectives arise from the maintenance of social distance and are understood as the drivers of action, leading to the inference that those who belong to a similar culture engage in similar actions (Shibtuani, 1955). The spatial distribution of distinct reference groups reflects informal boundaries of effective communication channels, whereby each communication channel gives rise to a separate world (Shibtuani, 1955). Shibutani's classification of social worlds relates to economic, racial, and occupational categories, which corresponds with traits identified by Logan and Molotch (1987) that relate to power. Merton distinguished the role of membership and non-membership groups in the theory of reference group behavior, stating "men frequently orient themselves to groups *other than their own* in shaping their behavior and evaluations" (Merton, 1968, p. 288). The orientation of individuals to a group other than their own suggests a means of social mobility (Merton, 1968).

3.2.5 Mesoscale explanations: Social stratification and social cohesion

Reference groups can be viewed as the unit of organization for social stratification. Social stratification emerges as the result of relative power and income differences among neighborhoods (Troy et al., 2007; Logan and Molotch, 1987), or the reference groups that compose an area. The theory describes constraints on individuals' mobility due to disadvantages associated with the nature of their location (Logan and Molotch, 1987, p. 42). Municipal zoning ordinances were one factor that contributed to social stratification. Constitutionally upheld in 1926, zoning ordinances aided communities in defining land use and allocating resources. Differential investment in

amenities, such as public education, was influenced by the social class of the suburb. Individuals in upper social classes had greater resources to control investment in public amenities than those in lower social classes. This determined the social organization of communities and, in part, dictated future generations' social and physical mobility (Teaford, 2008).

After World War II, racial tensions furthered social stratification as suburbanization increased. The federal government specifically disadvantaged minorities in receiving housing aid through the redlining process, whereby mortgage lenders made less favorable loans or refused loans based on particular neighborhoods and their racial composition. This limited many affordable housing opportunities to white, middle-class Americans (Vicino, 2008). In the private markets, restrictive covenants defined legal requirements for potential home buyers and future occupants, which were related to racial and ethnic background and property uses. Levitt and Sons, one of the preeminent housing developers of the late 1940's and 1950's, restricted sales in their Long Island community to Caucasians only (Teaford, 2008; Vicino, 2008). Although such practices were outlawed with the end of segregation, their historical implementation defined patterns in the housing market that persist today. Specifically, some of the first-tier suburbs, those developed before and immediately following World War II, have experienced decline while others have blossomed into historic, highly desirable living areas (Teaford, 2008). This divergence in status is correlated with changes in population distribution and resource influx, which are both results and causes of social stratification.

Reference groups also play a role in social control. In neighborhoods, informal social control mechanisms can be employed by residents to achieve public order. The

success of these mechanisms is attributed to measures of collective efficacy, which combines neighbors' level of social cohesion and their willingness to intervene (Sampson et al., 1997). Socially cohesive neighborhoods are those that exhibit mutual trust and solidarity among neighbors. When applied to reducing neighborhood violence in Chicago, researchers found that social cohesion and informal social control were closely associated, that concentrated disadvantage was significantly negatively associated with collective efficacy, and that residential stability was significantly positively associated with collective efficacy (Sampson et al., 1997). Another notable example from Chicago is the sociological investigation of resident deaths from the 1995 severe heat wave. The high death toll from this disaster cannot be solely attributed to weather; it was partially the result of the city's urban politics and government response, with mortality patterns reflecting the inequalities of the city's built environment (Klinenberg, 1999). However, closer examination of neighboring low-income communities, North Lawndale and South Lawndale, showed a large discrepancy in the death rates. North Lawndale, a 96% black community, had a heat-related death rate of 40 per 100,000 (among the highest in the city) while South Lawndale, a 85% Latino community, had a heat-related death rate of 3 per 100,000 (among the lowest in the city). This stark contrast in mortality is attributed to differences in social morphology, with Latinos exhibiting close social ties that helped protect those put most at-risk by the heat wave (Klinenberg, 1999). Both studies illustrate that social stratification alone is not a satisfactory explanation for residential behaviors. This suggests that reference groups are not only important for explaining social stratification but also for determining social cohesion, which can better capture residents' motivations.

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3.2.6 Mesoscale explanations: Ecology of prestige and other recent literature

"Ecology of prestige" applies the concept of reference groups, as related to both social stratification and social cohesion, to lawn management. This phenomenon relates household patterns of expenditure on environmentally relevant goods and services to group identity (Zhou et al., 2009). Grove et al. (2006) state that this is due to a household's desire to uphold the prestige of its community and outwardly express membership in a given lifestyle group. Therefore, yard practices have social meaning (Grove et al., 2014). They are status symbols, not luxuries, and will vary between different lifestyle groups (Grove et al., 2006).

To date, there is limited data that verifies ecology of prestige, mostly relating to residential canopy cover in New York City (Grove et al., 2014). Fraser et al. (2013) also provide support for ecology of prestige. The study explored the differing influence of homeowners associations (HOA), neighborhood-based organizations with legal backing to enforce residential compliance with set standards, and neighborhood associations (NA), neighborhood-based organizations with no legal backing, on fertilization. They found that households in the Gwynn Falls watershed of Baltimore, MD fertilize at higher rates when they place a high importance on lawn care and live in more expensive homes. Fraser et al. also looked at the effects of social cohesion on fertilization, finding a significant positive relationship between level of social cohesion and fertilizer use when an HOA is present. Moreover, HOA-belonging households applied more fertilizer than those who were not part of an HOA but NA-belonging households did not apply more

fertilizer than those who were not part of an NA. The paper concludes that their findings related to high-value, HOA neighborhoods agree with an ecology of prestige (Fraser et al., 2013).

In this manner, most recent studies of lawn care related to the mesoscale have focused on how informal and formal mechanisms encourage or discourage certain residential lawn practices. Sisser et al. (2016) studied how formal ordinances and informal neighborhood norms influence grass height and lawn irrigation in the Minneapolis-St. Paul Metropolitan Area, finding inconsistent homeowner awareness of ordinances, lack of municipal-enforcement of ordinances, and mainly complaint-driven enforcement of ordinances. The authors determined that grass height and lawn irrigation policies may need to be reevaluated in response to changing homeowner values and resource availability, in addition to the need for further research of the identified trends in other communities (Sisser et al., 2016). Fraser, Bazuin, and Hornberger (2016) found that HOAs and informal comments between neighbors were also more likely to enforce lawn expectations than city government. In examining the role of HOAs with relation to household fertilization, this time in the Richland Creek watershed of Nashville, TN, they found 1) the decision to fertilize was positively predicted by importance placed on lawn care, home value, and presence of an HOA; 2) the decision of how much to fertilize was positively predicted by lawn importance, social cohesion, home value, and presence of an HOA, and negatively predicted by lawn area and perceptions of lawn enforcement; and 3) lawn importance was positively predicted by social cohesion and presence of an HOA (Fraser et al., 2016). After aggregating household-level data from the Nashville metropolitan area to the block-level, Carrico et al. (2018) determined that block-level

aesthetic importance of the lawn positively predicted fertilizer use, demonstrating the power of neighborhood ideals over household preferences. However, this finding was not linked with perceived neighborhood norms, meaning influence of neighbors on one another's lawn practices may be indirect. Choosing to fertilize could be a result of wanting to actively participate in the values of a community, i.e. having a well-manicured lawn (Carrico et al., 2018). Carrico et al. also issue a call to action for further research of landscape preferences and behaviors to enhance understanding in other locations.

3.3 Tying it all together

While urbanization may lead to the ecological homogenization of landscapes, lawn care practices exhibit heterogeneity due to their underlying social processes (Groffman et al., 2014; Harris et al., 2012; Polsky et al., 2014). Differences in lawn care management are further realized depending on the scale of analysis (Harris et al., 2012; Roy Chowdhury et al., 2011). Despite the importance of approaching lawn care from multiple scales, most of the literature on human drivers of residential landscape behavior (74% of 84 studies) has focused on the household (Cook et al., 2012). Oppositely, lawn consumers experience more than the feelings of anxiety and guilt interpreted by a macroscale approach (Harris et al., 2013). These include feelings of pride, satisfaction, and enjoyment. It is in these feelings that one can see the importance of social interactions in the yard and the yard's connection to community (Harris et al., 2013).

Understanding of the scale in between the household and the global political economy, i.e. the mesoscale, is crucial for motivating changes to widespread

industrialized lawn care approaches. Neighborhood norms are more influential for individual lawn preferences than broad cultural norms, which suggests greater success in approaching adoption of lawn alternatives from the neighborhood-scale (Nassauer, Wang, and Dayrell, 2009). Along these lines, neighbors talk to each other. Homeowners who were informed about lawn care practices in Minneapolis-St. Paul disseminated that information to their neighbors, discussing grass height, weeds, and fertilizer management (Martini, Nelson, and Dahmus, 2014). The likelihood for sharing such information increased with individuals who were more socially involved in their community, indicating a link between social cohesion and neighborhood-level influences on lawn care.

Within neighborhoods, there exists informal and formal institutions for governing residential behavior (Roy Chowdhury et al., 2011). While informal institutions, such as neighborhood associations and neighborhood norms, do not have legal enforceability, the threat of social exclusion may be just as powerful as formal institutions for influencing individual decisions (Cook et al., 2012). These institutions, in combination with reference groups, social stratification, and social cohesion, shape neighborhood social dynamics that, in turn, influence residential land management (Roy Chowdhury et al., 2011). Informal and formal institutions help explain why homeowners' preferred landscaping practices may differ from the actual landscaping practices homeowners institute (Cook et al., 2012; Harris et al., 2012).

The purpose of this study is to further investigate the factors that influence lawn management behaviors at the neighborhood-level (mesoscale) in metropolitan Baltimore, with a specific emphasis on determining if a relationship exists between level of social

cohesion and lawn management behaviors. An additional goal is to enhance the

characterization of ecology of prestige, given its relatively recent development, by

looking for its existence as a potential motivator of lawn care choices. As noted in the

above review of literature, this concept builds on both social stratification and social

cohesion through the approach of reference groups. Furthermore, dissecting the role

informal and formal sources of lawn authority play in neighborhoods could produce

greater understanding of channels for encouraging industrialized-lawn alternatives. With

these purposes in mind, I present my research questions in the following section.

4. RESEARCH QUESTIONS

1. How do mesoscale, e.g. neighborhood or city level, processes influence household lawn **watering, fertilizing, and mowing** preferences and practices?

    a) What role does **ecology of prestige** at the mesoscale level play in household lawn care choices?

        i) How can the relationship between **social stratification** and household lawn care choices be further characterized?

        ii) How can the relationship between **social cohesion** and household lawn care choices be further characterized?

    b) What role does **formal versus informal authority of mesoscale actors** play in household lawn care behaviors and neighborhood trends?

    c) How can mesoscale actors contribute to **adoption of alternatives** to resource-intensive lawn management regimes?

5. RESEARCH DESIGN & METHODS

5.1. Study area

5.1.1 Why Baltimore?

The selection of Baltimore for investigating residential landscapes has a two-fold explanation. Firstly, this work adds to the over two decades worth of social and ecological studies conducted in Baltimore through the Baltimore Ecosystem Study (BES) long term ecological research project (LTER) (Grove et al., 2015). BES is a National Science Foundation (NSF) funded research program that studies the ecological interactions occurring in an urban environment over time (Baltimore Ecosystem Study, 2018). Understanding these interactions is particularly important for preserving the quality of Baltimore's many watersheds, which drain into the Chesapeake Bay. Secondly, Baltimore presents a rich context for examining social processes. It is commonly referred to as a "city of neighborhoods". Historical patterns of racial and economic segregation have resulted in uneven development, which continues to affect the distribution of populations and resources in Baltimore today (Grove et al., 2017). Grove et al. (2017) posit that there is a need to better understand an ecology of segregation, or the results of a lack of choice for some in how and where to live.

My study is part of an NSF grant that addresses knowledge gaps in the coupled natural-human system of residential landscapes through the BES site. Specifically with the purpose of understanding nitrogen dynamics and exports from these landscapes, the project approaches lawn care from both biophysical and social science perspectives. Results from my study will contribute to the social science aspect, informing the larger, interdisciplinary understanding of this system.

5.1.2 Determining research scope

With the goal of further characterizing how an ecology of prestige presents itself, I looked to build off of Logan and Molotch's definition of social stratification and Robbins' predictors of lawn care importance. Specific Baltimore city neighborhoods were selected for study based on geographic analysis of Esri's 2017/2022 US Demographic Updates and 2017 Consumer Spending Data. Esri's 2017/2022 US Demographic Updates provided demographic forecasts as of July 1, 2017, partially based on the 2010 US Census, American Community Survey, Current Population Survey, Bureau of Economic Analysis' local personal income series, and Bureau of Labor Statistics' Consumer Price Index (Esri, 2017a). Esri's 2017 Consumer Spending Data combined the latest Consumer Expenditure Surveys, 2014−2015, from the Bureau of Labor Statistics (Esri, 2017c). Both datasets were the most recent made available to me.

The demographic data were used to understand differences in income, education, and racial composition across the city, which can be indicators of social stratification. In ArcMap, I identified areas of low and high socioeconomic status. Census-designated

block groups of low socioeconomic status were determined by overlaying maps of the lowest tercile of median household income (<$28,202), the highest tercile of percent with a high school degree or less (>38.9%), and the highest tercile of percent minority population (>97.48%), in Baltimore city (Figure 1). Oppositely, block groups of high socioeconomic status were determined by overlaying maps of the highest tercile of median household income (>$46,075), the highest tercile of percent with a graduate or professional degree (>8.89%), and the lowest tercile of percent minority population(<66.47%), in Baltimore city (Figure 1).
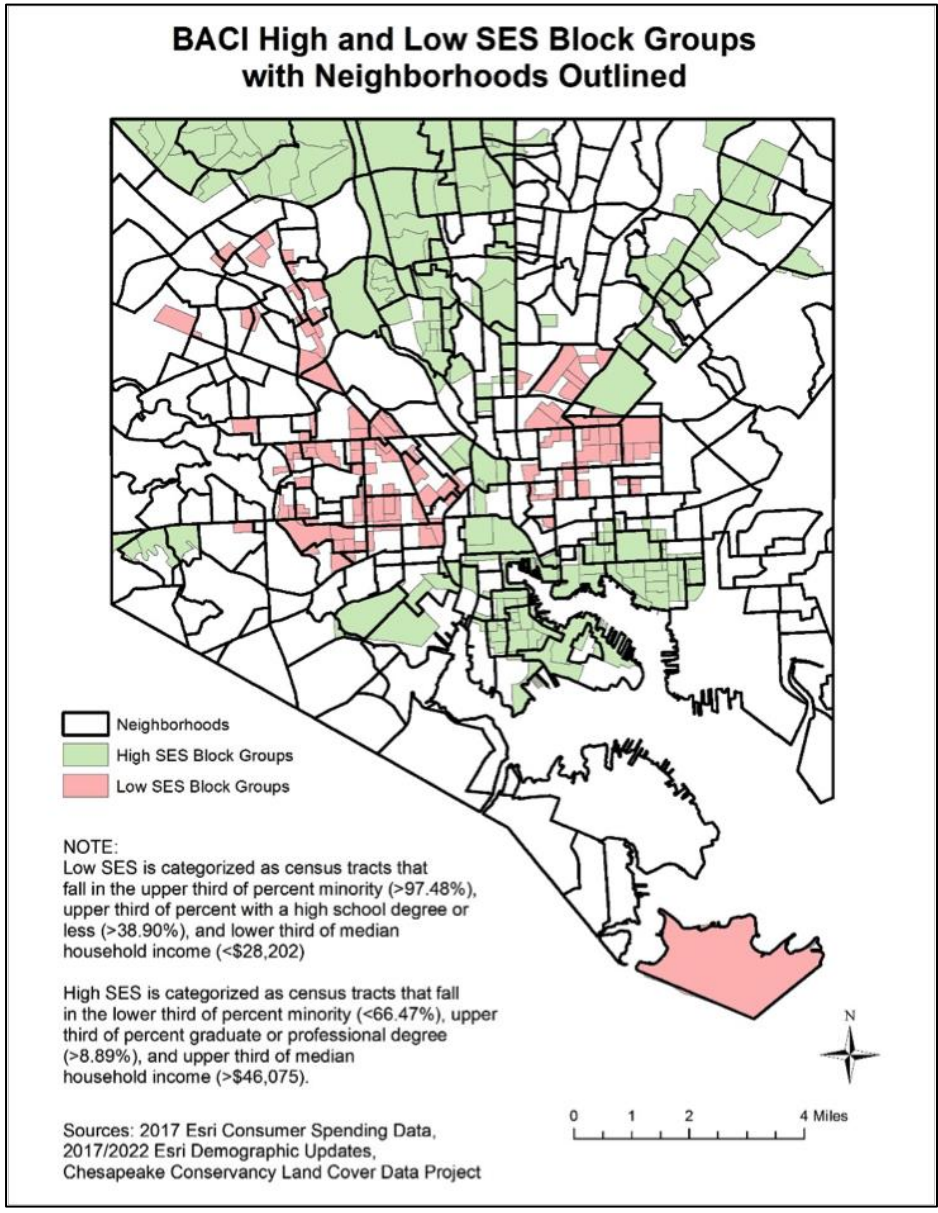
Figure 1: High and low socioeconomic status determination for Baltimore city block groups.

Consumer spending data were used to understand differences in lawn and garden expenditures, which could potentially predict lawn care importance in a household. I began this analysis by first creating a subset of Baltimore city's block groups that maintained over 5% grass cover, according to the Chesapeake Conservancy Land Cover Data Project. This was to avoid attributing low lawn and garden expenditures to neighborhoods where most homes cannot maintain lawns, such as the row homes around the Inner Harbor. With this subset, I aggregated average yearly expenditures for household lawn and garden services and supplies per block group. I then mapped this data in ArcMap, again using terciles to compartmentalize the data (Figure 2). My focus was on areas of low lawn and garden expenditures, a yearly average of less than $110.45 per household, and high lawn and garden expenditures, a yearly average of greater than $198.25 per household.

The next step was to overlay the maps of socioeconomic status and lawn and garden expenditures. This could produce four possible combinations in block group composition, i.e. high socioeconomic status/high lawn and garden expenditures (HH), low socioeconomic status/low lawn and garden expenditures (LL), high socioeconomic status/low lawn and garden expenditures, low socioeconomic status/high lawn and garden expenditures. Employing "Select By Attributes" in ArcMap, only two of the four possible combinations presented in the Baltimore city block group subset, HH and LL (Table 1).
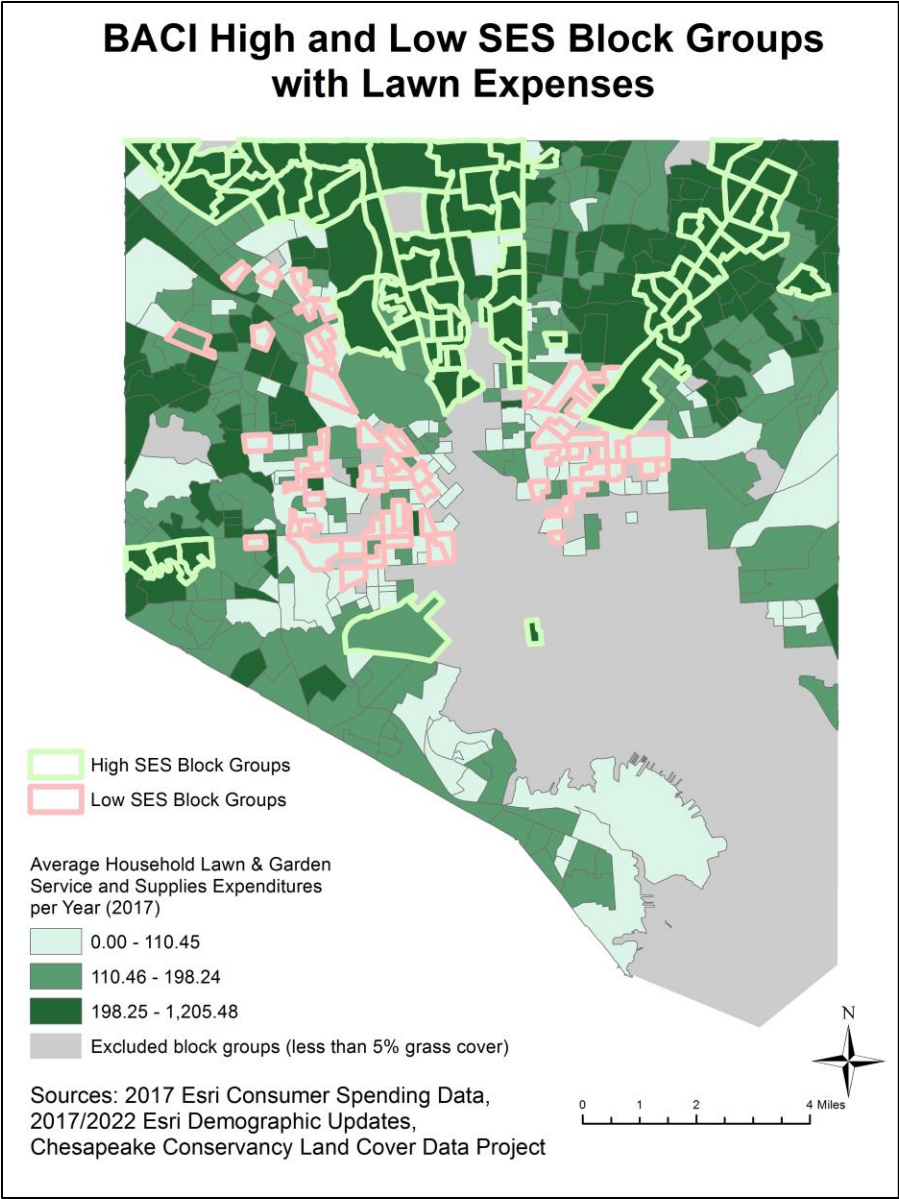
Figure 2: Household lawn and garden expenditures with high and low socioeconomic status for Baltimore city block groups with greater than 5% grass cover.

