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Planning Cities, Economically or Communally: A comparative study of Amsterdam and San Francisco

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Abstract
Globalization has spun "community" off its axis. What once defined community is no longer the current state of community. Increased economic transactions have led to the instability of communities that once depended on one another at the local level. These communities are now dependent on systems that do not know nor understand their actors. This lack of relationship between development and subject is witnessed and highly scrutinized in developing countries all over the world and has been intensely researched in academic literature. This thesis intends to better understand why in modernized global cities these same processes of development and subject take place without community input. This thesis will analyze two major global cities, San Francisco, California and Amsterdam, Netherlands. The analysis will review the accessible green space in both cities which will determine the access to non-transactional activities. The results should show that increased access to non-transactional activities through access to green space increases a city's level of sustainability through increasing community access to natural environments or more broadly to non-transactional spaces with natural environments being the most prevalent type. Having access to green space and non-transactional activities has the ability to increase awareness and community development surrounding sustainable living.

Keywords: Urbanization, Standardization, Mass Production, Community, Sustainability
Transactional Relationship, Non Transactional Relationship

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Introduction

Globalization has spun “community” off its axis. What once defined community is no longer the current state of the community. Increased economic transactions have led to the instability of communities that once depended on one another. Now, these communities depend on systems that do not know nor understand their actors. This lack of relationship between development and subject is witnessed and highly scrutinized in developing countries all over the world. Then why in modernized global cities do the same processes of development and subject take place endlessly without scrutiny? Current systems of development promote development that increases economic systems which do not always increase quality of life or sustainable living for the subjects living within the system.

My original focus of interest was sustainable development and methods of getting people to participate in sustainable living techniques. I realize now that people are more willing to support a system that benefits the community because it is the community that benefits the people. In order for sustainable development and community-based urban planning to take place, there need to be communities within those systems in order for those systems to develop and function. Without community mentality, systems developed for communities will not succeed. With this in mind, creating sustainable development needs to begin within communities not around communities. This process requires understanding the functionality and aspirations of communities to be able to implement sustainable development that focuses on each community's specific needs. History of development has shown us that there is no single solution as we will see in the sections

that follow. The primary function of this thesis is not to solve development issues, but instead to problematize sustainable development's position vis a vis communities as the loci of sustainability.

This thesis aims to understand the interaction between non-transactional relationships and increasing sustainable living. Sustainability as defined by the 1987 Brundtland Report states that "sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs" (Brundtland, 1987, p. 25). Ensuring present needs do not interfere with future needs is the overall goal of sustainable development and is, unfortunately, an extremely broad term that does not offer significant direction in how to achieve sustainable development. A significant implication with sustainable development is the interconnectedness of economic, social, and environmental development that deserve equal focus to achieve sustainability. With this understanding, there is need to examine further the terminology used around sustainable development to better understand how different cities define sustainability and how this affects the communities within cities.

This research is focused on Amsterdam, Netherlands and San Francisco, California, United States of America as case studies for sustainable development. The primary area of focus for determining a city as sustainable in this thesis is through the accessibility of green space and access to non-transactional interactions in society. In order to limit the amount of data and level of research necessary for this city analysis of

green space, I have focused the majority of research to the city proper of each city. Although details and data of both the urban agglomeration and metropolitan areas will be given, the primary focus will be on the core urban areas of each city in an effort to better understand development and redevelopment of urban areas with high population density. Secondly, there will be a review of major methods for measuring sustainability at the city level. Unfortunately, green space is not a universally measured form of sustainability and will not be reviewed in the measures of sustainability but will be reviewed in my field research.

Section 1: Theoretical Review

Ferdinand Tönnies, a German sociologist, and philosopher was an influential contributor to the understanding of community and society. Although his thoughts do not directly correlate with modern day language or belief systems, his underlying theory has formulated the foundation for understanding community and society. In his 1887 sociological theory of Gemeinschaft und Gesellschaft (Community and Society), Tönnies illustrated that community was within the home. Mother to child, husband to wife, and sibling relationships configure the foundation of community. Society, to Tönnies, is everything that functions outside of the community. These relationships are considered short-term transactions that only last the amount of time it takes for the transaction to take place. He believes that this transactional relationship should be balanced with non-transactional relationships. Due to the rise of capitalism, transactions have become

highly disproportionate which led to the creation of class and the increased division of communities and society. (Tönnies, F., 1957)

Tönnies also discusses the division of community that arises from the increased importance placed on societal relationships that do not benefit the community. Max Weber was heavily influenced by Tönnies' belief that the vanishing handicraft for mass production led to the demise of urban communities. Tönniess idea of two social systems, that of community and that of society, has been fully realized in modern globalization because of the high importance placed on society versus community through mass production and standardization. According to Tönnies, communities no longer rely on nor support one another because it is easier to maintain social relationships that require less interaction and obligation than community relationships. (Tönnies, F., 1957 p.237-70)

Max Weber's *The City* (1958) deeply discusses the importance of understanding the city as a living thing. As one of the founding fathers of sociology, Weber focused his life on studying people as well as the development of the Western world. Weber begins with a historical review of America and the development of major cities within. Weber portrays the history of development in America in terms of the "growing masses of consumers [who] placed new values on standardizations and mass production"..."As the results of handicraft vanished from the product" continues Weber, "skill disappeared from the producer" (Weber, 1958, p.15). His development of the Theory of the Urban Community has four divisions which consist of social actions, social relations, social institutions, and community. The correlation between the vanishing handicraft for mass production goes against the community and social definitives of an urban community.

Weber's other framework consists of the ideal type of urban community. This community consists of trade or commercial relations, court and law of its own, partial political autonomy, military self-sufficient for self-defense, and forms of associations or social participation whereby individuals engage in social relationships and organizations. Weber's perspective on urban community begins the path towards cities separating themselves from the state in order to become competitors in the global market and to meet the needs of the city culture apart from the state (Weber, 1958).

Georg Simmel was a German sociologist that led the way for understanding social individualism. *The Metropolis and Mental Life* (1903) was one of Simmel's most influential pieces of work focused on understanding the mental impact of cities on individuals. Simmel states that "All emotional relationships between persons rest on their individuality, whereas intellectual relationships deal with persons as numbers" (Simmel, 1903, p.12) and in order for the metropolitan to survive the overwhelming chaos of events in city life, the metropolitan person must limit their mental capacity of reaction. One of the many causes for limiting one's reactions to events is from the economical effects of quantifying life. This limit of reaction, or blasé attitude, "is an indifference toward the distinctions between things...that the meaning and the value of the distinctions between things, and therewith of the things themselves, are experienced as meaningless" (Simmel, 1903, p.14). Although life appears to be very blasé to the individual living in a metropolis, Simmel noted that the level of freedom and independence that is obtained through the lack of relationships is what creates the mental state of the city dweller. "Small town life in antiquity as well as in the Middle Ages imposed such limits upon the

movements of the individual in his relationships with the outside world and on his inner independence and differentiation that the modern person could not even breath under such conditions" (Simmel, 1903, p.16).

Simmel points out that the cost for rent increases in cities under the primary condition that the area increases in popularity or mere foot traffic. The individuals living in cities pay the price for their freedom and independence from social constraints that would otherwise be heavily prevalent in their day to day lives if they were to live in a more socially confined environment such as a small town. Simmel also argues that economic division of labor increases individuals' motives to diversify their achievements and to specialize their accomplishments as not to be easily replaced by another individual (Simmel, 1903). Simmel's overall argument is that the division of labor combined with metropolitan environments created the insecurity and apathy of individuals which led them to want to be more independent and different. The crowded metropolitan environments have allowed individuals to become whoever they want to be while blending into the scenery of chaos around them. This combination has allowed the metropolitan person to feel free through self-individualism but has hindered their personal relationships for they do not want to be constrained from their desires via influence from others. (Simmel, 1903)

This theoretical review is intended to depict how these theorists were interested in the ways that capitalism transformed social interaction, and that capitalism's transformations did not stop at the level of social interaction but extended into the built environment (i.e., urban development). Understanding the importance of the impact

capitalism has had over the course of history and the multiple effects that have occured in varying ways, most importantly to this thesis is how capitalism has transformed development. Acknowledging that developments primary focus should be to enhance community, we will see in further sections that sustainable development focuses on capitalism and actually weakens community development.