Table 1: Block group composition combinations present in study area; n = number of block groups.

	Low Socioeconomic Status	*High Socioeconomic Status*
Low Lawn Expenditures	L (SES), L (EXP) (n = 63)	H (SES), L (EXP) (n = 0)
High Lawn Expenditures	L (SES), H (EXP) (n = 0)	H (SES), H (EXP) (n = 72)

To further narrow the scope of this study, I looked to Esri's 2017 Tapestry

Segmentation data as an interpretation of reference groups for the area. Tapestry is a

geodemographic system that profiles US consumers to assist businesses with targeted

marketing. The concept of segmentation describes the clustering of particular lifestyle

groups, furthering the notion that people who live in the same neighborhood will have

similar characteristics (GISGeography, 2018; Esri, 2017b). Tapestry categorizes lifestyles

through 14 LifeMode groups, containing a total of 67 segments. These are more broadly

categorized into six Urbanization groups, based on geography and land development. In

ArcMap, I mapped the dominant Tapestry segment for each block group in Baltimore

city. After generating the subset of block groups for HH and LL, I applied these

geographic boundaries to the map of dominant Tapestry segments. This allowed me to

determine which segments were most prevalent for HH and LL block groups. Of the top

five segments, I narrowed the selection down to the three that were the most

representative of diversity in income, education, race, and lawn care expenditures. These

segments were: Parks and Rec (HH), Urban Chic (HH), and Modest Income Homes (LL)

(Figure 3).
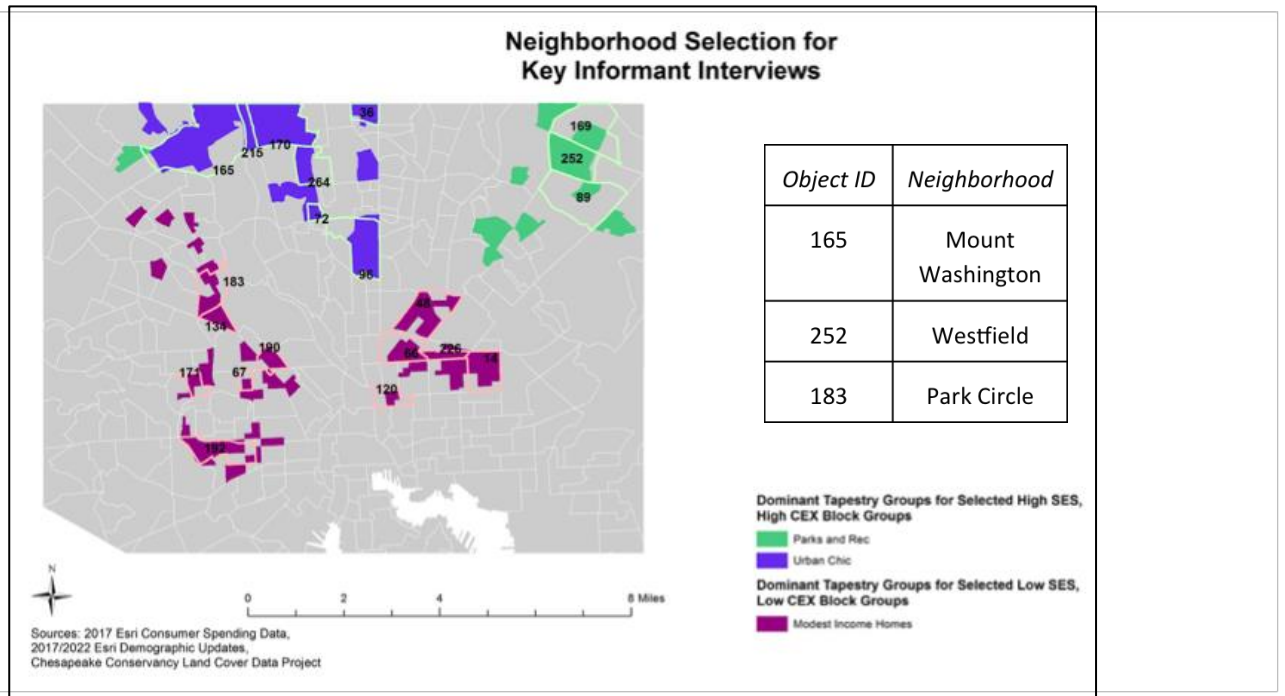
Figure 3: Comparison of block groups to neighborhood boundaries and dominant Tapestry segments/groups for final selection of neighborhoods.

Block groups were the unit of spatial analysis used up to this point, since they are the smallest scale data made publically available by the US Census. However, most households do not identify with their block group, but instead with their neighborhood. The city government of Baltimore makes available a GIS shapefile of the official neighborhood boundaries. I overlaid this file with the block group map of dominant Tapestry segments. Using "Select by Location" and the method "have their centroid in the source layer feature" in ArcMap, I then determined which block groups were most representative of neighborhoods. This generated a list of 9 neighborhoods from the Parks and Rec- and Urban Chic-dominated block groups, and 10 neighborhoods from the Modest Income Homes-dominated block groups. Higher selection consideration was

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given to neighborhoods that had greater spatial coverage by one or more of the selected block groups. Last, comments were solicited from Baltimore Ecosystem Study (BES) colleagues, with regard to neighborhood safety considerations and a neighborhood's potential to generate new information. The final selection was three neighborhoods, Mount Washington (HH) (Figure 4), Westfield (HH) (Figure 5), and Park Circle (LL) (Figure 6), which compose the study area.

Figure 4: Mount Washington was classified as an upper-range "H,H" neighborhood in the "Urban Chic" Tapestry group. This neighborhood features detached single-family homes on large lots and families with college-educated professionals. This is also a locally designated historic district.

Figure 5: Westfield was classified as a mid-range "H,H" neighborhood in the "Parks and Rec" Tapestry group. This neighborhood features detached single-family homes on small lots and diverse, working-class families who like the feel of being in the county while still within city boundaries.

Figure 6: . Park Circle was classified as an "L,L" neighborhood in the "Modest Income Homes" Tapestry group. This neighborhood features attached row homes, many of which are abandoned. This is a federally designated historic district that is currently undergoing a revitalization period.

5.2 . Data collection methods

5.2.1 Selecting key informants

The data for this study takes the form of key informant interviews, which are one-on-one conversations with individuals who are knowledgeable about the topic of research (Lavrakas, 2008). In this case, key informants were mesoscale actors, those who were familiar with neighborhood-level processes and interactions. To find these individuals, I first searched for active neighborhood organizations. I determined which polygons from the Baltimore Neighborhood Indicators Alliance's Community Associations shapefile intersected the boundaries of the selected neighborhoods, i.e. Park Circle, Mount Washington, and Westfield. For the resulting organizations, I researched their activity online and contacted the leaders of these groups. These leaders then became key informants or suggested other members of their organization to be key informants.

The second round of acquiring key informants targeted lawn care providers and informal neighborhood groups. I looked for these agents during Baltimore neighborhood selection visits. I spotted some while driving through neighborhoods and others while viewing community boards in local stores and coffee shops. I also perused Google Maps and Yelp with searches directed at or around the study area, using terms such as: lawn care, garden, home improvement stores, and hardware stores. To find informal groups, I searched social networks such as Facebook and Meetup, using the neighborhood names as search terms. Once these groups were identified, I made phone calls and sent emails to the group leaders to find appropriate contacts within the groups.

The third and final round of acquiring key informants was through speaking with some of the early key informants. During interviews, I took note of potentially relevant names and organizations that were discussed. At the end of each interview, I asked the key informants for recommendations of additional contacts, mentioning those I had noted during the interview. This snowball sampling process resulted in recruits who were not only more willing to meet with me, because they had been referred by friends or colleagues, but recruits who also had more relevant experiences within the community.

5.2.2 Conducting key informant interviews

Key informant interviews were semi-structured, using a preconceived instrument to guide questioning, while still allowing for open-ended responses guided by the interviewee's interests. This instrument was developed using a framework similar to previous graduate students' work with ecosystem valuation focus groups and key

informant interviews in Massachusetts, Virginia, and Georgia, under the NSF Coastal SEES program (Edwards, 2017; Wood, 2017). In this manner, my instrument divided questioning into four sections. The first section is composed of introductory questions that are centered around the roles the key informant plays in the neighborhood. The second section drills down into the key informant's view of the neighborhood, from both a social perspective and a lawns perspective. The third set of questions determines the lawn care practices taking place in the neighborhood. The final set of questions seeks to understand the political and social processes that influence the lawn care practices taking place.

The questions for this study's instrument drew from instruments utilized by previous Baltimore lawn care studies, such as the 2017 BES telephone survey on recreation and land use and Locke et al.'s 2018 study on front versus back yard management. Questions adopted from the 2017 BES telephone survey related to social cohesion were originally found in Sampson et al.'s 1997 study on social cohesion and neighborhood violence. Similarly, Locke et al.'s 2018 instrument was adopted from Larson et al. 2015, which built off of Harris et al. 2012 and Harris et al. 2013. It is important to note that these studies mainly targeted microscale actors to learn about potential mesoscale processes. The questions for my instrument, however, target mesoscale actors to learn about potential mesoscale processes, keeping in mind the study's overarching research questions. The complete interview instrument is available in Appendix 9.1.

Once the instrument was compiled, it was distributed for feedback from BES colleagues. The instrument was also tested with participants that were not directly

involved in this research, so as to ensure people of any background, such as the key informants, could understand the questions. The resulting suggestions strengthened the instrument and its delivery. The interview period spanned from July to October 2018, with two trips made to Baltimore to conduct in-person interviews. The first trip occurred July 10-12. A few interviews were conducted by phone from September through October. Before the second set of in-person key informant interviews were conducted October 13-16, the instrument was reviewed for clarity. Slight changes were made to the wording of prompts, given questions asked by key informants during previous interviews. The four sets of questions, and individual lines of questioning within each set, remained consistent throughout the interview process. However, the questions mainly served as guidelines for the conversation and were not strictly adhered to in all interviews.

The locations for in-person interviews were chosen based on the preference of the key informant, so as to ensure convenience. These were mostly conducted in public settings, such as a local library and coffee shops. Some interviews were done in the key informant's workplace. A few interviews were conducted over the phone when there were scheduling difficulties. Interviews lasted between 30 and 90 minutes, depending on the availability of the interviewee and the detail given in their answers. All interviews were audio-recorded, after obtaining permission from the interviewee. Such recordings ensure that no part of the conversation was missed. I also took notes during the interviews as a backup for the recordings, to assist with later transcription, and to ask follow-up questions during the interviews.

5.3 Data analysis

5.3.1 Methodology: Grounded theory

The data collection and analysis process follows a modified grounded theory approach. Grounded theory was developed in 1967, by Glaser and Strauss, as a reaction to the increasing quantification of social sciences (Glaser and Strauss, 1967). Up to this point in time, social science as a distinct discipline relied on the scientific method to verify Grand Theories (Encyclopædia Britannica, 2015; Wallerstein, 2016). Such research took a deductive, positivist approach, whereby the researcher generated hypotheses from theories and was removed from the data, collecting facts as an objective observer (Charmaz, 2006).

In opposition to this rigidity, Glaser and Strauss proposed an inductive technique for data analysis that allowed for the emergence of themes from data, essentially grounding theory in data (Kelle, 2007; Glaser and Strauss, 1967). Grounded theory, in its initial conception, argued for researchers to maintain a "tabula rasa" mindset before beginning the research, preventing a predisposition to drawing conclusions. In practice, this meant that no literature review should be conducted prior to analysis. This also eliminated hypothesis testing and the use of research questions. This was one of the few areas that Glaser and Strauss later disagreed on, along with other grounded theorists (Charmaz, 2006, p. 165). The chasm between Glaser and Strauss began in 1978, when Glaser published his own monograph. In it, Glaser argued for substantive and theoretical coding to clarify how a researcher could be theoretically sensitive, able to put data into

context, while still maintaining "tabula rasa". He created a list of coding families that had limited utility for those new to the field of sociology, complicating this method that was supposed to be accessible to researchers in all fields. In 1990, Strauss partnered with Corbin to publish their ideas about the coding process. They proposed a skeleton framework to help identify and relate categories from the data, made possible with axial coding. Strauss and Corbin also argued that literature could be reviewed before beginning the research. Glaser reacted to this publication with his own in 1992, accusing Strauss and Corbin's axial coding technique of forcing categories on the data instead of allowing them to emerge, which strayed from the tenets of grounded theory. Glaser also emphasized the need to approach the research without research questions or prior literature review (Kelle, 2007). To summarize this theoretical battle, Glaser supported the researcher as an objective observer, reviewing literature after data analysis, not employing predetermined research questions, and coding through comparison of occurrences, while Strauss supported the researcher being engaged in the data collection process, reviewing literature throughout the research process, determining research questions while reviewing the literature, and first open coding by events then axial coding by theme (Howard-Payne, 2015).

Today, grounded theory guidelines are adapted based on the needs of both quantitative and qualitative researchers (Charmaz, 2006, p. 9). This supports my use of a modified approach, that does not strictly adhere to either Glaser or Strauss' principles. Instead, I will look to elements each found in the methods described by Charmaz (2006) and Punch (2014). Along these lines, my research begins with research questions and an open mind, as opposed to hypotheses formulated for testing (Punch, 2014, p. 133).

A cornerstone of grounded theory is that it is an iterative process, whereby sets of data are collected then analyzed before continuing collection of additional sets of data. This allows data collection to be guided by theoretical developments (Punch, 2014). In between each interview, I wrote down my initial thoughts about the content discussed and avenues for further questioning. I also reflected on the data in between the data collection trips made to Baltimore. This informed my selection of key informants and alterations made to the interview instrument, as noted previously.

Data analysis under grounded theory also takes the form of an iterative process, through open, axial, and selective coding. With coding, the researcher can define what is happening in the data and begin to interpret its meaning (Charmaz, 2006, p. 46). Initial, or open coding, remains as true to the data as possible by creating substantive codes. Substantive codes should be actions using gerunds, or nouns ending in -ing, to preserve the participant's experience. It is important to note that these codes are provisional, able to be reworded as understanding of the data improves, and that a piece of data could have multiple codes to account for the processes captured (Punch, 2014; Charmaz, 2006). To complete the open coding process, I used the Incident to Incident method described by Charmaz (2006), where comparisons are made between observations instead of particular words or lines in a transcript that may arbitrarily section data. Axial coding, through theoretical codes, adds a layer of abstraction to the data. This step finds the relationships between substantive codes. This could take the form of causes and consequences, different aspects of a category, parts of a process, or stimuli and responses (Punch, 2014, p. 183). Last, selective coding, through core codes, is the highest level of abstraction that builds theory from the data. This step concentrates analysis on central analytical aspects

of the data, to conceptualize the data, not merely describe it. Core codes are inferred

inductively from axial codes (Punch, 2014). However, due to their subjective nature, the

researcher must take care to ensure that such codes interpret all of the data rather than

force a framework on the data (Charmaz, 2006). Open, axial, and selective coding results

in a hierarchy of code abstraction, from least to most, as demonstrated in Figure 7. In

practice, though, the codes are not necessarily generated sequentially. It is likely coding

will be done concurrently, with codes sometimes overlapping and being reworked to

minimize overlap (Punch, 2014).
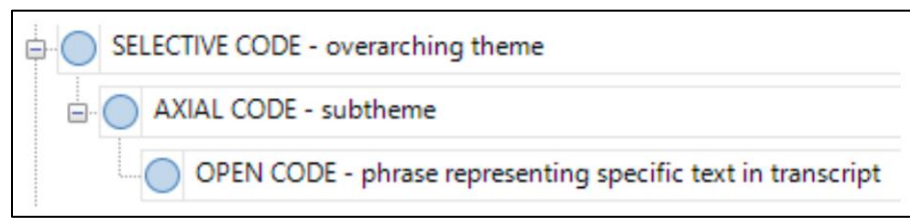
Figure 7: Thematic hierarchies, composed of open, axial, and selective codes, are visually represented using NVivo software (Image credit: Wood, 2017).

5.3.2 Transcription and coding

In total, 22 key-informant interviews were collected, with 11 from Mount

Washington informants, 7 from Westfield informants, and 4 from Park Circle informants.

The discrepancy in the number of interviews per neighborhood was due to responsiveness

of key informant contacts. In particular, Park Circle proved more difficult to find key

informants due to a hesitancy regarding outside intervention and study of the community.

Regardless of this relatively lower number of interviews, the interviews collected still

provide valuable insight into the inner-workings of the community and their lawn care

choices. It is expected that the number of interviews for each neighborhood will be sufficient to arrive at theoretical saturation, whereby new data will not show new theoretical elements (Punch, 2014, p. 134).

To analyze the key informant interviews, each audio-recorded interview was transcribed verbatim, using ExpressScribe and assistance from the transcription services Temi and Scribie. The transcripts include both the questions from the interviewer and answers from the interviewees. Transcript content was double-checked against the handwritten notes taken during the interview and by relistening through the recording for any improperly transcribed words or phrases.

After transcription was complete, the transcripts were coded with a modified grounded theory approach using NVivo 11 Pro. For the first portion of key informant interviews (n=10), I began coding chronologically by the date that the interview was conducted. Each of these entire interviews was open coded and those open codes were provisionally sorted into early axial and selective codes within individual NVivo files. By going in chronological order for the first portion, I coded a few interviews from each of the three neighborhoods, not fully completing coding for any one neighborhood. This gave me an initial sense of the prominent concepts present in each neighborhood. After three or more interviews were completed for a neighborhood, I merged the corresponding NVivo files for that neighborhood, to determine code relationships with regard for their location. In organizing the merged file, axial and selective concepts became clearer. It was within these merged files that axial and selective codes were refined, along with the sorting of open codes.

For the remainder of the interviews (n=12), I used the previously coded interviews as templates, taking a more informed approach to coding. I completed coding for the second portion of interviews sequentially by the neighborhood which the respondent mainly spoke about, starting with the remaining interviews for Westfield, then going to Mount Washington, and finally returning to Park Circle. Each individual interview was imported into the previously started "merge" file for its corresponding neighborhood. In this way, all established open, axial, and selective codes were present in one file. I then went through each interview transcript in a manner similar to open coding, where I directly assigned text references to appropriate axial and selective codes.

This coding streamlining retained reference counts for open codes but sorted those open codes into axial and selective codes in the same step. For concepts that I felt were significantly different from previously established axial and selective codes, I created new open codes that were reviewed and sorted at the end of the coding process. In this second round of coding, information related to respondents' backgrounds and superfluous information was reviewed but was not coded since this information did not contribute to valuable axial and selective codes within the first portion of interviews.

Once all interviews were initially coded and in their "merge" file, I reexamined all levels of coding within the file, finalizing both the sorting of open codes and naming of axial and selective codes. Since these codes were developed with regard for particular information about each neighborhood, many of the axial codes remain specific to each neighborhood. However, when appropriate, axial codes were renamed to the same code across neighborhoods if the reference text reflected the same concept.

Selective codes, the highest thematic level of coding, closely reflect topics from both the interview instrument and my research questions. Therefore, I will refer to selective codes as *categories of conversation*, or *categories*, for the remainder of this document. Additionally, axial codes, the second-highest thematic level of coding, represent the themes within each of these categories, and these codes will from now on be referred to as *themes*. Last, open codes, the level of coding that is closest to the original text, will be referred to as *references*. NVivo aids in the quantification of concepts through reference counts. Along these lines, the number of references within each theme and category of conversation measures the importance of concepts presented.

6.   RESULTS

6.1 Interview composition by neighborhood

As mentioned previously, 22 interviews were conducted across three neighborhoods, with 11 from Mount Washington, 7 from Westfield, and 4 from Park Circle. The majority of key informants interviewed had a main involvement in the community with a social organization (n=5), which was followed by a main involvement in the community with a neighborhood association (n=4). While main involvements were the initial reason for selecting key informants, reported in Figure 8, many informants held positions across these involvements. Informants freely discussed all of their various roles in the community during interviews. As described in the preceding section, the analysis of the interview transcripts is designed to generate both quantitative and qualitative insights.
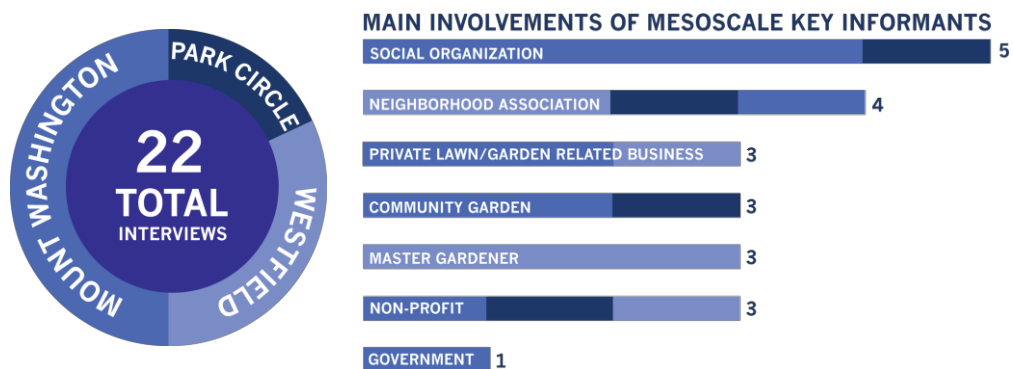
Figure 8: Key informants from Mount Washington (11), Westfield (7), and Park Circle (4) were selected based on their main involvements within each neighborhood.

6.2 Analytical steps: Quantitative assessment of category and theme prominence

To quantify prominence, or the relative importance of concepts expressed during interviews, percent coverage of references was calculated for both categories of conversation and themes within these categories. The references within the eight categories of conversation reflect all references coded, excluding those that were found to contain information unrelated to the purposes of this study (approximately 10-20% of each interview transcript). For categories of conversation, the percentages reflect the sum of references found in each category divided by the sum of all relevant references for a particular neighborhood. For themes, the percentages reflect the sum of references found in each theme divided by the sum of all references for the parent category. The following tables round these percentages to the nearest whole number. Since the tables account for the categories and themes presented across all three neighborhoods, categories and themes not found in a particular neighborhood are expressed as NA (non-applicable).

To further extract conceptual relationships within each neighborhood, certain themes were designated as *major themes* within each category of conversation. This designation was given to themes that fell within the top 75% of each category and is noted by a blue background for the corresponding cells within each table. When calculating the 75% cutoff, the entire percentage value for the last-place major theme was included. All last-place major themes that had identical percentages (i.e. were tied) were also included. Therefore, the *Major themes proportion of total* reflects the total percent of a category covered by designated major themes and may exceed 75%.

6.3 Categories of conversation

Table 2 summarizes the percent prominence for the eight categories of conversation in each neighborhood and across all neighborhoods. In each neighborhood, and across all neighborhoods, *Community Identity* maintains the largest percent prominence (Mount Washington = 38%, Westfield = 32%, Park Circle = 43%, all = 37%). This is followed by *Characterizing Lawn Management* in Mount Washington (21%) and *Mesoscale Processes Influencing Lawn Care* in Westfield (21%), Park Circle (23%), and across all neighborhoods (21%). The categories with the third highest percent prominence are *Mesoscale Processes Influencing Lawn Care* in Mount Washington (20%), *Characterizing Lawn Features* in Westfield (17%), and *Characterizing Lawn Management* in Park Circle (19%) and across all neighborhoods (19%). *Community Identity*, *Characterizing Lawn Features*, *Characterizing Lawn Management*, and *Mesoscale Processes Influencing Lawn Care* consistently appear in the top four prominence percentages in each neighborhood and across all neighborhoods.

Table 2: Percent prominence for categories of conversation by neighborhood and across all neighborhoods; n = number of interviews conducted.

	Categories of conversation	Percent of total references in Mount Washington (n=11)	Percent of total references in Westfield (n=7)	Percent of total references in Park Circle (n=4)	Percent of total references in all neighborhoods (n=22)
1	COMMUNTIY IDENTITY	38%	32%	43%	37%
2	CHARACTERIZING LAWN FEATURES	11%	17%	8%	12%
3	CHARACTERIZING LAWN MANAGEMENT	21%	17%	19%	19%
4	MESOSCALE PROCESSES INFLUENCING LAWN CARE	20%	21%	23%	21%
5	MICROSCALE PROCESSES INFLUENCING LAWN CARE	3%	4%	6%	4%
6	MACROSCALE PROCESSES INFLUENCING LAWN CARE	2%	3%	1%	2%
7	KNOWLEDGE OF ECOLOGICAL ROLE OF LAWNS	5%	5%	0%	4%
8	MOTIVATING ENVIRONMENTALLY FRIENDLY LAWN ALTERNATIVES	2%	2%	<1%	1%
	Total	100%	100%	100%	100%

6.4 Themes within Community Identity

     Within the *Community Identity* category, there are 36 themes across all three neighborhoods (Table 3). For the purposes of this research, only the major themes within each category are discussed for each neighborhood. While the remaining themes provide additional insight into the processes occurring within each neighborhood and are not insignificant, the major themes capture the majority of conversation, thus the key concepts for analysis.

     In Mount Washington, the 10 major themes found in *Community Identity* are *the environment plays an active role in the community* (15%), *community is socially cohesive* (14%), *community engages upper class* (8%), *community attracts residents with diverse interests* (7%), *community oriented for families* (6%), *neighborhood maintains diversity in housing* (6%), *organizing neighborhood through informal digital communication* (6%), *formal authority does not actively regulate community* (5%), *informal organizations appeal to variety of interests* (5%), and *neighborhood maintains tradition of formal organizations* (5%). In Westfield, the 6 major themes are *community oriented towards diverse, working class families* (20%), *social cohesion expressed in certain community pockets* (19%), *the environment plays an active role in the community* (16%), *community organizations play an active role in residents' lives* (12%), *community impacted by strong drug presence* (7%), and *formal authority often neglects community's needs* (6%). In Park Circle, the 6 major themes are *community is in disrepair* (19%), *social cohesion expressed in certain community pockets* (18%), *community has*

longstanding african american families with diverse religious interests (13%), *local government involved in restructuring neighborhood* (10%), *community organizations exist in surrounding neighborhoods* (9%), and *community residents depend on government aid* (7%). *The environment plays an active role in the community* appears in both Mount Washington and Westfield while *social cohesion expressed in certain community pockets* appears in both Westfield and Park Circle. The major themes compose 78% of the conversation regarding *Community Identity* in Mount Washington, 80% in Westfield, and 78% in Park Circle.

Table 3: Percent prominence for themes within Community Identity category by neighborhood; major themes highlighted in blue (darkest shade in B&W publications).

Themes within COMMUNITY IDENTITY (alphabetical order)	Mount Washington Percent of category	Westfield Percent of category	Park Circle Percent of category
COMMUNITY ATTRACTS RESIDENTS WITH DIVERSE INTERESTS	7%	NA	NA
COMMUNITY ENGAGES UPPER CLASS	8%	NA	NA
COMMUNITY HAS LONGSTANDING AFRICAN AMERICAN FAMILIES WITH DIVERSE RELIGIOUS INTERESTS	NA	NA	13%
COMMUNITY IMPACTED BY STRONG DRUG PRESENCE	NA	7%	NA
COMMUNITY IS IN DISREPAIR	NA	NA	19%
COMMUNITY IS SOCIALLY COHESIVE	14%	NA	NA
COMMUNITY MAINTAINS HISTORIC DESIGNATION FROM PREVIOUS JEWISH INHABITANTS	NA	NA	6%
COMMUNITY ORGANIZATIONS EXIST IN SURROUNDING NEIGHBORHOODS	NA	NA	9%
COMMUNITY ORGANIZATIONS OPEN TO ALL RESIDENTS	2%	NA	NA
COMMUNITY ORGANIZATIONS PLAY AN ACTIVE ROLE IN RESIDENTS' LIVES	NA	12%	NA
COMMUNITY ORIENTED FOR FAMILIES	6%	NA	NA
COMMUNITY ORIENTED TOWARDS DIVERSE, WORKING CLASS FAMILIES	NA	20%	NA
COMMUNITY RESIDENTS DEPEND ON GOVERNMENT AID	NA	NA	7%
COMMUNITY SOMETIMES EXPERIENCES RACIAL TENSION	NA	1%	NA
COMMUNITY STRUCTURE IS CHANGING	2%	NA	NA
FORMAL AUTHORITY DOES NOT ACTIVELY REGULATE COMMUNITY	5%	4%	NA
FORMAL AUTHORITY OFTEN NEGLECTS COMMUNITY'S NEEDS	NA	6%	NA
FORMAL AUTHORITY REGULATES HISTORIC DISTRICT	2%	NA	NA
IMPROVEMENT ASSOCIATION IS VERY ACTIVE IN COMMUNITY	4%	NA	NA
INFORMAL ORGANIZATIONS APPEAL TO VARIETY OF INTERESTS	5%	NA	NA

Table 3: Continued

LOCAL GOVERNMENT INVOLVED IN RESTRUCTURING NEIGHBORHOOD	NA	NA	10%
NEIGHBORHOOD IS HISTORICAL	1%	NA	NA
NEIGHBORHOOD IS MORE INDUSTRIAL THAN RESIDENTIAL	NA	NA	4%
NEIGHBORHOOD IS STABLE	NA	4%	NA
NEIGHBORHOOD MAINTAINS DIVERSITY IN HOUSING	6%	NA	NA
NEIGHBORHOOD MAINTAINS TRADITION OF FORMAL ORGANIZATIONS	5%	NA	NA
ORGANIZING NEIGHBORHOOD THROUGH INFORMAL DIGITAL COMMUNICATION	6%	3%	NA
PARK CIRCLE RESIDENTS IDENTIFY AS PART OF PARK HEIGHTS	NA	NA	6%
PIMLICO RACETRACK MATTERS IMPACT THE COMMUNITY	1%	NA	NA
REISDENTS APPRECIATE COUNTY FEEL WITHIN CITY	NA	3%	NA
RESIDENTS ARE EASY GOING	1%	NA	NA
RESIDENTS ARE ENGAGED	4%	4%	NA
RESIDENTS BOTH RENT AND OWN ROW HOMES	NA	NA	4%
RESIDENTS WORK WITH FORMAL AUTHORITY AGENTS	4%	1%	NA
SOCIAL COHESION EXPRESSED IN CERTAIN COMMUNITY POCKETS	NA	19%	18%
THE ENVIRONMENT PLAYS AN ACTIVE ROLE IN THE COMMUNITY	15%	16%	2%
Total	100%	100%	100%
Major themes proportion of total	78%	80%	78%

6.5 Themes within Characterizing Lawn Features

Within the *Characterizing Lawn Features* category, there are 10 themes across all three neighborhoods (Table 4). In Mount Washington, the 3 major themes found in *Characterizing Lawn Features* are *species present* (32%), *yards emphasize landscaping instead of lawns* (32%), and *yards maintain curated organic look* (18%). In Westfield, the 3 major themes are *species present* (44%), *front lawn look based on traditional aesthetics* (28%), and *yards do not maintain consistent style across neighborhood* (15%). In Park Circle, the 4 major themes are *front lawn look based on traditional aesthetics* (25%), *yards emphasize generic grass lawn* (23%), *front lawn look does not follow traditional aesthetics* (20%), and *front lawns are small* (16%). Both Mount Washington and Westfield highlight *species present* while Westfield and Park Circle highlight *front lawn look based on traditional aesthetics*. The major themes compose 83% of the conversation regarding *Characterizing Lawn Features* in Mount Washington, 87% in Westfield, and 84% in Park Circle.

Table 4: Percent prominence for themes within Characterizing Lawn Features category by neighborhood; major themes highlighted in blue.

Themes within CHARACTERIZING LAWN FEATURES (alphabetical order)	Mount Washington Percent of category	Westfield Percent of category	Park Circle Percent of category
FRONT LAWN LOOK BASED ON TRADITIONAL AESTHETICS	14%	28%	25%
FRONT LAWN LOOK DOES NOT FOLLOW TRADITIONAL AESTHETICS	NA	NA	20%
FRONT LAWNS ARE SMALL	NA	NA	16%
GRASS LAWNS WITH WEEDS ARE PRESENT	3%	7%	NA
PRESENTING CONCERN FOR HEAVY METALS IN YARDS	NA	6%	9%
SPECIES PRESENT	32%	44%	7%
YARDS DO NOT MAINTAIN CONSISTENT STYLE ACROSS NEIGHBORHOOD	NA	15%	NA
YARDS EMPHASIZE GENERIC GRASS LAWN	NA	NA	23%
YARDS EMPHASIZE LANDSCAPING INSTEAD OF LAWNS	32%	NA	NA
YARDS MAINTAIN CURATED ORGANIC LOOK	18%	NA	NA
Total	100%	100%	100%
Major themes proportion of total	83%	87%	84%

6.6 Themes within Characterizing Lawn Management

Within the *Characterizing Lawn Management* category, there are 26 themes across all three neighborhoods (Table 5). In Mount Washington, the 6 major themes found in *Characterizing Lawn Management* are *landscapers and lawn companies play an active role in lawn and yard care* (20%), *watering is mostly occasional and infrequent* (14%), *fertilization tends to be organic and infrequent* (13%), *yards fulfilling purpose besides aesthetics* (10%), *residents are split on pesticide and herbicide use* (9%), *and mowing occurs regularly depending on season* (9%). In Westfield, the 7 major themes are *watering is mostly occasional and infrequent* (12%), *mowing occurs regularly depending on season* (12%), *fertilization is not a widespread practice* (11%), *homeowners play an active role in lawn care* (10%), *pesticide use does not occur regularly* (10%), *yards fulfilling purpose besides aesthetics* (10%), and *landscapers and lawn companies do not play an active roles in lawn care* (9%). In Park Circle, the 6 major themes are *homeowners demonstrate care for lawn through self-maintenance* (24%), *residents do minimum lawn maintenance necessary* (17%), *mowing occurs regularly depending on season* (13%), *watering mostly occurs naturally* (10%), *lawns managed by local businesses* (9%), and *lawns serving aesthetic purpose* (8%). *Mowing occurs regularly depending on season* appears in all three neighborhoods while *watering is mostly occasional and infrequent* and *yards fulfilling purpose besides aesthetics* appear in Mount Washington and Westfield. The major themes compose 76% of the conversation regarding *Characterizing Lawn Management* in Mount Washington, 75% in Westfield, and 80% in Park Circle.

Table 5: Percent prominence for themes within Characterizing Lawn Management category by neighborhood; major themes highlighted in blue.

Themes within CHARACTERIZING LAWN MANAGEMENT (alphabetical order)	Mount Washington Percent of category	Westfield Percent of category	Park Circle Percent of category
FERTILIZATION DOES NOT OCCUR	NA	NA	3%
FERTILIZATION IS NOT A WIDESPREAD PRACTICE	NA	11%	NA
FERTILIZATION OCCURS REGULARLY	NA	4%	NA
FERTILIZATION TENDS TO BE ORGANIC AND INFREQUENT	13%	NA	NA
HERBICIDE USE OCCURS REGULARLY	NA	3%	NA
HOMEOWNERS DEMONSTRATE CARE FOR LAWN THROUGH SELF-MAINTENANCE	NA	NA	24%
HOMEOWNERS PLAY AN ACTIVE ROLE IN LAWN CARE	NA	10%	NA
HOMEOWNERS PLAY AN ACTIVE ROLE IN LAWN CARE AND GARDENING	9%	NA	NA
LANDSCAPERS AND LAWN COMPANIES (SMALL) PLAY AN ACTIVE ROLES IN LAWN CARE	NA	5%	NA
LANDSCAPERS AND LAWN COMPANIES DO NOT PLAY AN ACTIVE ROLES IN LAWN CARE	NA	9%	NA
LANDSCAPERS AND LAWN COMPANIES PLAY AN ACTIVE ROLE IN LAWN AND YARD CARE	20%	NA	NA
LAWNS AND GARDENS SERVING AESTHETIC PURPOSE	6%	6%	NA
LAWNS MANAGED BY LOCAL BUSINESSES	NA	NA	9%
LAWNS SERVING AESTHETIC PURPOSE	NA	NA	8%
MOWING OCCURS REGULARLY DEPENDING ON SEASON	9%	12%	13%
PESTICIDE USE DOES NOT OCCUR REGULARLY	NA	10%	7%
PLANTING OCCURS IN SPRING AND FALL	2%	1%	3%
RESIDENTS ARE SPLIT ON PESTICIDE AND HERBICIDE USE	9%	NA	NA
RESIDENTS DO MINIMUM LAWN MAINTENANCE NECESSARY	NA	NA	17%
RESIDENTS OCCASIONALLY HIRE PROFESSIONAL HELP FOR YARD WORK	NA	3%	NA

Table 5: Continued

RESIDENTS SHOP LOCALLY FOR YARD RESOURCES	4%	2%	NA
SLOPE AFFECTS LAWN MANAGEMENT	NA	NA	4%
SLOPE AND SHADE AFFECT LANDSCAPE MANAGEMENT	4%	NA	NA
WATERING IS MOSTLY OCCASIONAL AND INFREQUENT	14%	12%	NA
WATERING MOSTLY OCCURS NATURALLY	NA	NA	10%
YARDS FULFILLING PURPOSE BESIDES AESTHETICS	10%	10%	3%
Total	100%	100%	100%
Major themes proportion of total	76%	75%	80%

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6.7 Themes within Mesoscale Processes Influencing Lawn Care

Within the *Mesoscale Processes Influencing Lawn Care* category, there are 23 themes across all three neighborhoods (Table 6). In Mount Washington, the 7 major themes found in *Mesoscale Processes Influencing Lawn Care* are *neighbors' knowledge and social interaction (especially online) influence lawn care and gardening* (22%), *neighborhood organization influences lawn care and gardening* (15%), *municipal regulations regard yard choices* (9%), *formal authority does not regulate lawn care* (8%), *community identity influences landscape management* (8%), *peer pressure influences lawn care* (8%), and *residents self regulate lawn look to keep with community standards* (6%). In Westfield, the 7 major themes are *municipal regulations regard yard choices* (15%), *neighbors' knowledge and social interaction influence lawn care and gardening* (12%), *formal authority efficacy requires resident-based intervention* (12%), *master gardeners actively advise residents about yards* (11%), *neighborhood organization influences lawn care and gardening* (11%), *residents regulate neighbors' lawn look to keep with community standards* (8%), and *neighbors' yards influence lawn care and gardening* (8%). In Park Circle, the 5 major themes are *formal authority directly regulates lawn care* (44%), *neighborhood organization influences lawn care and gardening* (12%), *municipal regulations regard yard choices* (11%), *formal authority indirectly regulates lawn care* (8%), and *formal authority does not regulate lawn care* (6%). *Neighborhood organization influences lawn care and gardening* and *municipal regulations regard yard choices* are highlighted in all three neighborhoods while *formal authority does not regulate lawn care* is highlighted in Mount Washington and Park

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Circle. The major themes compose 76% of the conversation regarding *Mesoscale Processes Influencing Lawn Care* in Mount Washington, 76% in Westfield, and 80% in Park Circle.