Section 2: Literature Review

When arguing the complexity of urban design and social engagement, Lewis Mumford's *The Urban Prospect: Social Complexity and the Urban Design* (1968, p.153-66) is an influential historical and critical sociological survey of urban planning in the twentieth century. Mumford argues that the primary downfall of regional and urban planning is the inability to use the past as an indicator for present and future development. He pinpoints the necessity to understand the environmental degradation that occurs from the types of development that take place. Between the long-distance trips from the suburbs to the city for employment on massive highways to the unutilized open space parks that are too far apart and not accessible to large numbers of people, Mumford converges all aspects of societal needs and desires into a functional regional plan. (Mumford, *The Highway and the City,* 1963)

There are many reasons why I bring Mumford into what has thus far been a historical review of economic development that has overtaken the needs for public and societal development. Mumford understands that there is no separation between economy, society and the environment. I would highly advocate that based on Mumford's

historical and societal knowledge of development, that he may be the founder of sustainability considering the three pillars of sustainable development are the economy, society, and environment. His review of many major regional projects, such as the Garden Cities established by Ebenezer Howard in the nineteenth century and the British New Towns development (which is the twentieth-century version of the Garden City) convey that many projects have been replicated even though they are not suitable and lack urban design. This same concept was established in the United States with the development of the Greenbelt in Maryland that was reproduced endlessly throughout the United States, i.e., suburbs, as overcrowding of cities occurred and industries were pushed to locate outside city limits. Mumford's long list of contributions to the urban planning community has been highly influential but unfortunately not well implemented in urban or regional planning. (Mumford, 1938, p.402-493)

Another debate posed by Mumford is located in his essay collection *The Highway and the City: Landscape and Townscape* (1963), where he establishes three main arguments surrounding the importance of community-based development. Many cities have implemented large-scale parks or green space areas to prevent further congestion and expansion of the city, but they lack in incorporating small-scale parks that can be used recreationally for adults to relax and children to play. Many of these large-scale green spaces have become places for tourists or areas of refuge for holiday weekends. His other argument is that the development of suburbs have not incorporated local businesses or community opportunities for long-term sustainment of the area. The abundance of green space and house size due to less expensive land over consumes the natural

environment and cannot be enjoyed due to long commutes to employment. This leads to his final argument, people are overworked and commuting strenuous distances either for work or for access to green space which leaves them with no leisure time for enjoying greenspace and their community. The solutions for these problems include planning suburbs to have more functionality and offer more employment opportunities while also incorporating small-scale green spaces throughout cities so that populations can access them regularly. The functionality of a city should be focused on offering outdoor space to communities and not parking for cars (Mumford, *The Highway and the City: Landscape and Townscape*. 1963, p.223-33).

Neil Smith tries to determine what "new globalism" is and how it differs from past interpretations of globalization. In his article *New Globalism, New Urbanism: Gentrification as Global Urban Strategy* (2002) he claims that globalizing of the 21st century are not commodity capital or world markets because these systems have been prevalent since Adam Smith and Karl Marx. Neil Smith argues that globalization has occurred throughout the twentieth century but that "new globalization" is the development of internal markets that work not only across international borders but also within corporations. Smith also implies that the reason behind the urban expansion is not due to the reproduction of pre-existing elements of a market but instead due to the social production of wanting to increase social situations. Smith argues alongside Peter Taylor (Smith, 1995, p.58) that cities are redefining their position in society because they are no longer associating their ideals with those of the state. The cause of this disassociation is because gentrification has enabled employment in low-income positions while allowing

low-income minority communities to remain in certain parts of the city in order to maintain a portion of their positionality within their community. But, the emergence of private markets within city development has driven the re-creation of community to meet the needs of private markets and neglect the needs of the original communities.