6.7.1 Defining ecology of prestige related themes

Table 6 further notes which of the mesoscale processes influencing lawn care in each neighborhood point to the presence of an ecology of prestige (Grove et al., 2006; Zhou et al., 2009; Grove et al., 2014) and which of the mesoscale processes are unrelated to the presence of an ecology of prestige. A simplified test for categorizing processes was as follows: Which of these themes relate to residents using their lawns to fit into the neighborhood? Processes that demonstrated a lawn/landscaping ideal across a neighborhood, behavioral influences related to this ideal, or expression of community membership through lawns/landscaping were assigned a 'Y', for yes, in the Ecology of prestige column. Processes that did not demonstrate these concepts were assigned an 'N', for no, in the Ecology of prestige column. In Mount Washington 74%, in Westfield 72%, and in Park Circle 31% of the conversation regarding mesoscale processes pointed to the presence of an ecology of prestige.

6.7.2 Defining Formal and Informal authority related themes

The final two rows in Table 6 display the total percentages for which of the mesoscale processes influencing lawn care in each neighborhood point to the influence of formal authority and which of the mesoscale processes point to the influence of informal

authority. The formal authority designation, noted by 'F', relates to homeowners associations (which no neighborhood expressed the presence of), lawn- or yard-related ordinances, and city government. The informal authority designation, noted by 'I', relates to neighborhood associations, neighborhood norms/ideals, and social influences, such as comments (actual or perceived) from neighbors. In Mount Washington 15%, in Westfield 24%, and in Park Circle 63% of the conversation regarding mesoscale processes pointed to the influence of formal authority. In Mount Washington 85%, in Westfield 76%, and in Park Circle 37% of the conversation regarding mesoscale processes pointed to the influence of informal authority.

Table 6: Percent prominence for themes within Mesoscale Processes Influencing Lawn Care category by neighborhood; major themes highlighted in blue; 'Y' denotes pointing to the presence of an ecology of prestige; 'F' denotes pointing to the influence of formal a major themes highlighted in blue; 'Y' denotes pointing to the presence of an ecology of prestige; 'F' denotes pointing to the influence of formal authority; 'I' denotes pointing to the influence of informal authority

Themes within MESOSCALE PROCESSES INFLUENCING LAWN CARE (alphabetical order)	Mount Washington Percent of category	Westfield Percent of category	Park Circle Percent of category	Authority (F: formal, I: informal)	Ecology of prestige (Y: yes, N: no)
COMMUNITY IDENTITY INFLUENCES LANDSCAPE MANAGEMENT	8%	4%	NA	I	Y
FORMAL AUTHORITY DIRECTLY REGULATES LAWN CARE	NA	NA	44%	F	N
FORMAL AUTHORITY DOES NOT REGULATE LAWN CARE	8%	NA	6%	I	N
FORMAL AUTHORITY EFFICACY RELATED TO RESIDENTS' EFFORTS	NA	NA	5%	I	Y
FORMAL AUTHORITY EFFICACY REQUIRES RESIDENT-BASED INTERVENTION	5%	12%	NA	I	Y
FORMAL AUTHORITY INDIRECTLY REGULATES LAWN CARE	2%	4%	8%	F	N
LAWNS PLAY A ROLE IN SOCIAL GATHERINGS	2%	NA	NA	I	Y
MASTER GARDENERS ACTIVELY ADVISE RESIDENTS ABOUT YARDS	NA	11%	NA	I	Y
MUNICIPAL INITIATIVES REGARD YARD CHOICES	3%	NA	NA	F	N
MUNICIPAL REGULATIONS ARE ENFORCED	2%	5%	NA	F	N
MUNICIPAL REGULATIONS LACK ENFORCEMENT	3%	4%	NA	I	N
MUNICIPAL REGULATIONS REGARD YARD CHOICES	9%	15%	11%	F	N
NEIGHBORHOOD ORGANIZATION INFLUENCES LAWN CARE AND GARDENING	15%	11%	12%	I	Y
NEIGHBORHOOD RECOGNITION INFLUENCES LAWN CARE AND GARDENING	3%	NA	NA	I	Y
NEIGHBORS' KNOWLEDGE AND SOCIAL INTERACTION (ESPECIALLY ONLINE) INFLUENCE LAWN CARE AND GARDENING	22%	NA	NA	I	Y
NEIGHBORS' KNOWLEDGE AND SOCIAL INTERACTION INFLUENCE LAWN CARE AND GARDENING	NA	12%	2%	I	Y
NEIGHBORS' YARDS INFLUENCE LAWN CARE AND GARDENING	4%	8%	NA	I	Y
OTHER NEIGHBORHOODS' LAWNS INFLUENCE LAWN CARE	NA	NA	5%	I	Y
PEER PRESSURE INFLUENCES ADOPTION OF GREENER LAWN CARE	NA	7%	NA	I	Y

PEER PRESSURE INFLUENCES LAWN CARE	8%	NA	3%	I	Y
RESIDENTS REGULATE NEIGHBORS' LAWN LOOK TO KEEP WITH COMMUNITY STANDARDS	NA	8%	NA	I	Y
RESIDENTS SELF REGULATE LAWN LOOK TO KEEP WITH COMMUNITY STANDARDS	6%	NA	NA	I	Y
TAKING NEIGHBORHOOD PRIDE IN HOME THROUGH LAWN	NA	NA	4%	I	Y
Total	100%	100%	100%		
Major themes proportion of total	76%	76%	80%		
Ecology of prestige proportion of total (Ecology of Prestige = Y)	74%	72%	31%		
Non-ecology of prestige proportion of total (Ecology of Prestige = N)	26%	28%	69%		
Formal authority proportion of total (Authority = F)	15%	24%	63%		
Informal authority proportion of total (Authority = I)	85%	76%	37%		

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6.8 Themes within Microscale Processes Influencing Lawn Care

Within the *Microscale Processes Influencing Lawn Care* category, there are 9 themes across all three neighborhoods (Table 7). In Mount Washington, the 6 major themes found in *Microscale Processes Influencing Lawn Care* are *motivation for environmentally friendly practices comes from within individual* (25%), *taking personal pride in home through lawn and landscaping* (18%), *lawn care motivated by personal interests* (15%), *lawn care choices are motivated by individuals' available time* (13%), *learning lawn care growing up* (13%), and *seeing lawn care and gardening as a means of recreation* (13%). In Westfield, the 4 major themes are *seeing lawn care as an investment for personal benefit* (35%), *lawn care choices are motivated by individuals' available time* (24%), *relating lawn care to purchasing power* (15%), and *learning lawn care growing up* (12%). In Park Circle, the 3 major themes are *seeing lawn care as an investment for personal benefit* (33%), *learning lawn care growing up* (30%), and *taking personal pride in home through lawn* (21%). *Learning lawn care growing up* appears in all three neighborhoods while *lawn care choices are motivated by individuals' available time* appears in Mount Washington and Westfield and *seeing lawn care as an investment for personal benefit* appears in Westfield and Park Circle. The major themes compose 95% of the conversation regarding *Microscale Processes Influencing Lawn Care* in Mount Washington, 85% in Westfield, and 85% in Park Circle.

Table 7: Percent prominence for themes within Microscale Processes Influencing Lawn Care category by neighborhood; major themes highlighted in blue.

Themes within MICROSCALE PROCESSES INFLUENCING LAWN CARE (alphabetical order)	Mount Washington Percent of category	Westfield Percent of category	Park Circle Percent of category
LAWN CARE CHOICES ARE MOTIVATED BY INDIVIDUALS' AVAILABLE TIME	13%	24%	3%
LAWN CARE MOTIVATED BY PERSONAL INTERESTS	15%	NA	NA
LEARNING LAWN CARE GROWING UP	13%	12%	30%
MOTIVATION FOR ENVIRONMENTALLY FRIENDLY PRACTICES COMES FROM WITHIN INDIVIDUAL	25%	9%	NA
RELATING LAWN CARE TO PURCHASING POWER	5%	15%	6%
SEEING LAWN CARE AND GARDENING AS A MEANS OF RECREATION	13%	6%	6%
SEEING LAWN CARE AS AN INVESTMENT FOR PERSONAL BENEFIT	NA	35%	33%
TAKING PERSONAL PRIDE IN HOME THROUGH LAWN	NA	NA	21%
TAKING PERSONAL PRIDE IN HOME THROUGH LAWN AND LANDSCAPING	18%	NA	NA
Total	100%	100%	100%
Major themes proportion of total	95%	85%	85%

6.9 Themes within Macroscale Processes Influencing Lawn Care

Within the *Macroscale Processes Influencing Lawn Care* category, there are 4 themes across all three neighborhoods (Table 8). In Mount Washington, the 1 major theme found in *Macroscale Processes Influencing Lawn Care* is *statewide initiatives influence yards* (81%). In Westfield, the 2 major themes are *media influences landscape management* (40%) and *statewide initiatives influence yards* (36%). In Park Circle, the 2 major themes are *media influences landscape management* (50%) and *suburban culture influences landscape management* (50%). *Statewide initiatives influence yards* appears in both Mount Washington and Westfield while *media influences landscape management* appears in both Westfield and Park Circle. The major themes compose 81% of the conversation regarding *Macroscale Processes Influencing Lawn Care* in Mount Washington, 76% in Westfield, and 100% in Park Circle.

Table 8: Percent prominence for themes within Macroscale Processes Influencing Lawn Care category by neighborhood; major themes highlighted in blue.

Themes within MACROSCALE PROCESSES INFLUENCING LAWN CARE (alphabetical order)	Mount Washington Percent of category	Westfield Percent of category	Park Circle Percent of category
BIG BOX STORES PROVIDE ADVICE	NA	16%	NA
MEDIA INFLUENCES LANDSCAPE MANAGEMENT	12%	40%	50%
STATEWIDE INITIATIVES INFLUENCE YARDS	81%	36%	NA
SUBURBAN CULTURE INFLUENCES LANDSCAPE MANAGEMENT	8%	8%	50%
Total	100%	100%	100%
Major themes proportion of total	81%	76%	100%

6.10 Themes within Knowledge Of Ecological Role Of Lawns

Within the *Knowledge Of Ecological Role Of Lawns* category, there are 5 themes across Mount Washington and Westfield (Table 9). References to support the presence of *Knowledge Of Ecological Role Of Lawns* did not appear in Park Circle interviews. In Mount Washington, the 3 major themes found in *Knowledge Of Ecological Role Of Lawns* are *demonstrating concern for resources applied to lawns and gardens* (31%), *using lawn or garden to enhance environment* (24%), and *following seasonal cues for lawn care* (20%). In Westfield, the 3 major themes are *using lawn or garden to enhance environment* (33%), *following seasonal cues for lawn care* (24%), and *wildlife attracted to yard* (22%). *Using lawn or garden to enhance environment* and *following seasonal cues for lawn care* appear in both Mount Washington and Westfield. The major themes compose 75% of the conversation regarding *Knowledge Of Ecological Role Of Lawns* in Mount Washington and 80% in Westfield.

Table 9: Percent prominence for themes within Knowledge Of Ecological Role Of Lawns category by neighborhood; major themes highlighted in blue.

Themes within KNOWLEDGE OF ECOLOGICAL ROLE OF LAWNS (alphabetical order)	Mount Washington Percent of category	Westfield Percent of category	Park Circle Percent of category
USING LAWN OR GARDEN TO ENHANCE ENVIRONMENT	24%	33%	NA
FOLLOWING SEASONAL CUES FOR LAWN CARE	20%	24%	NA
WILDLIFE ATTRACTED TO YARD	17%	22%	NA
DEMONSTRATING CONCERN FOR RESOURCES APPLIED TO LAWNS AND GARDENS	31%	11%	NA
UNDERSTANDING LAWN MANGEMENT CAN NEGATIVELY INFLUENCE LOCAL ENVIRONMENT	8%	9%	NA
Total	100%	100%	0%
Major themes proportion of total	75%	80%	0%

6.11 Themes within Motivating Environmentally Friendly Lawn Alternatives

Within the *Motivating Environmentally Friendly Lawn Alternatives* category, there are 3 themes across all three neighborhoods (Table 10). In Mount Washington, the 1 major theme found in *Motivating Environmentally Friendly Lawn Alternatives* is *education and exposure could influence lawn care behaviors* (92%). In Westfield, the 1 major theme is *education and exposure could influence lawn care behaviors* (80%). In Park Circle, the 1 major theme is *no potential influences* (100%). *Education and exposure could influence lawn care behaviors* is highlighted in both Mount Washington and Westfield. Since there is only 1 major theme per neighborhood, the percentage for each theme is equal to how much of the conversation regarding *Motivating Environmentally Friendly Lawn Alternatives* is represented by the major themes.

Table 10: Percent prominence for themes within Motivating Environmentally Friendly Lawn Alternatives category by neighborhood; major themes highlighted in blue.

Themes within MOTIVATING ENVIRONMENTALLY FRIENDLY LAWN ALTERNATIVES (alphabetical order)	Mount Washington Percent of category	Westfield Percent of category	Park Circle Percent of category
EDUCATION AND EXPOSURE COULD INFLUENCE LAWN CARE BEHAVIORS	92%	80%	NA
FORMAL AUTHORITY COULD INFLUENCE LAWN CARE BEHAVIORS	4%	20%	NA
NO POTENTIAL INFLUENCES	4%	NA	100%
Total	100%	100%	100%
Major themes proportion of total	92%	80%	100%

6.12 Summary of results: Categories of conversation and major themes

Table 11 summarizes the key findings from the results. Of the eight categories of conversation, four consistently maintain the highest percent prominence across all three neighborhoods. These categories are *Community Identity, Characterizing Lawn Features, Characterizing Lawn Management,* and *Mesoscale Processes Influencing Lawn Care*. These categories represent 90% of the conversation in Mount Washington, 87% of the conversation in Westfield, and 93% of the conversation in Park Circle. Furthermore, Table 6 condenses the findings regarding the major themes within each of these categories, for each neighborhood. The four most prominent categories, along with their major themes, will inform process maps for each neighborhood that detail the most important: characteristics of each community, lawn features, lawn management, and mesoscale influences. These maps illustrate neighborhood-specific stories that weave the most prominent categories together with the context of one another, since, in reality, each category does not exist in isolation. While the remaining categories will not be accounted for in the process maps, since they represent minor themes within this study's scope, they will be explored in the discussion section with relation to the research questions.

Table 11: Summary of most prominent categories of conversation and major themes within each neighborhood.

	Categories of conversation	Percent of total references	Cumulative percent	Major themes (from highest to lowest percent of category)
Mount Washington (n=11)	COMMUNTIY IDENTITY	38%	**90%**	environment plays active role; socially cohesive; upper class; diverse interests; family-oriented; diversity in housing; informal digital communication; lack of formal authority; variety informal organizations; formal organizations
	CHARACTERIZING LAWN FEATURES	11%		species present; landscaping instead of lawns; curated organic look
	CHARACTERIZING LAWN MANAGEMENT	21%		landscapers/lawn companies; infrequent watering; infrequent fertilization; non-aesthetic purpose; split pesticide/herbicide use; regular mowing
	MESOSCALE PROCESSES INFLUENCING LAWN CARE	20%		neighbors' knowledge/online interaction; neighborhood organization; municipal regulations; lack of formal authority; community identity; peer pressure; self-regulation for community standards
Westfield (n=7)	COMMUNTIY IDENTITY	32%	**87%**	diverse/working class families; selective social cohesion; environment plays active role; active community organizations; strong drug presence; neglected by formal authority
	CHARACTERIZING LAWN FEATURES	17%		species present; front lawn traditional aesthetics; inconsistent style across neighborhood
	CHARACTERIZING LAWN MANAGEMENT	17%		infrequent watering; regular mowing; infrequent fertilization; homeowners; infrequent pesticide use; non-aesthetic purpose; no landscapers/lawn companies
	MESOSCALE PROCESSES INFLUENCING LAWN CARE	21%		municipal regulations; neighbors' knowledge/interaction; formal authority resident-based intervention; master gardeners; neighborhood organization; residents regulate for community standards; neighbors' yards
Park Circle (n=4)	COMMUNTIY IDENTITY	43%	**93%**	disrepair; selective social cohesion; African-American families of diverse religions; restructuring by local government; surrounding community organizations; depend on government aid
	CHARACTERIZING LAWN FEATURES	8%		front lawn traditional aesthetics; generic grass; front lawn non-traditional aesthetics; small
	CHARACTERIZING LAWN MANAGEMENT	19%		homeowners; minimum maintenance necessary; regular mowing; natural watering; local businesses; aesthetic purpose
	MESOSCALE PROCESSES INFLUENCING LAWN CARE	23%		formal authority directly; neighborhood organization; municipal regulations; formal authority indirectly; lack of formal authority

7.   DISCUSSION

7.1 Process Map Template: Qualitative assessment of category and theme prominence

In order to elucidate the narratives regarding residential lawn care in each of the study area's neighborhoods, the relevant *categories* and *themes* require logical integration. The process maps for Mount Washington, Westfield, and Park Circle each tell potentially unique stories about each neighborhood, but the grouping of findings – and their interrelationship – are similar across the neighborhoods. The template followed for creating the process maps, as seen in Figure 9, demonstrates these similarities. In the spirit of modified grounded theory, development of the template occurred after data analysis, meaning that it was directly informed by the contents of each interview.

The circular process map describes how community identity characteristics for a particular neighborhood create mesoscale, or neighborhood-level, processes that influence lawn management decisions, thus producing lawn features that, in turn, inform a neighborhood's community identity[1]. The name for each box, within the template, reflects the category of conversation represented by that particular box, excluding *Neighborhood*. The four categories of conversation represented, which were the most prominent in all interviews, are also found in Table 11. Selected major themes from each

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[1] The process map is easiest to follow when beginning with the *Neighborhood* box but it can be interpreted using any of the boxes as a starting point.

category, determined qualitatively based on highest percent prominence and illustration of neighborhood characteristics, are outlined within each box of the process maps. These themes highlight the key concepts in each neighborhood that drive lawn care.

While each box represents one piece of a neighborhood's lawn care story, the box color reveals what part of the story is being told. Yellow and green boxes are descriptive in nature while red and blue boxes provide the explanations behind neighborhood characteristics. In other words, yellow and green boxes reflect codes that answer the "What?" questions about each neighborhood, and red and blue boxes reflect codes that answer the "How?" questions about each neighborhood. Red boxes additionally note the categorization of mesoscale processes as either related to ecology of prestige ("EOP") or not related to ecology of prestige ("non-EOP") and related to the influence of formal authority ("Formal") or related the influence of informal authority ("Informal"). Where the sum of each categorization (i.e. EOP vs. Non-EOP, Formal vs. Informal) is equal to 100% of conversation about mesoscale processes, the individual percentages are how much of the conversation about mesoscale processes is related to each category, as seen in Table 6.
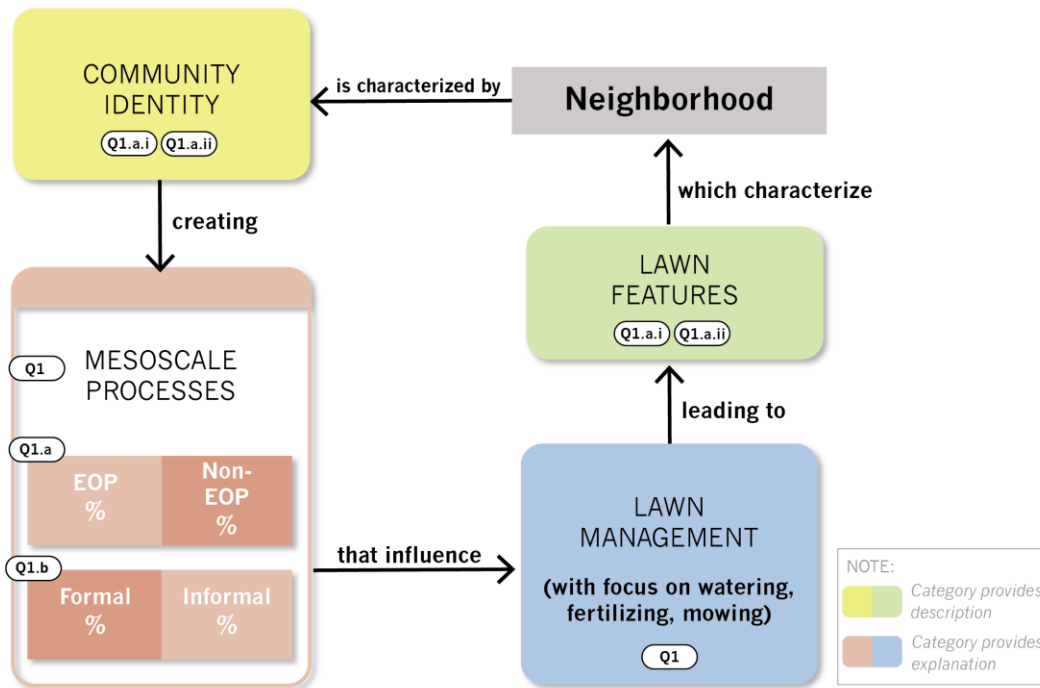
Figure 9: Process map template; each process map links components driving lawn care in each neighborhood; related research questions (Section 4) identified by Q and the corresponding letter/number; EOP reflects related to ecology of prestige; Non-EOP reflects not related to ecology of prestige; Formal reflects the influence of formal authority; Informal reflects the influence of informal authority.

7.2 Mount Washington Lawn Management

To characterize the lawn management of Mount Washington residents, Figure 10 is adopted from the template in Figure 9 and references the neighborhood-specific categories and major themes from Table 11.
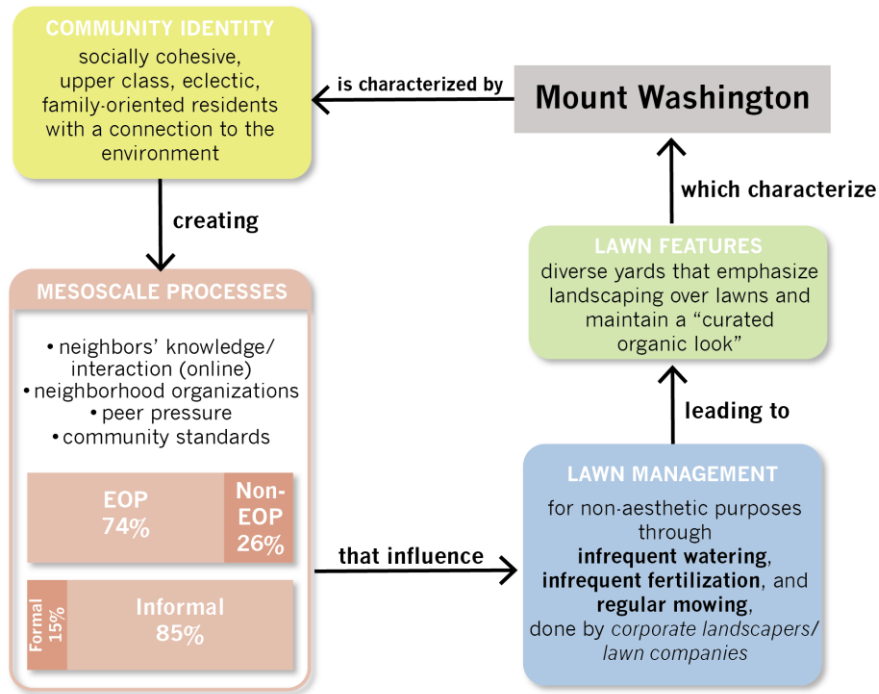
Figure 10: Process map detailing the community identity, mesoscale processes, lawn management, and lawn features in Mount Washington; See Figure 9 for related research question identification.

7.2.1 Mount Washington: Community Identity

Mount Washington key informants described their community as one composed of professionally employed, well educated, middle- to upper- income residents. It is a historic neighborhood, dating back to the late 1800's when the neighborhood featured summer homes for city doctors and businessmen. Today, the neighborhood appeals to

eclectic individuals, featuring informal organizations for people with all interests, such as reading, sports, meditation, babysitting, and gardening, along with families who are well connected through the Mount Washington School. One of the most active organizations in the neighborhood is the Mount Washington Improvement Association (MWIA), a neighborhood association. The association and their events are open to all residents, of which over 400 are official members. Through numerous committees and board members, the association addresses neighborhood concerns, funds local initiatives, and organizes social gatherings. These groups begin to paint a picture of the strong social cohesion present in Mount Washington.

In the neighborhood, residents regularly gather for social events. This includes house parties, garden viewings, association meetings, and holiday gatherings. One holiday gathering in particular, the annual Fourth of July parade sponsored by the MWIA, was mentioned in numerous interviews from both July 2018 and October 2018[2].

> R1: Well you know, recently I went to the Fourth of July, they have a special Fourth of July parade just for the neighborhood, and I really got a sense that it's a little bit more of a communal neighborhood than I had realized. There were probably two, three hundred people there. There was free watermelon and popcorn and uh costumes and various local politicians speaking.
>
> R16: There's a big 4th of July parade. It's unique to the neighborhood where that gets organized every year and all the residents march around and then have a big party on a grass lot.
>
> R22: Oh, the Fourth of July is amazing. We have the best Fourth. I used to hate the Fourth of July before I came here, cause I just felt like I should be doing something, but I never knew what—we have a real, like old fashioned Fourth of July and we all make cupcakes and we bring them to this big party—and the girl scouts lead, you know, God Bless America or whatever. And we have a brass band and the fire engines come up the mountain, you know, the horses, and then everybody dresses up and we all parade through this little parade route through the neighborhood.

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[2] For the remainder of this document, quotes are identified by the letter R (for respondent) and the key informant's respondent number, e.g. R1 for the first respondent. Divider bars within quotes indicate abbreviations from the transcript.

This holiday embodies the spirit of the neighborhood, a place where residents not only

know each other but also are active, close knit, willing to help one another, and remain

residents of the neighborhood for much of their lives.

Residents further maintain connections through the informal Google Groups

listserv. Started over 10 years ago by a resident[3] who wanted to get to know their

neighbors, the group now has over 1,000 members. The listserv functions like a

community board, where people post about things they are selling or donating, advertise

services such as lawn care, publicize events, or ask questions about home maintenance

and engage in discourse with their neighbors. Many key informants described the

significant role this online interaction plays in residents' lives.

> R3: So people, like there's the in-person social aspect but then there's also this whole online social aspect.

> R5: That's a big way that people communicate, for better or worse.

> R2: Um except sometimes it gets crazy. I mean, like I said, thank God that there's a moderator because, I mean…

> R21: And then the other one is the listserv in the neighborhood, that, I don't know, a lot of people belong to that and there are new things that go up on that every day.

> R22: Yeah, I mean, I don't think it's an unalloyed good. I think overall it's a good thing and it's, a lot of good things have come of it, you know, one of which is the garden that I participate in.

Another factor that plays a significant role in residents' lives is the environment.

The neighborhood features several, prominent community gardens, which many residents

belong to and work together in order to grow vegetables. There are also numerous parks

and public plantings, maintained mostly by the Mount Washington Preservation Trust.

Key informants further noted the importance of the "green" feel in the neighborhood,

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[3] Quotes from this resident's interview are noted as R22.

along with the presence of mature trees, wildlife, and outdoor space in general. In fact, this "green" connotation is one of the reasons residents move to this community specifically.

> R3: So it's in the city, right, but it's very green.

> R2: Certainly there are a lot of trees in Mount Washington. That's another thing, you go on a sort of what's about Mount Washington, it is there are tons of trees.

> R16: So we created this arboretum that we maintain. Likewise, there are lots of green spaces throughout Mount Washington that are in the middle of medians or just areas of where common space city property and they were turned into gardens and stuff. So we maintain all of those spaces. And I guess, generally, we promote events and things like that, related to plants and beautification of Mount Washington.

> R22: We have quite a few trees stewards and they would tell you we want more trees.

> R2: Mount Washington is also, their stereotype is, you know, bunch of granola um environmentalist people, so.

> R5: One of the things, almost everybody here I would say really values what the neighborhood, how green it is and how nice the yards and how many trees, even generally how green it is—I mean people come to this neighborhood to a great extent because that's what they're looking for and it's one of the few neighborhoods in Baltimore that offers that.

> R3: I'd say things like environmental, like all of those types of things are of more import or are more, I don't know, focuses here than maybe some of the other neighborhoods, similar neighborhoods in terms of like housing stock.

> R11: And I said, "Just drive around the neighborhood here and you'll see that in a two-block area, there's gotta be 15 Priuses in our neighborhood." So people are very ecologically minded here, they really are. There's a... People are really concerned about everything ecological.

7.2.2 Mount Washington: Mesoscale Processes

The prominent mesoscale processes arising in Mount Washington result from the prominent values expressed in the neighborhood's community identity. Specifically, the overarching interest in the environment and strong social cohesion present in Mount

Washington lead to the influence of neighbors on residents' lawn care. Knowledge

related to lawn care and gardening, shared between neighbors both in person and online

through the listserv, impacts the choices residents make about their yards. One resident in

particular was repeatedly referenced as the go-to person for all things yard- and lawn-

related[4].

> R3: and I think, you know, [removed], who we've mentioned a couple
> times, is an awesome resource, like come over to your house and be like
> "You should", you know, whatever.
>
> R16: I would say [removed] is a big influence. He's been here for so long,
> he has so many connections in the neighborhood. So when he starts
> talking about stuff, people are listening to that.
>
> R6: I think partly because of [removed] and his group. They've really
> convinced people to consider the wildlife aspect of their landscaping.
>
> R16: Hopefully you can talk to [removed]. [removed] is like a fount of
> knowledge. He would know... He would have seen... He would have such
> a larger historical database to draw from than I do. And he would've by
> now, somehow worked in some way of saying that he wanted people to
> get rid of their lawns, but that's his personal crusade—he promotes people
> planting trees, and growing all kinds of plants and stuff, but he wishes that
> more people just had a natural meadow type of approach to what grows on
> their land.

Key informants also shared certain lawn care related interactions that occur on the

listserv. Many of the interactions involve statements of facts or suggestions in response to

residents' yard and lawn care questions. Other times, discussions evolve in a manner

where neighbors issue judgments about industrialized lawn care practices for all listserv

members to see.

> R2: Um there's always a thing on the listserv about the evils of RoundUp
> versus people who use RoundUp—They get into it about all sorts of things
> like that. So RoundUp is the hot topic though. As far as causing
> arguments.
>
> R3: Given the regular, well not regular, the occasional debate on the
> listserv about spraying for mosquitos and things like that, yes people do do

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[4] Quotes from this resident's interview are noted as R21.

it um but I think it's also something that people frown on—I mean for all the people that like get into debates there are probably dozens and dozens of people who are silently reading, right.

R16: I'll see debates kick up on the listserv or where some will say, "Applying RoundUp is the only way to deal with this," and then a bunch of people will be like, "Don't do it". Talk about all the issues that have been brought up with that. So I see... I said like there's a lot of, there's a heavy bent toward in the neighborhood toward... Again, like progressive things, natural things. So a lot of people would be outspoken about not using chemicals, not using things like that, but then, yeah, you'll see people on the listserv that'll say, "Don't tell me what to do. I'm using RoundUp," and it's ridiculous and stuff like that but...

This is one way that peer pressure related to lawn care presents itself in Mount Washington. Key informants secondarily reported peer pressure related to the neighborhood expectation for general upkeep of yards, including lawn height.

R3: Um so people's yards sometimes get kind of overgrown but I'd say it's few and far between that you'd see a house that you're like "Wow, they've really given up", you know?—Probably some social pressure, probably some element of like people that move here are like want a yard and therefore, you know.

R15: And, I think there's... I don't wanna say it's pressure, but maybe it's peer pressure, or maybe it's just kind of the whole neighborhood looking out for everybody else's real estate values at the same time—To keep the curb appeal up on their homes. Which it's not just lawns, but it's paint, and it's shutters, and roofs, that kind of stuff.

Widespread understanding of the community standards further drives residents to accordingly self-regulate their lawn look.

R15: I don't think that's the prime motivator. I think it's, again, that kind of, keeping up the neighborhood appearance, vibe. If that is such a thing.

R3: I think people are self-policing, so to speak.

Similar to the influence of neighbors on each other, neighborhood organizations become both a venue for sharing and a source of lawn and garden information. These organizations include the improvement association, informal gardening groups, local

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nurseries, and non-profits (such as Blue Water Baltimore). They host lawn care and

gardening workshops, issue lawn care recommendations, disperse planting advice, and

distribute free trees.

> R6: In Mount Washington, in particular, there's the Arboretum
> Association has had a huge amount of influence on what people are
> planting...
>
> R16: So there's a non-profit called Blue Water Baltimore. So they're
> known kind of do some marketing and outreach in the neighborhood to...
> They're definitely promoting environmental-friendly approaches and they
> sell plants to be used to fund the non-profit.
>
> R21: What we're gonna try to do is through the Improvement Association,
> through their newsletter, we're gonna try to influence people as far as lawn
> care and other things like planting more native plants, and trying to get
> things that are good for pollinators and for birds, and some kind of more
> ecological lawn care.

The neighborhood-level processes, resulting from Mount Washington's connected and

environmentally informed residents, directly influence the choices residents make related

to lawns.

7.2.3 Mount Washington: Lawn Management and Lawn Features

With regard to lawn management, key informants emphasized that yards fulfill

purposes aside from purely aesthetic. These purposes include food production, recreation,

and privacy, which are accomplished through a significant landscaping presence. When

coupled with the community's ecological consciousness, this leads to an ideal yard look

that emphasizes landscaping over purely grass lawns.

> R2: It's, you will not drive down the street and just see lawn, fence, lawn,
> fence. You would be hard put to find that.
>
> R5: No I mean well as far as the lawns, I mean I would say overall like
> there's a tendency away from lawns in this neighborhood.

> R11: The trend is away from grassy areas and more landscaped areas. There's a lot of interest in gardening.

> R21: Well, I would say there's probably less lawns than in the typical suburb neighborhood. There's more planting with shrubs and perennials and now people don't usually make a big deal about their lawns.

> R15: But I think that a lot of folks in the area take a lot of pride in their houses, the appearance and, obviously, landscaping has a big role to play in that. So, anything from... annual gardens, to perennial gardens, to vegetable gardens.

Such landscaping hosts a variety of species, of which the most often mentioned were azalea (n=6)[5], hostas (n=4), hydrangea (n=3), and bushes, English ivy, rhododendron, and rose (n=2).

While lawns are still present throughout the neighborhood, it appears that the community focus is on carefully selected plantings that look natural. No two houses have the same landscaping, each being unique to the homeowner's personality, and they are usually well thought-out. However, they do not have a rigid feel. Overgrowth is tolerated and even encouraged, as long as it appears purposeful.

> R3: There's a house down the block that has like perfect little, like pruned hedges that go along and almost nobody has that, right, like it stands out to me that they have that uh because most people have like a little bit of a more organic look to it—Not unkempt.

> R6: There are a mix of overgrown yards and very manicured yards. But I would say it's more informal than formal—No rigid lines, formal circles, clips, or hedges.

> R22: But I said, one thing I thought, you know, I think it's pretty, I think people pretty much plant whatever they want to. Some go really, you know, traditional others find really out there kinds of things to plant. There's not, it reveals variety here, I'd say. Just like with the houses, this is a neighborhood was I mean really like from one house to the other, there's nothing cookie cutter about it. They're really quite different. And in many cases you know they kind of reflect the personality of the owner too, I mean.

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[5] Here n represents the number of interviews from Mount Washington in which the topic was mentioned, out of a possible 11 interviews.

These descriptions capture the "curated organic look" of lawns and yards in Mount

Washington.

This look is accomplished through occasional, though mostly infrequent, watering

and organic but infrequent fertilizing of lawns.

> R2: You see less lawn watering in Mount Washington than you do in other neighborhoods. People are much more cognizant in Mount Washington about using less water—I was just thinking about my neighbors, if I've seen sprinklers and stuff, hardly at all.

> R5: So I would say if anything there is a tendency away from fertilizers but you hear every now and then about more on the like organic fertilizer. Spread like cornmeal, blood meal you know that kind of stuff.

The one behavior that all residents conform with is mowing, which occurs regularly

depending on the season.

> R14: A typical normal year, I would say every week to week and a half. This year, it's been 2-3 weeks between intervals when the weather has been clear enough to mow.

> R15: I think that just pretty normal, pretty regular. Once a week, once every six days, depending on the growth. Obviously, if it's a warm... If it gets dry, it slows down, but... I think it's more of on an as-need basis, unless they're contracted with some group that's gonna come every Thursday, no matter. Come hell or high water, they're gonna cut their grass every Thursday.

It is important to note that landscapers and lawn care companies execute the majority of

these lawn care behaviors.

> R3: Oh my god, I joke that this is like number one, it's like on any given day there isn't a landscaping company that's not represented somewhere in this neighborhood.

> R21: Although a lot of people have somebody come and mow the lawn and rake the leaves, as a lot of people don't do that themselves.

7.2.4 Mount Washington: Secondary influences

Although composing only a combined 5% of the conversations in Mount

Washington, microscale and macroscale processes were noted as playing a role in

residents' lawn care. Microscale, or household-level, processes of importance included

personal factors that informed lawn/landscaping decisions, such as individual

preferences, pride, available time, enjoyment of lawn care/gardening, and parental

teachings. Macroscale, or statewide or nationwide, processes of importance focused on

statewide, mostly monetary incentives that encourage environmentally friendly plantings.

Given the relatively high prominence of mesoscale processes over microscale and

macroscale processes in Mount Washington, it is concluded that mesoscale processes

play a more salient role in residents' lawn care[6].

7.2.5 Mount Washington: Role of ecology of prestige

Mesoscale processes that influence lawn care were categorized as either related to

the presence of an ecology of prestige or not related to the presence of an ecology of

prestige. In Mount Washington, the majority of conversation about mesoscale processes

(74%) points to the presence of an ecology of prestige. This finding indicates that there is

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[6] While the prominence of each category of conversation is partially a result of the interview instrument's
nature, i.e. focus on neighborhood-level factors, each interview was guided by what the key informant
wanted to talk about. In other words, questions about the mesoscale could be answered with a microscale or
macroscale response, if the key informant desired. Therefore, I conclude that the percent prominence of
each category mostly reflects what key informants felt were most important to describe about their
neighborhood.

an ideal lawn/landscaping look in the neighborhood and that there are behavioral

influences related to this ideal.

7.2.6 Mount Washington: Role of authority

Mesoscale processes that influence lawn care were additionally categorized as

either related to the influence of formal authority or related to the influence of informal

authority. In Mount Washington, the majority of conversation about mesoscale processes

(85%) points to the influence of informal authority, which further supports the presence

of an ecology of prestige. While key informants described the existence of municipal

regulations regarding yards and lawns, they noted the lack of formal enforcement of these

regulations in the neighborhood and that the threat of enforcement was not what

motivated behavior, instead pointing to informal authority motivations for yard upkeep.

> R5: Even if there are policies, I don't think people are paying attention.
> They do whatever they want to do.

> R14: You could have planting beds of tall decorative little grasses and if it
> appears to be organized in some sort of thoughtful design, the housing
> inspectors won't care about that.

> R21: I think if you let it go, the city can get after you to take care of it, but
> I think it's rarely enforced in our neighborhood.