Since the Brundtland Report, there have been numerous terms developed to define sustainability. Through extensive research of 1430 articles between 1996 and 2013, Jong (2015) shows there are twelve most frequently used terms when categorizing a city's level or type of sustainability. According to Jong (2015), there are twelve terms used interchangeably to define a city's type of sustainability, upon his further analysis and research, Jong concludes that these twelve terms should be used independently and should not be used interchangeably. Jong's analysis shows that 'eco-city', 'sustainable city', 'smart city', 'low carbon city', 'knowledge city', 'intelligent city', 'digital city', 'ubiquitous city', 'resilient city', 'green city', 'information city', and 'liveable city' (Jong, 2015) are the twelve most frequently used terms of sustainability in categorizing cities. According to Jong "'sustainable city' is the most frequently occurring category and, in the maps of co-occurring keywords, the largest and most interconnected node, which is most intricately linked with 'eco-city' and 'green city'" (Jong, 2015. p.27). Furthermore, Jong goes on to explain that:

> 'smart city' stands out as a new set of concepts, in which social inclusion and the role of the internet for the creation of new businesses and jobs, for the provision of high quality services and for the empowerment of citizens with information, are prominent features; this positions the 'smart city' as a distinct category of urban modernization ambitions and initiatives. In fact, the 'smart city' family of concepts seems – at least at present – to be on its way to become leading as a driver of urban sustainability and regeneration initiatives. In 2012, the 'smart city' surpassed the

> 'sustainable city' in frequency of occurrence in academic discourse." (Jong, 2015. p.27)

Jong's in-depth research of sustainability terminology and city categorization clarifies how cities are deemed sustainable based on the language of their classification.

Jong's research explains the following:

> We found that one category appears both with high frequency and in a central position, coupled with a broad overarching conceptual meaning ('sustainable city'); two categories are relatively frequent and yet conceptually more distinct ('smart city', 'eco city'); one relatively frequent and conceptually distinct, but very peripheral ('digital city'); one of average frequency, but with low distinction ('green city'); three of average frequency but with a distinct conceptual meaning ('low carbon city', 'resilient city' and 'knowledge city'); and, finally, four of low frequency and low distinctness ('intelligent city', 'information city', 'ubiquitous city' and 'liveable city'. (Jong, 2015. p.12-13)

Development focusing on global acknowledgment rather than on community health creates a misperception of how to socialize and interact with the city. Families are unlikely to feel comfortable in settings primarily focused on single entrepreneurs. The reason for this is due to the economic revenue and business diversity that entrepreneurs provide for the city which leads to more community events focused on this population.

According to *Atlas of Cities* (Derudder, 2014*)*, San Francisco, California is labeled as a 'global city' as well as an 'intelligent city' and Amsterdam, Netherlands is labeled as an 'intelligent city' (Derudder, 2014.). Many global cities focus on maintaining their status as a global city and less on what makes them a sustainable city. The lack of focus on families as a major portion of the community decreases their role in society and the impact they have at the local level and global level. Families are a major consumers

in society and need to be included in the 'global' and 'intelligent' definition of sustainability. In order for families or low-income groups to be associated to sustainable development, non-transactional interactions focusing on their contribution to society need to be implemented within cities.

According to Derudder (2014), global cities are common locations for "flagship cultural sites, conference centers, big mixed-use developments, waterfront redevelopments, and major sports and entertainment complexes" (Derudder, 2014, p.115) all of which are considered key developments that label a global cityscape. These major developments are primary focus points in economic development because they bring tourism, employment, housing, culture and publicity to the city. When deciding on a place to call home, many aspects of a location are considered and deemed important and necessary to the buyer. This buyer could be a single mother and her three children or a multi-million dollar corporation. What these two different buyers deem important and necessary differentiate significantly. The definition of a global city is grounded in economic development, but Derudder (2014) argues that global cities also need to focus on the social inequality that increases because of development and "the direct or indirect displacement of low-income groups" (Derudder, 2014. p.119).

Stephen Zavestoski discusses how terminology has evolved over the twentieth century from sustainability to sustainable development to world-class sustainable cities (*Zavestoski, 2018*). Zavestoski states that "Another nuance of this evolution was that cities came to be seen for their potential to solve sustainable development problems rather than part of the problem themselves" (Zavestoski, 2018). The issue Zavestoski is

defining is that the terminology surrounding cities and development is changing, and global cities are regarded as the solution to sustainability not through change in processes but for finding solutions for global issues. Instead, Zavestoski points out that global cities have an important role not only in finding solutions, but in implementing them through policy and action within their borders. Urban planning is a local issue that cannot be replicated and provide the same outcomes for every city because every city is distinctly different economically, socially, and environmentally. Unfortunately, economic development, social development and sustainable development are used interchangeably at the city level, perhaps partly due to the Brundtland Report's vague definition of sustainability.

A more modern take on urban development is Primoz Medved's article titled "A Contribution to the Structural Model of Autonomous, Sustainable Neighbourhoods: New Socio-Economical Basis for Sustainable Urban Planning" (2016). This article portrays a picture perfect model of sustainable neighborhoods that are located within cities. These mini-cities are formulated around the population that resides in the area, and sustainable development goals are created on a smaller scale to meet the needs of the local community. Medved consistently references the strategic urban sustainability goals and the four pillars of urban sustainability which include energy and natural resources, sustainable transport, socio-economic balance, and sustainable urban design elements. The issue with the sustainability goals is that they were developed for a global initiative and all nation-states are judged based on their GHG emissions, water consumption, environmental damage, transportation and other unsustainable behavior. Once again, we

see how global solutions are created, implemented and repeatedly fail due to the inaccessibility of local communities to participate.

Medved (2016) reviews successful sustainable neighborhoods that have been established throughout the European Union and defines how and why these local communities have been able to develop sustainable planning. He presses how the socio-economic balance within a community is a determining factor for sustainable planning. Incorporating community centers that promote engagement between all ages and walks of life is a critical indicator in implementing further planning because it builds community within society. The correlating agreement between all of the above essays is that "Local urban development should be focused, like in ecovillages, on conserving and strengthening the local community and on an active role of its members" (Medved, 2016, p.26). Without active participation, development cannot incorporate local needs for local situations.

The overall message that should be grasped from the above literary review is that communities have local attributes that cannot be attained by a single development scheme. Sustainability is the responsibility of each community to implement sustainable planning techniques that take their geographic, economic and societal needs and ensure their consideration in planning. If there is a single solution for all urban development schemes, it is the following: every city is fundamentally different and should be planned individually. This point is reiterated by Medved (2016) when discussing the importance of socio-economic sustainable planning that incorporates the local community into planning initiatives that directly impact the members of that community.

The following section will review the limitations of existing conceptual models of measuring sustainability. This sections primary focus is on the foundation of Medved's (2016) focus on community development and global sustainable initiatives that cannot be implemented at the community level. Due to the large scale of global measurements used to determine sustainability, community sustainability is not referred to or measured in any of the following sustainability models. And finally, as we will see, each of the following conceptual models reviewed have rated both San Francisco and Amsterdam at the global city level without mention of community, access to green space or non-transactional activities.

Section 3: Limitations of Existing Conceptual Models of Sustainability

This section will review the multiple measures, models, and methods for determining sustainability that have been developed over the past forty years in the United States and the European Union. Unfortunately, there is no standardized methodology to measure 'sustainability' or 'sustainable development' due to the extreme variations between cities. Lack of standardized methodology of measurement has reduced the ability for environmental policy to enforce environmental protection at the national or international level. The following measures, models and methods that are reviewed below include the Global Power City Index (GPCI), the Green City Index (GCI) and the Arcadis Sustainable Cities Index (SCI).

The Global Power City Index (GPCI)

The Global Power City Index (GPCI) was created in 2008 by The Institute for Urban Strategies (IUS) at the Mori Memorial Foundation. According to the IUS the GPCI "has been the basis of our research activities and from that we identify urban policy issues" (Global Power City Index. 2016) which are identified by leaders in the academic field of urban planning and all published material undergoes a thorough scholarly review process through a third party that includes public and private sector experts at the international level. The purpose of the GPCI is to evaluate the competitiveness of global cities to determine what makes a city more attractive at the international level for creative individuals and business enterprises (GPCI, 2017. pp 1). The focus of the GPCI is not on the community access to creative opportunities but instead focuses on the international attractiveness for individuals and businesses located outside of the community.