7.3 Westfield Lawn Management

To characterize the lawn management of Westfield residents, Figure 11 is adopted

from the template in Figure 9 and references the neighborhood-specific categories and

major themes from Table 11.
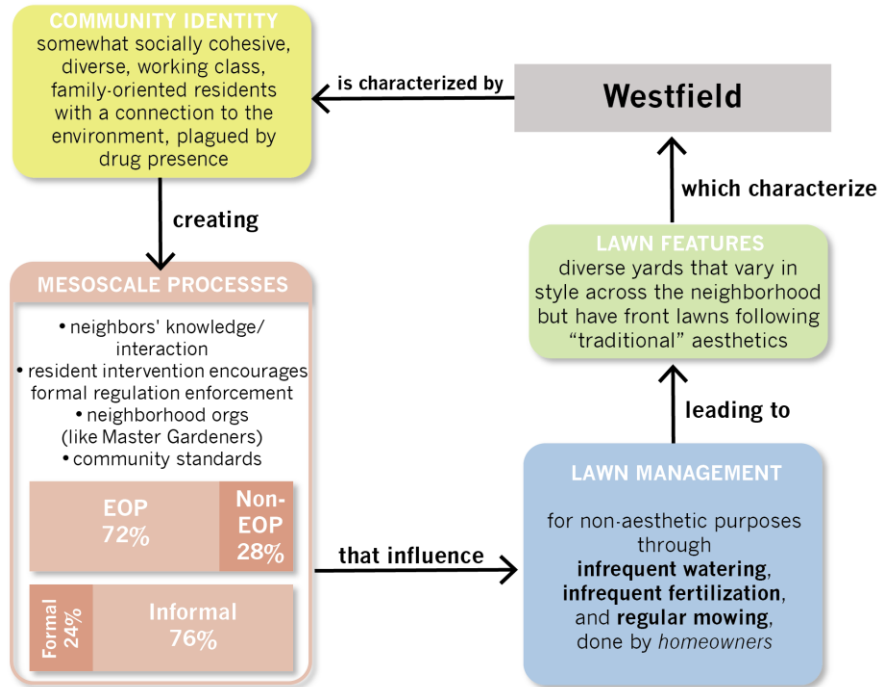
Figure 11: Process map detailing the community identity, mesoscale processes, lawn management, and lawn features in Westfield; See Figure 9 for related research question identification.

7.3.1 Westfield: Community Identity

Westfield key informants described their community as one composed of racially

diverse, working-class residents with moderate incomes. The neighborhood is mostly

composed of detached, single-family homes on small lots, that are both owned and

rented. Additionally, families play a large part in the fabric of this community. Key

informants highlighted the presence of Hamilton Elementary/Middle School in Westfield as an attracting feature for young families, along with a variety of events designed for kids.

Unlike, Mount Washington, social cohesion in Westfield was described in only certain areas of the community. While some blocks of residents are neighborly, knowing their neighbors by name, organizing informal get-togethers, and helping one another, others prefer to keep to themselves. There are also populations of longstanding residents that balance the influx of newcomers[7].

> R10: It depends on who they are. There's people that are very neighborly and know their neighbors, and then there's people who don't know their neighbors and pretty much keep to themselves. I would not say that people act any kind... In an ill way towards each other. It's just there's just some people that are more outgoing than others. I would say a lot of people that are moving to the neighborhood now, there's a lot of people that are very community-oriented that are moving in.

> R18: It's funny, we have a woman in our neighborhood who watches our cat and dog when we're gone, but she watches every pet on the block. She has a key to all of our houses. It's great, we can call her, even if we don't plan, if something comes up and we're out and we can't get home, we can call her and she can come by and make sure they're all good and she'll tell us. So that's the kind of thing... We borrow tools. A couple of us chipped in on a snow blower 'cause you don't need it that often, but when you do, it's nice to have. And we've shared lawnmowers, ladders.

> R20: So speaking from my perspective, I don't feel like it's... There's all that much interaction, but I think that has a lot to do with just kind of the layout and orientation of the architecture of the homes in a lot of ways. My road is between Harford Road and old Harford Road, and it forms this triangle and then there's lots of traffic, a kind of people cutting across in between the two. So I think that it kind of creates this little triangle that I live in of a few blocks. That's Westfield. I kind of feel like it creates sort of a pass-through feel that maybe the other side of Harford feels a little bit more neighborhoody to me when I've walked around in there. So, yeah, from my perspective it's like, yeah, like I said, when I'm walking the dog, I see other people from time to time and they're kind. But I would still say I definitely had higher hopes for in terms of... I'd say on my block, I know there's six households that I'm regularly waving at, nodding too and they

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[7] Some new residents were recognized for trying to be active in the neighborhood.

happen to be outside or on their porches a lot. But there isn't that much in terms of interactions beyond that.

Those who are socially cohesive in the community, demonstrate regular involvement in Westfield's and surrounding community's organizations. Such organizations include Harbel, a social services organization, Hamilton-Lauraville Main Street, a non-profit that coordinates community businesses and events, Master Gardeners, and neighborhood associations, such as the Westfield Neighborhood Improvement Association (WNIA).

> R12: Yep, so there's social events, like the one that you witnessed today, which is an annual derby event, there are festivals and fairs, that take place. The Farmers' Market happens every Tuesday from, I think, June until the end of September. And then there's First Fridays that take place. A lot of this is done by Hamilton-Lauraville Main Street, but we have active business associations and active, very active community associations.

> R19: 'Cause when you look at community associations you see pretty much about 25% participation of those that actually live within the association's borders. The people I deal with, who, remember the community associations, are very close-knit and constantly interact with each other.

Although previously not as active in the community, key informants suggested the WNIA was beginning to have resurgence in membership and community presence through the organization of recent events.

> R17: Trying to do a membership drive right now just to get other people involved from the community. Social events is something that's been talked about—I think there's definitely trying to figure out different ways to get the community involved and to have it be a little bit more fun…

Moreover, events and social interactions in the community tend to incorporate the environment. These include cleanups and gardening groups. For Westfield residents, like

Mount Washington residents, having "green" is an important community identity trait.

This sense of "green" is evoked from the multiple native gardens and abundance of

mature trees.

> R10: In that we do have a lot of people that move to this area because they like the green space and they like to garden. That is something that separates us from the rest of the city. There are other more wealthier places where they have single family homes and stuff, but nothing really too much like this where we have...

> R12: I think that in general, because this area is close to the Herring Run, close to Herring Run Park, people are aware of it being a gem with all of the gardens and yards with gardens in them. So I think this is a real green community. Westfield has some of the loveliest native gardens in the area.

> R18: There is a... It's nicely wooded. There's a lot of mature trees, people are very conscious. There's a nice big greening movement going on, so people are very conscious about planting native species.

> R13: I think it's a... I think a majority of people appreciate the landscape. I don't know that all of them have the education or the knowledge, how to... It may be due... Garden more sustainably, but they do appreciate that they have the landscape.

Finally, the presence of drug use throughout the community influences the

community's standards and priorities. There is demonstrated concern for addicted

populations in the area, mostly related to opioids, and the crimes that follow. Key

informants expressed how drug use is related to obnoxiousness, traffic considerations,

looting, and in extreme cases, violent crime. Key informants further impressed upon the

importance of curtailing drug presence and its effects for the well being of the

community.

> R10: Oh no, it's everywhere. It's pretty visible. And that would be mostly heroin issues. I would say it does impact people—You have traffic considerations, people doing a deal on the street and then flying away. We have a house on North Street that is a nuisance house and they've been that way for years, but it's not like it's an open-air drug market or something like that. But people drive up real quick, and drive away real quick. So, it can be dangerous. Those are really the concerns, that and the loud arguing and just general obnoxiousness.

> R13: Yeah, we have 15 NA meetings a week at that church, every evening... At noon every day except Sunday and every evening—This church has had these meetings before what they now call the opioid crisis. Baltimore has had a heroin problem much longer than the nation has. What we've seen is a change in the demographics of the NA meetings. It was an older clientele, it was... Most of the folks who came to NA meetings in the past were older folks; black and white, but older. Now, it's a lot more people under 30, and a whole lot more white people. So we've seen a change in the demographics and the meeting attendance... We've always had the same frequency, but now there are even more people at those meetings.

> R18: …and we were seeing a lot of problems with prostitution and drug dealing and all this kind of... I forget what they call those, quality of life issues. Then the police would come in and say, "Well, if you guys would stop using the prostitutes and the drug dealers, at least the problems will go away." And we were like, "Oh, okay. That's what we needed to hear."

7.3.2 Westfield: Mesoscale Processes

Given the community's somewhat socially cohesive nature and general interest in the environment, neighbors' knowledge and interaction are a source of lawn care influence. Talking to neighbors while at each other's houses or while meeting for a gardening group was mostly cited.

> R13: I would say family and friends, including neighbors. You know, talking to your neighbors say, "Oh, I like how you did this." You know? Or, "How do you do?"

> R12: So, I have only seen a handful of conversations about fertilizing. People... Usually if someone is asking a question, that means that they're probably a little more willing to be open to other conversations, so I've steered people to professionals, I've steered people to the time of year that you're supposed to be fertilizing in the state.

The biggest way neighbors influence lawn care is through resident-motivated enforcement of formal regulations. Key informants described municipal regulations about length of grass, related to concerns for rat harborage. These regulations are mainly

enforced only when residents communicate a violation to the city, through 311, either by

phone or online. Then, once one lawn is reported, code enforcers will check the entire

block for violations. After an overgrown lawn is found, key informants stated that the city

would either issue a warning, a fine, or cut the lawn and issue a fine. Residents in

Westfield and surrounding communities are encouraged by their neighborhood

associations to report lawn height violations, since that is part of "being a good

neighbor".

> R19: Code enforcer will... Normally it's complaint driven. Say somebody would call 311 in Baltimore or contact 'em by online or by the 311 app. Code enforcement will come out observe the high grass, cite the owner. The owner has 30 days, a certain period of time to abate the problem. If the owner persist and won't cut the lawn then the city will actually cut it at great expense to the owner.

> R12: There are lots of calls all the time because that is part of being part of a culture that we're creating in our association on being good neighbors. And so good neighbors are proactive neighbors and you teach people the norms, and then if they're not following the processes then it's important to call because we are in a city, there are rodents and so, rats like tall grass and if a yard has feces or other things that aren't being disposed of properly, it can become a health issue.

> R18: And you can call the city and the city will come out and cut it for you and fine you, and we did that a few times in the height of summer because, honestly, when it's over 90 degrees out here in July, the grass is growing a foot a day, it can't... It's tough to do. So we did do that to kinda wake 'em up a little bit, but most of the time, we did that.

Mitigating tall grass prevents the assumption that a home may be vacant, which is

desirable since ne'er-do-wells are enticed to conduct drug deals in vacant homes. Aside

from reporting grass height to the city, some residents take matters into their own hands

to uphold the community's standards, by either cutting a neighbor's tall grass themselves

or paying a company to do so.

> R12: One of the guys who's at the table over there, he has a small landscaping business. Sometimes we'll ask him like, "Hey, can you just

cut this for us?" And he... Because he lives in the neighborhood, he understands the importance of mile-high grass, being cut so that the house doesn't become a target for squatters or for people wanting to go inside to do things like whatever you do in a house.

R18: But before that, I was cutting my lawn and then the lawn of the abandoned property next door to me every week—Better to light a candle than to curse the darkness. And basically neither my wife nor I wanted it to look like an abandoned property because of... We were just afraid it would just really make the neighborhood look bad. She would even go so far as to decorate the little tree out in front of it on Christmas with little plug-in lights and put a wreath on the door just so it looked like somebody lived there—We have a lot of problems with squatters in this city and once you get inside a house, legally or illegally, it is very hard to get out. Plus, we didn't want people breaking in there maybe to do drug deals or stash house or any other kind of thing like that.

R12: Or neighbors will just go and cut the lawn because it's important to... It is better to have a well-maintained looking block than... If you know that a lawn's never gonna be cut, you wait, you call, it gets fined, and the neighbor will go and cut it.

R18: Again, if you have... Yeah, I think a lot of people feel as if you have a neighbor there that needs help, you'd rather do it then get them cited, unless they are just willfully mean 'cause it does kinda raise the stakes.

Another major influence on residents' yard decisions is residents' active engagement with neighborhood organizations, such as Master Gardeners. Each state has their own Master Gardeners program, through their agricultural extension office, in which volunteers become educated on yard and garden care to share that information with the public. For Baltimore, Master Gardeners are split between one group for the city and one group for the country. Of the Baltimore City Master Gardeners, many volunteers are located in Westfield and its surrounding communities. Due to their concentrated presence in the area, Master Gardeners are involved in a variety of community events. They also make themselves available to advise residents on yard and garden care.

R10: …they've [WNIA] been working with Master Gardeners and we just did a planting up the street last weekend at the funeral home and it was a native garden planting. So that was... The plants were secured and

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> Westfield got the grant and Master Gardeners secured the plants and chose the... Chose what they're putting in there. So it's a native pollinator garden.
>
> R12: So we have, for the past few years, had a booth at the Hamilton-Lauraville Farmer's Market where we... It's, "Ask a Master Gardener Clinic." So we were either there twice a month, or most recently this season, once a month, where we answer questions and give advice, and usually have some crafts for the kids to get them interested in green things and show the relationship between our food, and insects, and what life cycles look like, all that good stuff.
>
> R19: That's consistently being tried up here. You know, the Master Gardeners are pushing the use of pollinator gardens.

Given residents' inclination towards greening the neighborhood, Master Gardeners' suggestions help further the adoption of environmentally beneficial practices in the community.

7.3.3 Westfield: Lawn Management and Lawn Features

With regard to lawn management, key informants illustrated that yards fulfill purposes aside from purely aesthetic, including food production and recreation. However, yards vary in their purpose and style across the neighborhood. Lawns contrast in size from large to small, gardens differ in landscaping effort, and planting locations are not consistent. The species present in yards throughout the neighborhood are diverse, of which the most often mentioned were crepe myrtle, cucumber, kousa dogwood, pepper, red bud, tomato, and zoysia grass (n=2)[8]

Although yard style is inconsistent, front lawn look is consistently based on "traditional" aesthetics. Here, "traditional" aesthetics refers to lawns that are well-

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[8] Here n represents the number of interviews from Westfield in which the topic was mentioned, out of a possible 7 interviews.

maintained, relatively short, uninterrupted patches of green, monoculture grass, accented

by a few ornamental flowers, shrubs, or trees.

> R17: It's definitely not an anomaly to see monoculture grass and whatever the signs are that they put in the front yard.
>
> R19: I would think if you asked them it would be, the majority of them, it would be a lush green grassy lawn with some trees in it. I mean that would be ideal.
>
> R13: Westfield is a little more traditional kind of like a couple of shrubs by the house, a beautiful patch of my green lawn, and then something colorful for flowers, like a very traditional landscape look, not thinking about biodiversity, not thinking so much about what's a good ecological type of yard to have, little or less they've got knowledge of that.
>
> R20: Well, in my area, I'd say I mostly see just lawns of grass, is the primary thing. Occasional a few ornamental bushes or something in front of people's houses—it seems like a lot of it is just the standard kind of fare that you would see like a contractor put. And it's not unkempt, I think most people... There's a couple of houses that have very disheveled yards, but most people are actively kind of manicuring their property.

These lawns mirror the look of typical suburban lawns described in *Lawn People*

(Robbins, 2007).

In Westfield, the "traditional" look is achieved through occasional, though mostly

infrequent, watering and infrequent fertilization of lawns.

> R20: A few houses, I see watering their lawns but not that many. It's about the same as I see that maybe three to four, the same that I see that fertilize. Probably the people that are fertilizing it are also watering their lawns. There might be another house or two that I don't see those fertilizer signs, but I see them watering from time to time.
>
> R18: Not much [watering], it's been a very wet year. And rarely in dry years, people will just let it go brown rather than waste the water.
>
> R12: I have not seen it happen frequently—I've never been around where I'm here and people say, "Yeah, this weekend, I gotta go fertilize." I don't think that's happening.
>
> R18: Not much [fertilizing] that I'm aware—I know people will get aerated and over-seeded more.

The one lawn care behavior that most residents practice is mowing, which occurs

regularly depending on the season.

> R10: People are pretty good about it. So I would say about once a week during the growing season, probably once a week from about March to about December.

> R18: Weekly... And that starts some time late in March all the way up to about Thanksgiving depending on when we get our first frost—June, July is definitely weekly. August, you can and September you can kinda get away with it every other week, but now it's growing again, so we have to do weekly in October 'cause it's just shooting up.

It is important to note that homeowners play a more active role in implementing lawn

care than landscapers and lawn care companies.

> R13: My view is that it's a really do-it-yourself neighborhood 'cause it's a lot of people who are blue collar workers or have the capability…

> R19: I don't see a lot of commercial lawn care maintenance companies in the area. You'll see them occasionally, but not a lot. So, the lawn maintenance typically is the owner, and that makes it difficult to tell what they're actually doing with the lawn.

7.3.4 Westfield: Secondary influences

Microscale and macroscale processes influencing lawn care compose a combined

7% of the conversations in Westfield. Microscale processes of importance included

personal factors that informed lawn/landscaping decisions, such as investment in home

value, available time, cost, and parental teachings. Macroscale processes of importance

focused on the influence of media, like advertising, and statewide initiatives, like

regulations related to fertilizer applications. Given the relatively high prominence of

mesoscale processes over microscale and macroscale processes in Westfield, it is concluded that mesoscale processes play a more salient role in residents' lawn care[9].

7.3.5 Westfield: Role of ecology of prestige

Mesoscale processes that influence lawn care were categorized as either related to the presence of an ecology of prestige or not related to the presence of an ecology of prestige. In Westfield, the majority of conversation about mesoscale processes (72%) points to the presence of an ecology of prestige. This finding indicates that there is an ideal lawn/landscaping look in the neighborhood and that there are behavioral influences related to this ideal.

7.3.6 Westfield: Role of authority

Mesoscale processes that influence lawn care were additionally categorized as either related to the influence of formal authority or related to the influence of informal authority. In Westfield, the majority of conversation about mesoscale processes (76%) points to the influence of informal authority, which further supports the presence of an ecology of prestige. Formal authority matters in regard to yard upkeep but only in the context of informal authority actors, i.e. residents who motivate formal enforcement of municipal regulations. Regulation enforcement coupled with community standards are the main motivators for conforming to appropriate grass height. Additional sources of

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[9] See footnote 6.

informal authority include neighborhood organizations, like Master Gardeners who

encourage environmentally beneficial yard and lawn practices.

7.4 Park Circle Lawn Management

To characterize the lawn management of Park Circle residents, Figure 12 is adopted from the template in Figure 9 and references the neighborhood-specific categories and major themes from Table 11.
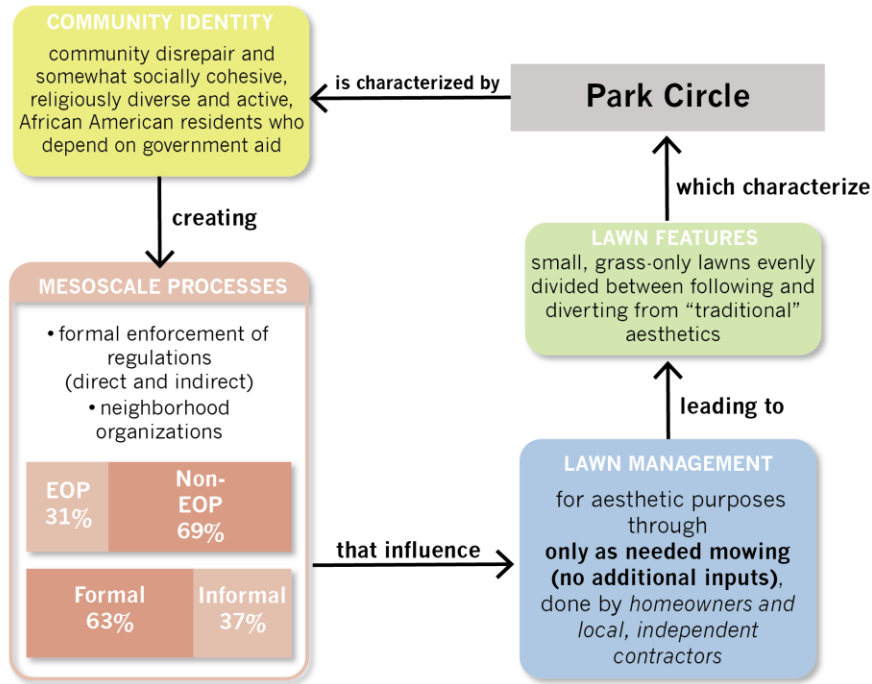
Figure 12: Process map detailing the community identity, mesoscale processes, lawn management, and lawn features in Park Circle; See Figure 9 for related research question identification.