The GPCI has gathered data over the past ten years to better understand why cities are appealing and what challenges these cities face. The GPCI-2017 version has expanded its city analysis and now provides data for 44 global cities. The GPCI focuses on six major functions of a city which include a thorough analysis of a city's economy, research and development, cultural interaction, livability, environment and accessibility. These six functions are analyzed through five different urban actor lenses to conjecture the functionality of the city based on five major forms of engagement that are found in every major global city. The five forms of urban actors include manager, researcher, artist, visitor and resident. The 2017 GPCI report expanded its analysis to also include the

analysis of the advancement of women in society, ICT infrastructure, and risks to mental health. (GPCI, 2017. pp 1)

The Green City Index (GCI)

The Green City Index (GCI) series is a research project conducted by the Economist Intelligence Unit (EIU) and sponsored by Siemens (Economist Intelligence Unit, 2012, p.4). The GCI measures cities on approximately 30 indicators across eight to nine categories depending on the region. The indicators used include CO2 emissions, energy, buildings, land use, transportation, water and sanitation, waste management, air quality and environmental policy. The formation of the data gathered is approximately half quantitative and half qualitative. The quantitative data is gathered from official public sources regarding a city's CO2 emissions, percent of recycled materials, and consumptive behavior. The qualitative assessments are based around analyzing a city's commitment to renewable energy, traffic congestion reduction policies, and air pollution policies. According to the GCI, "Measuring quantitative and qualitative indicators together means the Indexes are based on current environmental performance as well as the city's intentions to become greener" (Economist Intelligence Unit, 2012, p.8).

The GCI has established five indexes depending on the region of assessment that cover 120 cities globally. These five indexes include the European GCI, the Latin American GCI, the Asian GCI, the US and Canada GCI and the African GCI. For the purpose of this thesis we will be reviewing only the European GCI and the US and Canada GCI. The European GCI analyzed 30 cities and the US and Canada GCI analyzed

27 cities against eight categories covering 30 indicators (shown in Figure 2, pg. 24). Also included in the GCI are seven steps to a greener city that have deemed important after the analysis of 120 cities was concluded. The steps developed by the EUI include 1) good governance and leadership at the metropolitan level, 2) a holistic approach, 3) policy before wealth, 4) civic engagement, 5) the right technology, 6) the green and brown agenda need to go hand in hand, and 7) tackle informal settlements (Economist Intelligence Unit, 2012, p.38-45). Again, we see that community is not considered its own agenda item but enveloped into other categories that determine sustainability. Step six to a greener city suggests that the green and brown agenda need to go hand in hand. But, this step it is too brief to determine if this statement suggests increasing access to green space and non-transactional activities for local community members or perhaps it is focused on capitalism of unused space that can be redeveloped as an economic boost for the city.

Arcadis Sustainable Cities Index (SCI)

Arcadis was established in 1888 and has become a leader in global design and consultancy and is the second largest international design firm in the world for both natural and built assets with an emphasis on sustainability. According to Arcadis, a city's ability to achieve balance between people, planet and profit is to "put people at the heart of sustainability" (Arcadis, 2016) in order to build sustainable cities. The Sustainable Cities Index (SCI) developed by Arcadis "ranks 100 global cities on three dimensions of sustainability: people, planet and profit" and has been successful in analyzing data

because “Arcadis partnered with the Centre for Economic and Business Research (Cebr) to explore how cities are doing across these three areas” (Arcadis, 2016. p.5-7).

The issue with the SCI is the brief Venn Diagram style of measuring sustainability. That in order to achieve sustainability, development needs to focus on people, planet and profit equally. This is by far too broad of a spectrum to accurately define the level of sustainability of each city analyzed. Assuming the SCI categorizes community under people in their analysis leaves far too much room for error. We will see in the below section a more indepth review of the SCI and how they categorize San Francisco and Amsterdam against 100 other cities and if community and greens space are on the SCI agenda.

Through the varying methods to measure sustainability, we see that it is not impossible but it is difficult to measure a city’s level of sustainability because of the many categories associated to sustainability. Later, this thesis will review how San Francisco and Amsterdam rank on some of the most prominent methods of measurement for sustainability. We will see that the correlation between creating environments that utilize space efficiently and beneficially will increase the populations availability to promote sustainable behavior from their surrounding sustainable development. There is an important place that hosts all three pillars of sustainability, a place where politics, society and environment come together, a place called public green space. As the next section shows, however, green space as non-transactional space has no bearing on the sustainability rankings for San Francisco and Amsterdam.