7.4.1 Park Circle: Community Identity

Park Circle key informants described their community as one composed of longstanding, African-American families, with a variety of active religious interests. Many residents have lived in the community their whole lives and there is a significant population that is aging in place. Moreover, the neighborhood has numerous churches

within the surrounding area. Although the majority of residents are of Christian faith, it was reported that residents specifically identify as Catholic, Baptist, or Lutheran. Additionally, some residents are of Islamic faith.

The neighborhood contains residents who rely on government aid, which is provided either directly to residents or to community centers to assist residents. This includes housing services, like affordable housing locations and placement, and senior services, like social security payments. One key informant noted that residents remain in Park Circle because of government assistance.

> R7: Well, most of the people living in that area are renters. They don't even own the property they live in and there's a lot of people up there who are receiving government funding and they just staying there, because that's where they, you know where they were put. Like the government finds you a place to stay and that's where they stay. It's a lot of young folks there who got children just getting out of jail, you know, a lot of foster family, you know, people that raising foster kids, they getting just foster money you know to raise the kids. It's a mess. It's not really a nice place to live.

All key informants described the disrepair that the community is currently experiencing, with high poverty, abandoned homes, closed schools and stores, regular drug activity, and violent crime.

> R7: The houses themselves are row houses, these old brick row houses and they pretty much for the most part, most of them haven't been taken care of so they're falling apart, a lot of them are condemned.

> R9: There's a lack of activity, in the types of programming overall to include young people and that kinda thing, so... Young people you know own this, there's some high violence in certain areas, there's open air drug dealing in the area, several murders in the area. I don't see any visible activity, I don't see any efforts to beautify or anything like that. So, but like I said it's consistent with the type of neglect that's common in urban areas and black communities.

> R7: So you have a lot of violence happening in that community which scares a lot of people away from wanting to live around there or just to do anything around there.

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Municipal government recently took an interest in restructuring and renovating the community. Their focus is on tearing down dilapidated housing and finding an investor to rebuild the entire community from scratch.

> R4: So there's about 37 units of housing that's going to be developed up on Park Heights Avenue, 34 in the 700 block. Those things are being done— This is our, is mostly affordable housing that's going to be done, it's conventional with the average middle income of the neighborhood.
>
> R7: I was recently reading an article where they had been interviewing a number of different investors but they hadn't found anybody as of yet who had enough financial backing to complete the project the way they, the city envisions it. They're looking for a group to come in and build middle income housing. And build schools and recreation centers and an entire community. Someone to come in and build an entire community, not just put up a few houses and they want it to be, somebody to come in, they have enough money to do it all in one fell swoop. All in one project. Not long term, but something that can happen as soon as it can happen.

The current state of the community, along with its established residents, coupled with the government's efforts to bring in new residents, has created some but limited social cohesion.

Key informants provided contrasting responses when asked about the social cohesion of the community. Some mentioned that there are individuals who are active in the community and are friendly with their neighbors while others noted the lack of community and social activity in the neighborhood.

> R4: No, there's a lot of social people especially and, and I'm encouraged, right. One thing is that a lot of the young people, uh, really band together to do events. There's a part of the community that we call Candy Stripe and this is where a lot of the young, they congregate there. And they have their parties there on the outside and they cook out there and barbecue, all that kind of stuff there.
>
> R7: I'd say not so much [sense of community], but there are pockets of people who are, like there are community groups of people who actually own certain houses and they're trying to do things to, you know, fix it up. But it's very small as compared to the amount of people that actually live there. There might be a hundred people who have a community group and

> there's thousands of people that live up in the area at least, if not tens of thousands, that still live in that zone.
>
> R9: Not as a group, there are individuals who are very active, but I don't know if there's any big neighborhood association. I think in the case with the Park Circle Improvement Association, whatever they call it. They've gone through periods of decline, I understand they have a new president now who's trying to do creative things. But it's a fairly neglected community.

Neighborhood organizations that play a role in the community mostly belong to surrounding neighborhoods. These include Park Heights Renaissance, a non-profit that works to improve the Park Heights[10] area, Park Heights Plantation, an urban garden, Park Heights Community Health Alliance, a health justice organization, and the Victorine Q. Adams Community Garden, located in Hanlon Park. The above depictions lead to the categorization of Park Circle as somewhat socially cohesive[11].

7.4.2 Park Circle: Mesoscale Processes

Given the community's state of disrepair and government's interest in regulating the community, municipal regulations and formal authority enforcement of those regulations actively impact residents' lawn care. The same municipal regulations regarding grass height that apply to both Westfield and Mount Washington apply to Park Circle. However, key informants reported regulation enforcement unrelated to resident intervention. In other words, code enforcers are known to check the neighborhood for violations of their own accord. One key informant further suggested that enforcement in

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[10] Key informants expressed that many residents consider Park Circle to be part of Park Heights. Officially, however, these are separate neighborhoods.

[11] While Westfield and Park Circle are both categorized as somewhat socially cohesive, my qualitative interpretation is that Park Circle is less socially cohesive than Westfield.

Park Circle is heightened compared to other neighborhoods because the code enforcers'

central office is located within the neighborhood.

> R4: …because I think the code enforcement issue does makes, it is what makes some people, drives some people to say, "You know what, I've been, that my grass grown too high". In those instances it works. So at the same time, um, you have people that want to maintain their lawns but they also need to maintain their lawns.

> R7: Well, you have to, you have to keep your lawn uh, I think it's about four and a half inches to six inches. You can't let it get any higher than that or they will fine you and they'll come around and cut your lawn. They'll force you to have to take care of your, maintain your lawn.

> R7: Well, yeah, I mean generally they, you know, they have a security patrol that goes around that checks people's, whether they're compliant with these laws, so if you get spotted than they'll write you up, they'll have a large, you know, there's not like whole lot of people running around checking this stuff, but I think we only have one person for our whole area but once they latch on to your house, they start finding all kinds of other stuff wrong, and that's a big problem. They'll start finding all kinds of things wrong and once they found one thing wrong and then once they find one thing wrong in one of the houses, they'll start looking at all the surrounding houses also.

> R4: No. They come all year and because their building is in Park Circle... the code enforcement office is in Park Circle. For most of northwest Baltimore, that office is in Park Circle.

Park Circle residents also appear more at risk of losing their home due to these types of

violations, as expressed by a key informant.

> R4: That someone can, you're probably gonna end up in tax sale because you had high grass—if you didn't pay the fine. They will put a lien on your property and your property can be sold at tax sale for high grass.

Furthermore, municipal regulations that indirectly affect lawn care, such as water usage

fees and water runoff taxes, appear to have a greater effect on Park Circle residents than

Mount Washington or Westfield residents.

> R7: And whereas, when I was in Baltimore County and I was staying, living out there, my water, bill was about $30 a month roughly if it was that much, might have been $30 every three months even. But now I'm

paying $120 a month. So my water bill is close to four or five times higher than it would be just 10 miles from here.

Neighborhood organizations, like the Park Circle Improvement Association, secondarily influence residents' lawn care, mainly through disseminating information about the municipal lawn height regulations.

> R4: We just, we'll just probably put out information about, um, what the rules are for having, you know for, so this is how you avoid getting a fine. We put that out once a year—That's all it is related to the grass height, nothing about pesticides or anything like that.

Other organizations, like the Victorine Q. Adams Community Garden and Sinai Hospital Green Team were noted to educate residents about the environment through neighborhood enhancement.

7.4.3 Park Circle: Lawn Management and Lawn Features

With regard to lawn management, key informants illustrated that lawns mostly fulfill a basic aesthetic purpose. This means that the grass is important for look and feel, not as much for recreation or producing food. Although the front lawns are small, due to the nature of row house construction, the neighborhood's emphasis on generic grass lawns supports their purpose.

> R4: I mean some people just like that grass because it adds a certain look to the house. It's kinda different than all concrete.
> R8: … it's just a patch of grass—a lawn is innocuous.
> R4: No, I think if you just, I mean I think that the size and the way the lots are um, it's a very generic appeal.
> R9: Nothing special [about the lawns]. There's high grass always and certain people clean up their front, nothing impressive.

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As respondent 9 stated, some residents maintain their lawns, based on

"traditional" aesthetics, while others do not. Here "traditional" refers to a lawn that is

well manicured, green, and may be accented by a small bush or shrubs.

> R4: Well, most of them have, um, you know, they have front lawns and
> most of them, most of them for the most part are pretty well manicured.

Not following "traditional" aesthetics refers to organic looking lawns, with high grass

and a lack of lawn chemicals applied. Park Circle key informants almost evenly

supported the presence of front lawns that follow "traditional" aesthetics and the presence

of front lawns that do not.

> Such lawns are achieved through only bare-minimum maintenance. The least

amount of maintenance necessary to keep a lawn looking presentable is what residents

do.

> R7: I don't see people,...people really generally don't spend a lot of time on
> lawn maintenance. Like about as organic as you can get.

Specifically, this refers to a lack of fertilization and watering that only occurs when it

rains.

> R4: I think people allow that to happen naturally. I rarely see anybody
> outside with water. Not saying it doesn't happen, it's just rare.

The main method for maintaining lawns is regular mowing.

> R4: Definitely as needed. But I see a lot of people cut their grass every
> week.
> R7: I mean most of the lawns are cut except for the properties that are
> abandoned or just completely neglected. But for the most part the lawns
> are being taken care of as far as being cut because they would, if they're
> not gonna cut it, the city's gonna cut it.

Mowing is most often done by homeowners, friends or family, or someone hired locally.

> R4: I mean they [a company] may be there if they're tending to the lawn of a senior who may not be able to get out there and cut the grass, you know, his or herself. Things like that. But for the most part, its only mainly residents that take care of their own lawns.
>
> R7: I would say most people take care of their own lawns in Park Circle.
>
> R9: No, there's a lot of mom and pop lawn shops whether they just do lawnmowers or whatever, so I'm sure that they have a connection to somebody who can come do it for them.

7.4.4 Park Circle: Secondary influences

Microscale processes influencing lawn care compose 6% of the conversations in Park Circle[12], which is a slightly higher prominence than that of microscale processes in Mount Washington and Westfield. Some key informants were careful to state that although formal authority has a significant presence in lawn care related matters, personal factors may be an equally strong motivator for individuals to keep up the appearance of their lawns. These factors include investment in home value, pride, and parental teachings.

> R7: I guess home ownership. Yeah once people own their own homes they become more motivated to try to just develop it or enhance it—I guess they just feel like it makes their property more valuable. I guess it's monetary. And monetary and just a quality of life. It improves your quality of life to have a nice lawn around your home.
>
> R4: But I, like I said, people take a lot of a lot of pride in their lawns you know for the most part, especially because when you have a boost in home ownership, and people buyin' their homes and like I said, majority of the people in Park Circle are home owners. So you have, um, people that you know if they own it, they want it to look good. They think a lot about it.

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[12] Macroscale processes account for only 1% of the conversation in Park Circle, which amounts to 4 references, and, because of their relatively low prominence, will not be discussed.

While mesoscale processes remain the dominant influence in lawn care, given the relatively high prominence of mesoscale processes over microscale processes in Park Circle[13], microscale processes can provide additional insight into residents' motivations.

7.4.5 Park Circle: Role of ecology of prestige

Mesoscale processes that influence lawn care were categorized as either related to the presence of an ecology of prestige or not related to the presence of an ecology of prestige. In Park Circle, the majority of conversation about mesoscale processes (69%) did not point to the presence of an ecology of prestige. While this finding does not support that there is an ideal lawn/landscaping look in the neighborhood and that there are behavioral influences related to this ideal, it does not mean that an ecology of prestige is nonexistent. Further research is needed to confirm if an ecology of prestige does not exist.

7.4.6 Park Circle: Role of authority

Mesoscale processes that influence lawn care were additionally categorized as either related to the influence of formal authority or related to the influence of informal authority. In Park Circle, the majority of conversation about mesoscale processes (63%) points to the influence of formal authority, through enforcement of both direct and indirect regulations. In this sense, residents' lawn care is more so mandated by the city

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[13] See footnote 6.

than it is a result of community standards that come from within the community. Since the municipal government has taken an interest in enhancing the community overall, it follows that they would be invested in mitigating urban blight as demonstrated by unkempt lawns.

7.5 Insights into effects of social stratification

The neighborhoods in this study are socially stratified, from low to high socioeconomic status (SES). Fittingly, the most prominent mesoscale processes in each neighborhood are specific to each neighborhood. As socioeconomic status increases in the study area, i.e. from Park Circle, to Westfield, to Mount Washington, the influence of informal authority in lawn care becomes more important, which relates to the presence of ecology of prestige. Based on the limited experience with Park Circle, it is preliminarily suggested that formal authority plays a greater role in the lawn care of a low SES neighborhood. The research did not point to a strong presence of an ecology of prestige in Park Circle, which could reflect the community identity of disrepair, or could be a result of the limited number of interviews[14].

The lawn care patterns between neighborhoods also capture a gradient of differences. Lawn care behaviors, like mowing, fertilizing, and watering, are fairly similar between all three neighborhoods, at least from the experiences of the informants interviewed[15]. What differs is who maintains the lawns – higher SES neighborhoods utilize professional companies while lower SES neighborhoods utilize homeowners or

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[14] This study cannot determine for certain if there is an ecology of prestige in Park Circle.

[15] It is possible that these characterizations only represent a small portion of each neighborhood and not each entire neighborhood.

independent, small businesses. Interestingly, some key informants noted that homeowners might be more likely to improperly apply lawn chemicals (like fertilizer) due to a lack of knowledge, which may result in overuse, while companies would only apply lawn chemicals in a manner that is cost effective. Further research, which is outside the scope of this study, is needed to determine if who cares for a lawn affects its environmental outputs.

Finally, the ideal lawn looks demonstrate a gradient between all three neighborhoods. Yard diversity, i.e. focus on plants and landscaping over lawns, increases with greater socioeconomic status while maintaining a "traditional" lawn look decreases with greater socioeconomic status. The highest SES neighborhood (Mount Washington), emphasizes landscaping over lawns in their yards, the second highest SES neighborhood (Westfield) demonstrates some yards with gardens but most having typical lawns, and the lowest SES neighborhood (Park Circle) contains yards of grass-only lawns. Figure 13 summarizes the above insights as they apply to the study area.

LOW ← SOCIOECONOMIC STATUS → HIGH

Greater:
Influence of formal authority

Lawn care by homeowners/individuals

"Traditional" lawn look

Greater:
Influence of informal authority

Lawn care by professional companies

Yard diversity
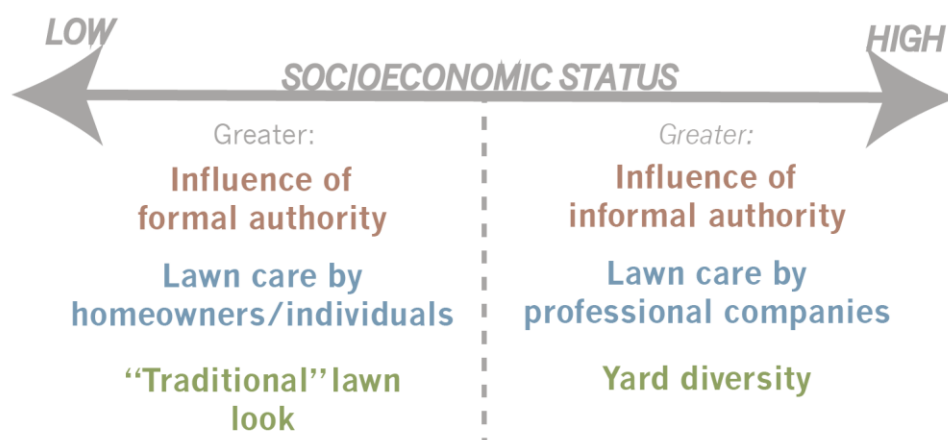
Figure 13: Summary of insights into effects of social stratification on lawn care within the study area.

7.6 Insights into effects of social cohesion

In each neighborhood, the *Community Identity* category illustrates the level of social cohesion. The level varies based on how much residents know one another, express a willingness to help each other, and demonstrate solidarity. For Mount Washington, key informants repeatedly conveyed that these sentiments encompass virtually the entire neighborhood. For Westfield, such sentiments were designated to certain areas in the neighborhood. For Park Circle, these sentiments only applied to select individuals in the neighborhood. In this way, the results point to a gradient of high to low social cohesion, from Mount Washington to Westfield to Park Circle.

Accordingly, the percent influence of informal authority actors on lawn care and percent presence of ecology of prestige follow a parallel pattern. Areas of higher social cohesion, like Mount Washington and Westfield, have more, involved neighborhood organizations and greater interaction with their neighbors, which both influence residents' lawn care. Park Circle residents, who have fewer neighborhood organizations and less social interaction, are more strongly influenced by formal authority actors. Therefore, where there is higher social cohesion, there is a greater influence of informal authority, and greater support for the presence of an ecology of prestige (Figure 14).
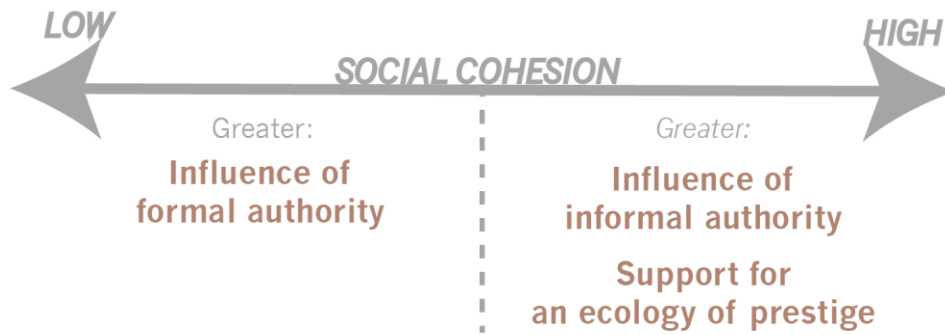
Figure 14: Summary of insights into effects of social cohesion on lawn care within the study area.

7.7 Contributions to ecology of prestige literature

As defined in Section 3, ecology of prestige equates lawn care related spending with group identity, stating that lawns are a way for residents to demonstrate their belonging in a community (Grove et al., 2006; Zhou et al., 2009; Grove et al., 2014). This research supports the notion of prestige as related to lawns in a community, along with the characterization of actions related to an ecology of prestige[16]. One example of support comes from the demonstration of community standards, as related to lawns, in Mount Washington and Westfield. In both neighborhoods, there are spoken and unspoken standards for keeping a yard that looks purposeful and maintained. In Mount Washington, the standard is mostly achieved through residents' self-regulation of lawns. In Westfield, the standard is mostly achieved through resident intervention as related to their neighbors' lawns.

In Westfield, resident intervention motivates formal enforcement of lawn regulations, which is one way to uphold community prestige. This mirrors the finding

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[16] See sections 7.2.5 and 7.3.5.

from Sisser et al. (2016) that formal lawn ordinance enforcement is mainly complaint-driven. What appears novel in Westfield, however, are the actions residents physically take to ensure their neighbors' lawns conform to community standards. Some Westfield residents go beyond calling 311, to have the city fix neighbors' unsightly lawns, by either cutting those lawns themselves or paying someone to do it for them. Residents use their own resources, i.e. time and money, to ensure the prestige of the community is upheld in others' lawns. This goes beyond actions taken by individuals to express their membership in a community with their own households, illustrated by Grove et al. (2006), and expands ecology of prestige to include actions taken by individuals related to others' households. These residents, who work diligently to maintain prestige in their own lawns, desire to prevent the community's prestige from being tarnished by others.

Another important consideration related to ecology of prestige, is that yard practices will vary based on group identity, or by lifestyle groups (Grove et al., 2006; Grove et al., 2014). Mount Washington, which fell under the Tapestry segment of "Urban Chic", and Westfield, which fell under the Tapestry segment of "Parks and Rec", demonstrate somewhat different yard and lawn ideals. Whereas Mount Washington residents prefer landscaping to lawns, Westfield residents want at least some section of yard that has a "traditional" lawn. These individualized preferences are consistent with previous ecology of prestige findings.