Section 4: Sustainable Cities Ranking of San Francisco and Amsterdam

Now that we have reviewed the limitations of existing conceptual models of sustainability, I will explain the method of measuring sustainable development through my own research in association with academic literature. This section will clarify systems of sustainable development, review the ranking of sustainable development between San Francisco and Amsterdam according to several international indexes, and will finish with my own field research on accessibility to non-transactional interactions within city limits. This section will begin with the GPCI (2016) ranking for San Francisco and Amsterdam, followed by the GCI (2012) ranking, then the Arcadis (2016) ranking, and finish with Derudder's (2014) *Atlas of Cities* categorization for San Francisco and Amsterdam.

The Global Power City Index (GPCI)

According to the GPCI (Global Power City Index) defined in Section 3, the overall ranking for Amsterdam is eighth place and San Francisco at twenty fourth out of forty analyzed global cities. The analysis reviews economic development, research and development, cultural interaction, livability, environment and accessibility. For economic development which analyzes market size, market attractiveness, economic vitality, human capital, business environment and ease of doing business, Amsterdam ranks nineteenth and San Francisco ranks fifteenth in economic development. For research and development which analyzes academic resources, research background, and research

achievement; Amsterdam ranks twenty fourth and San Francisco ranks ninth. Cultural interaction analyzes trendsetting potential, cultural resources, facilities and resources, attractiveness to visitors, and international interactions. For cultural interaction Amsterdam ranks eleventh place and San Francisco ranks twenty sixth. In regards to livability, the GPCI reviews the working environment, cost of living, security and safety, well-being, and ease of living. The overall livability ranking for Amsterdam is eleventh and San Francisco ranks twenty-eighth.

In terms of environment, Amsterdam ranks thirteenth and San Francisco ranks twenty-first for ecology, air quality, and natural environment. Lastly, accessibility is analyzed for international transportation network, international transportation infrastructure, inner-city transportation services, and traffic convenience. In regards to accessibility, Amsterdam ranks at fifth and San Francisco ranks at thirty-third place. Derudder (2014) states that "However, the built environment of global cities is much more than a collection of buildings to enable the work of globally operating firms and institutions. Global cities are also prime examples of 'designscapes': distinctive ensembles of buildings that convey a message to the world" (Derudder, 2014, p. 115).

In regards to the GPCI, the overall analysis of sustainability focuses far too much on the international recognition of the built environment. The GPCI analyzed cultural interaction, livability and environment with a focus on attractiveness to visitors, international interactions, the working environment, cost of living, ease of living, and natural environment. None of these categories analyze or incorporate access to green space or non-transactional activities at the local community level. The broad spectrum of