Interestingly, both communities identify with a connection to the environment. While the degree to which environmentally beneficial practices are applied to residents' yards varies, maintaining healthy outdoor space seems to be a part of the prestige in these HH communities. Similar mesoscale processes motivate related behaviors, such as peer

pressure to adopt lawn care that is less reliant on chemicals. However, I am unable to

comment on the foundational literature that relates individuals' specific fertilizing

practices to community-based influences (Fraser et al., 2013; Fraser, Bazuin, and

Hornberger, 2016; Carrico et al., 2018), because this study did not survey individual

households.

7.8 Motivating adoption of environmentally friendly lawn practices and industrialized

lawn alternatives

      All three neighborhoods, fall somewhere in between the categorization of having

industrialized lawn care and having non-industrialized lawn care. This is based on the

regular mowing that occurs in all neighborhoods, yet infrequent, if any, application of

fertilizer and water. Mount Washington and Westfield, in particular, demonstrate some

knowledge of the ecological role that lawns play in the local environment. While this

reflected a small portion of the overall conversation, the *themes* within this *category*

illustrate residents' awareness and application of alternatives to industrialized lawn care.

      In both Mount Washington and Westfield, alternative practices include installing

rain gardens and planting native species. Some residents desire to enhance the

environment with their yards.

> R2 (Mount Washington): But like I said, then there's this huge movement,
> I've seen it just in the time I've lived there that people are more interested
> in planting native plants, plants that use less water, um plants that support
> wildlife, you know, bees and monarchs and all that kind of stuff. There's a
> ton of interest in that whereas, you know, 20 years ago nobody cared
> about that stuff.

> R5 (Mount Washington): The only role that I can think of just based on
> hearing you know people talk about why they're planting things is really

more in the ecological. So you know people have uh people have uh a lot of people are looking to assist bees and you know plant native or nonthreatening species and things like that.

R18 (Westfield): Well, what I'm seeing a lot of is people doing these pollinator gardens. And I see a lot of folks working with the Audubon Society to do a natural garden for the birds on the flight path. There's also... I've seen people doing bee-friendly gardens, and some people just taking their lawns out completely and doing more of a natural plantings…

R19 (Westfield): And you just see more and more people who wanna encourage pollination and plant growth in the area. So you're seeing more more people move to native species that are conducive to pollinators.

Residents further demonstrate concern for chemicals used in traditional lawn care, which might explain why fertilization and watering was reported as infrequent.

R11 (Mount Washington): 'Cause they don't believe in chemicals. It's a big... This is... Organic is the operative word.

R22 (Mount Washington): Also people have been concerned about spraying because they keep bees and sometimes a bee colony will drop dead. And, and that was, that was a real concern because of a spraying incident.

R10 (Westfield): People are actually... So, they are concerned about... They're specifically concerned about neonicotinoids, but I guess they would be concerned about systemics if they were expounded upon why they were concerned about the neonicotinoids.

As associated with the nitrogen-related effects of fertilizer application, residents in both communities express concern for fertilizer runoff in local waterways.

R2 (Mount Washington): I mean, you just don't see, I mean people are really cognizant of the fact that it ends up in the Bay. Most of the lawn fertilizer and that's bad and so I mean people are very aware of that. I mean there are, there's a lot of effort to use less water.

R15 (Mount Washington): I think they're also attuned to, probably very sensitive because we are in... We have the dual valley of the Western Run and the Jones Falls, very sensitive to runoff.

R18 (Westfield): …that's what I try to do rather than putting nitrogen in the ground, in the Chesapeake Bay.

Though, not every resident, in either neighborhood, subscribes to these concerns. In speaking with key informants, I asked them what they thought might encourage wider adoption of environmentally friendly lawn practices in their neighborhood[17]. For Mount Washington and Westfield[18], an overwhelming majority suggested that education and exposure to industrialized lawn alternatives and their benefits could have significant influence.

> R1 (Mount Washington): I mean like, I think that people's um general assumption is that there aren't that many options and so I guess what I want to say is that, in answer to your question, exposure and awareness and education play really significant roles in people's decisions around what to do with their yards.

> R21 (Mount Washington): Right, yeah, if they saw their neighbor starting to do aerating in the fall, I think that they would be influenced to do it, especially if they talk to their neighbors. "Now what the heck are you guys doing? Why are you reaping up your lawn and getting the little clods of dirt all over the place." —And then if somebody explains, "No, this is a way to increase the healthy lawn and use less fertilizer and less water," and so forth.

> R10 (Westfield): But I think, probably, if people had the education, most people would probably like to do a less resource-intensive, have a less resource-intensive yards. If people knew that they can plant natives and that would... The benefits of it, less time to futz around with maintaining it, less needs for pesticides or fertilizing. And then you have the benefits that are not necessarily for them directly, stormwater managements, security, whatever.

> R13 (Westfield): I think if people realize that it's actually more... It would be even cheaper, that would help, that we know that it's actually very cost effective. And I think that people do care about the environment, and I think that they understood a little bit more that we're not asking them to actually spend more money, that you could be doing things that are better for the environment and would probably improve the appearance of your yard and it's not gonna be any more expensive. I think that they would be enamored to that. It's just they're not really aware of.

> R21(Mount Washington): The tolerance in our neighborhood for... Tolerance for different ways of doing things are extremely high, so there's not gonna be, I doubt there would be a big outcry if somebody just

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[17] Some key informants were not asked, due to interview time constraints, or did not provide an answer when asked.

[18] Most Park Circle key informants were not asked this question.

decided to turn their lawn into a un-mown meadow. Especially, if they put a sign up, "This is for native landscaping, it's for the butterflies and birds," then people are gonna be like, "Oh okay, I get that." They're supportive of that kind of thing.

Therefore, increasing homeowner knowledge may be one piece of the puzzle to improving lawn management practices (Martini and Nelson, 2014).

7.8.1 Contributions to future policy

While such education and exposure is somewhat present in Mount Washington, through knowledgeable neighbors, and in Westfield, through Master Gardeners' advice, it is not all encompassing. It seems that this information is only helpful to individuals who seek it out. In other words, education about environmentally friendly lawn practices appeals to those who already care about the environment. Likewise, this information is disproportionately available in communities that, as a whole, care about the environment, like Mount Washington and Westfield as opposed to Park Circle.

Since mesoscale processes influencing lawn care are of a high prominence in each neighborhood, mesoscale actors present a compelling starting point for furthering the distribution of such information. In more socially cohesive places, like Mount Washington and Westfield, informal actors may be the best communicators. These include neighbors and neighborhood organizations. This is supported by Martini, Nelson, and Dahmus' (2014) finding that educated homeowners are likely to share best practices with their neighbors. In Park Circle, education would not only be necessary for residents to learn about industrialized lawn alternatives that still look maintained but also would be

necessary for code enforcers. One key informant in Westfield noted how residents are

working with code enforcers to educate them about purposeful overgrowth.

> R12: Our housing department is currently working with their inspectors to
> have a greater understanding of what native plants look like, especially
> when they look like weeds and tall weeds. What a different looking habitat
> can be. And so teaching people and teaching homeowners the difference
> between low maintenance, no maintenance, and something that is
> designed. So you just can't throw a bunch of stuff in your lawn and expect
> that inspectors are supposed to know like, "Oh, that's a native habitat,"
> unless you have a sign of some sort, or it looks very intentional.

Future policy should also consider the development of lawn-related education

tailored to a neighborhood's community identity and conceptualization of prestige.

Programs to promote alternative lawns need to be individualized by the particular

neighborhood, in order to increase their success (Ignatieva et al., 2017). Lastly, to attract

the attention of those who are not necessarily interested in the environment, educational

programs could appeal to microscale processes of influence, such as saving residents time

and money[19].

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[19] In addition to knowledge, time and money were also noted by Martini and Nelson (2014) as potentially influential factors on lawn management behavior.

8.   CONCLUSIONS

With the goal of further understanding the motivators behind lawn care practices that can affect environmental nitrogen flux, this study characterizes the influence of neighborhood level, mesoscale, processes on the residential lawn management of three Baltimore city neighborhoods. Results demonstrate that mesoscale processes play a significant role in the lawn care of Mount Washington, Westfield, and Park Circle residents. The major mesoscale processes directly reflect the nature of each neighborhood, i.e. level of social cohesion or connection between neighbors, and factors of importance to each community. As social cohesion increases between the three neighborhoods, so does the influence of informal authority actors on lawn care.

In Mount Washington, the ideal yard highlights landscaping over grass in a purposeful but natural looking design and is mainly motivated by social interaction. In Westfield, the ideal yard may vary but usually features a "traditional" spread of monoculture grass and is mainly motivated by neighborhood adherence to community standards. In Park Circle, the ideal yard is a grass-only lawn that is regularly mowed. Here, the ideal is influenced by formal enforcement of regulations but additionally motivated by personal investment in property.

Since the neighborhoods in this study were partially selected based on their socioeconomic status, the represented range in socioeconomic status from low to high (Park Circle, to Westfield, to Mount Washington) presents a few interesting comparisons

between neighborhoods. As socioeconomic status increases within the study area, the influence of informal authority in lawn care increases. As socioeconomic status decreases, residents are more likely to care for lawns themselves or hire an individual to help, as opposed to a large, professional service. Lastly, focus on plants and landscaping over "traditional" lawns increases with increasing socioeconomic status.

Since reported lawn care practices were similar across all three neighborhoods, with an apparent lack of fertilization and watering but presence of mowing, I cannot classify these neighborhoods as having purely industrialized or non-industrialized lawn care. Rather, they likely fall somewhere in the middle of that scale. Although this study does not characterize nitrogen dynamics in residential lawn management, this study does illustrate processes that can motivate adoption of lawn care practices that influence nitrogen dynamics, and thus has potential policy implications.

The results of this study are specific to the selected neighborhoods. To make the findings generalizable to communities of similar socioeconomic status, process maps would need to be generated using data from additional neighborhoods. Future research should test if the patterns illustrated here hold true in other Baltimore city neighborhoods, along with Baltimore county neighborhoods, which were reported to have a greater presence of homeowners associations than city neighborhoods. Another avenue of interest may be testing the effects of education and exposure to industrialized lawn alternatives in the same study area and measuring behavioral change. Such research may yield notable findings related to residential lawn management in urban areas.

9. APPENDICES

9.1 Key Informant Interview Instrument

Updated as of **October 12, 2018**

Instructions:
Each set of questions identified as 1, 2, 3, or 4. Mandatory questions identified as "1.1, 1.2, 1.3", etc. Probing/reinforcing questions noted as "2.1.a., 2.1.b., 2.1c.", etc. Helpful prompts are noted in blue or as "2.2.a.i., 2.2.a.ii.", etc.

Preface:

Thank you very much for agreeing to meet with me today. Before we begin, could I please have you sign this consent form? Essentially, this form states that your participation in this interview is completely voluntary and at any time if you wish to leave you may do so. You consent that this interview will be recorded, but this recording will not be publically distributed. I will be using it to later transcribe our conversation.

Pause for form to be read and signed
Begin audio recording after receiving signed form

I also want to mention that it is okay if you are not able to answer all of my questions, either because you are uncomfortable answering the question or you do not have knowledge of that topic. If this is the case, please simply say "I am not able to answer this question".

I would like to begin by introducing myself and the topic of my research project. My name is Hallee Meltzer and I am a second year graduate student in the Master of Science in Environmental Science program at Florida Atlantic University (FAU) in Boca Raton, FL. I work with the Florida Center for Environmental Studies, which is hosted at FAU. My thesis advisor, Dr. Colin Polsky, is the director of the center and a key member of the National Science Foundation sponsored project we are working on today. This project explores lawn care in Baltimore from both the biological and social perspectives.

We are trying to understand how lawn care differs between neighborhoods. Specifically, we are focused on understanding neighborhood policies and customs

with relation to resource-intensive lawn management (e.g. water, fertilizer, pesticide, etc.).

Now, I'd like to ask you a few questions about yourself and _____ (insert name of <u>organization</u> representing):

1. [Introduction]
    1.1. Could you please state your name and the organization you are representing?
        1.1.a.i.   What other involvements/ties do you have in this neighborhood?
    1.2. How long have you lived/worked in this neighborhood?
    1.3. About how many residents do you know in this neighborhood?
    1.4. Could you please describe the *function* of the organization you are representing?
    1.5. Could you please describe *your role* in the organization you are representing?

With this next set of questions, I'd like to learn more about _____ (insert name of <u>neighborhood</u>):

2. [Neighborhood information]

    2.1. How would you describe your neighborhood?
        2.1.a.   Is there anything special about your neighborhood? How so?
        2.1.b.   Do people in this community identify with certain cultures or groups of people? If so, what cultures or groups?
            2.1.b.i.   Ask: Which of your experiences have demonstrated this to you/How do you know this?
            2.1.b.ii.   Clarification: This question refers to dominant beliefs, identities, or affinities in the community (e.g. heritage, religion, politics, occupation, hobbies).
        2.1.c.   Could you describe how residents interact in this neighborhood, i.e. is this a close-knit neighborhood, are people willing to help one another?
            2.1.c.i.   Ask: Which of your experiences have demonstrated this to you/How do you know this?
            2.1.c.ii.   Clarification: Opposite of close knit -- Do people just go to work and sleep here?
        2.1.d.   What organizations are active in this neighborhood, e.g. social clubs, religious groups, government agencies?

Now, I would like to talk about the lawns in this neighborhood. Although the word lawn typically refers to areas of grass only, please also tell me about any gardens, landscaping, plantings or other features that are found in front or back yards of houses in this neighborhood.

    2.2. What are the lawns or styles of landscaping like?
        2.2.a.   What features of the lawn/landscaping do you think matter most to residents of this neighborhood?

<div style="margin-left: 15%;">

2.2.a.i.   Prompt about aesthetic appeal, productivity (food, pollinators, etc.), social purposes (safe area for children to play/host gatherings), impact on the environment.

2.2.a.ii.   Prompt about neighborhood sentiment towards pests/landscape disruption, e.g. deers, ticks, mosquitos, if no response to lawns in general. REMEMBER, guide back to how this relates to lawn care.

2.2.a.iii.   Ask: Do you talk with your neighbors about lawn care choices? If so what do you talk about?

</div>

Next, we're going to talk more in depth about the lawn care choices made in ___ (insert name of neighborhood):

3. [Lawn care practices and preferences]

    3.1. Who takes care of the lawns and yards in this neighborhood?
        3.1.a. Which companies commonly provide services in this area and what services do they provide (e.g. watering, fertilizing, landscaping, mowing)?
        3.1.b. For residents that take care of their lawns themselves, where do they learn how to do so, e.g. neighbors, local store, internet?

    3.2. What are the typical practices for:
        [Consider these during questioning of below – frequency, intensity, seasonality, restrictions, relationship to neighbor's lawn]
        [Reiterate *important features* mentioned above to see how lawn care decisions relate]
        3.2.a. Lawn watering?
        3.2.b. Fertilizing? [mention both inorganic and organic applications]
        3.2.c. Grass cutting/mowing?
        3.2.d. Planting/vegetation choices? [how to deal with overgrowth/conflict]
        3.2.e. Pesticide application?

    3.3. Is there an "*ideal*" lawn look for this neighborhood that residents desire to achieve? If so, could you please describe the features in this lawn?
        3.3.a.i.   [PROMPTING ONLY] Is there an example lawn/yard that other residents follow? What does the example lawn(s) look like?

Last, I would like to talk to you about how political and social processes influence residential lawn care in this neighborhood.

4. [Role of perceived authority]:

    4.1. Are there city or other government policies, rules, or programs that influence residential lawn choices and landscaping?
        4.1.a. Do authorities *actively* enforce these? If so, what are the penalties?

<div style="text-align: center;">119</div>

4.1.b. How does enforcement relate to resident cooperation? Is cooperation rewarded?

    4.1.b.i.   i.e. Do residents follow the regulations because there is strict enforcement or do residents not follow the regulations because there is no enforcement?

4.2. Do homeowner's associations and/or neighborhood associations exist here? What is their role with regard to residential lawn choices and landscaping?

4.2.a. Do these entities *actively* enforce lawn regulations? If so, what are the penalties?

4.2.b. How does enforcement relate to resident cooperation? Is cooperation rewarded?

    4.2.b.i.   i.e. Do residents follow the regulations because there is strict enforcement or do residents not follow the regulations because there is no enforcement?

4.3. What or whom would you say influences the adoption of lawn care practices in this neighborhood and how strong is their influence (e.g. HOA, NA, neighbors, social club, local regulations)? [Allow for multiple responses]

4.3.a. Does ____ (insert reference to entity) set standards for "bad" or "good" lawns? How are "bad" lawns handled or how are "good" lawns encouraged?

4.3.b. If ___ (insert reference to entity) encouraged the adoption of less resource-intensive lawn care practices (e.g. time, money, material inputs), how do you think residents would respond?

Closing:

That concludes my questions for you. Is there anything you would like to add? Do you have any questions for me?

Thank you again for taking the time to speak with me today. If you know of any other groups in your neighborhood or group leaders who might be interested in participating in my project, I would greatly appreciate your references.

9.2 Key Informant Interview Consent Form

Consent Form Version & Date Version 1.0, July 6, 2018

1) <u>**Title of Research Study:**</u> CNH-L: Multi-scale coupled natural human system dynamics of nitrogen in residential landscapes

2) <u>**Investigator(s):**</u> Dr. Colin Polsky (PI), Hallee Meltzer (Graduate Researcher), & Kimberly Vardeman (other)

3) <u>**Purpose:**</u> The purpose of this study is to gather neighborhood-level informant opinions and experiences related to the social dimensions of residential lawncare.

4) <u>**Procedures:**</u>

- You will participate in a one-time, semi-structured interview.
- The interview will last between 30-90 minutes.
- This interview will be held in a safe and secure location. For example, the interview may be held in your office or a meeting/conference room. If you are not available to meet in person, interviews may be conducted over telephone.
- The interview will be audio-recorded using a small voice recorder.
- The participant has the right to stop this interview whenever they believe it appropriate.
- The participant has the right to listen to the recording of their interview and request investigators not to use some responses if they are not satisfied with their response.

5) <u>**Risks:**</u>
The subject matter of this interview includes common and innocuous topics related to residential lawncare choices and their neighborhood-level influencers. No sensitive topics will be discussed. No deception or discomfort is involved. We foresee no substantive risks associated with participation.

6) <u>**Benefits:**</u>
These discussions will be used to illuminate a key knowledge gap in the coupled natural-human system of lawns. Results from this study have the potential to transform the way that residential landscapes are assessed and managed, based on improved understanding of socio-ecological dynamics.

7) <u>Data Collection & Storage:</u>
Signed consent forms will be stored in a locked file cabinet within Dr. Polsky's office in the Center for Environmental Studies at Florida Atlantic University, and will be accessible only to the Dr. Polsky and his research assistants, separate from audio recordings and transcripts. Interview recordings (the digital recorder) will be stored in a locked file cabinet in the office of Dr. Polsky, accessible only to him. Transcripts and digital copies of recordings will be stored in electronic form only, Dr. Polsky's password protected computers and a restricted network drive. Any reporting of data (e.g., in publications) will refer to respondents by number or pseudonyms. Recordings will be erased within one year after completion of the three-year project.

8) <u>Contact Information:</u>
- If you have questions about the study, you should call or email the investigator, Dr. Colin Polsky, at (*954*) *236-1088* or http://www.ces.fau.edu/ or cpolsky@fau.edu .
- If you have questions or concerns about your rights as a research participant, contact the Florida Atlantic University Division of Research, Research Integrity Office at (561) 297-1383 or send an email to researchintegrity@fau.edu.

9) <u>Consent Statement:</u>
*I have read or had read to me the information describing this study. All my questions have been answered to my satisfaction. I am 18 years of age or older and freely consent to participate. I understand that I am free to withdraw from the study at any time without penalty. I have received a copy of this consent form.

I agree _____ I do not agree ____ be audiotaped.

Printed Name of Participant:

_____

Signature of Participant:_____ Date: _____

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