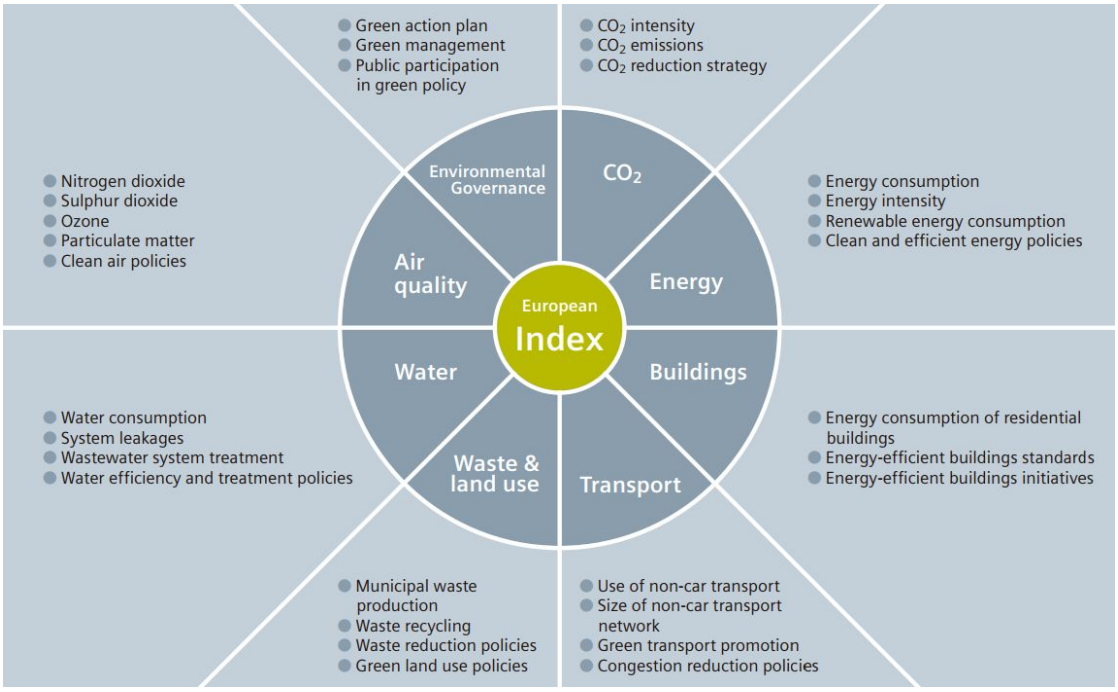
analysis is almost completely focused on international recognition and attractiveness to visitors. This capitalistic focus on sustainable development pushes to enhance development focused on groups that do not reside within the communities being analyzed.

The Green City Index

The GCI (Green City Index), reviewed in Section 3, has five Green City Indexes, the European GCI, the Latin American GCI, the Asian GCI, the US and Canada GCI, and the African GCI. We will review how Amsterdam ranks in the European GCI and San Francisco in the US and Canada GCI. According to the GCI, North and South America are the most urbanised regions in the world with just over 80% of residents residing in cities. Europe is at just over 70% of residents living in urban areas (Economic Intelligence Unit, 2012, p.4). According to the GCI, "Growing numbers of city residents put pressure on energy and water resources, waste management, sewer systems, and transport networks...in order to tackle climate change, avoid lasting damage to vital ecosystems and improve the health and wellbeing of billions of people, solutions to these problems must be sought at the municipal level" (Economic Intelligence Unit, 2012, p.4). According to the GCI for Europe and the US, there are many areas where each region excels and where each region can make room for improvements to better ensure urbanized areas are capable of becoming greener regions through their major urban areas.

The European Green City Index evaluates 16 quantitative and 14 qualitative indicators (seen below in Figure 1) across environmental governance, CO2 emissions,

energy, buildings, transport, waste and land use, water and air quality (Economic Intelligence Unit, 2012, p.9). In Europe, Copenhagen leads the Index at number one and Amsterdam follows at number five (Economic Intelligence Unit, 2012, p.12). "Among the developed Index cities worldwide, Amsterdam consumes the least water, at 146 litres per person per day. The leading city in North America, New York City, consumes 262 litres, and the leading developed city in Asia, Yokohama, consumes 300 litres" (Economic Intelligence Unit, 2012, p.12).



(Figure 1: Economic Intelligence Unit, Global City Index, 2012, p.9)

San Francisco is the highest ranked city in the US and Canada due to having strong policies across all categories (shown below in Figure 2). In 2009, San Francisco became the first city to implement composting as a waste management requirement. Due to this policy implementation, the city recycles 77% of the total waste generated annually. According to the GCI, San Francisco "has also been a trailblazer in partnering

with the private sector on innovative green initiatives. These include energy-efficiency awareness programmes paid for by business and low-cost loans to property owners to fund green improvements" (Economic Intelligence Unit, 2012, p.29).

Comparison of US & Canada Index Ranking and European Index Ranking

Overall Results

Rank	City	Score
1	San Francisco	83.8
2	Vancouver	81.3
3	New York City	79.2
4	Seattle	79.1
5	Denver	73.5
6	Boston	72.6
7	Los Angeles	72.5
8	Washington DC	71.4
9	Toronto	68.4
10	Minneapolis	67.7
11	Chicago	66.9
12	Ottawa	66.8
13	Philadelphia	66.7
14	Calgary	64.8
15	Sacramento	63.7
16	Houston	62.6
17	Dallas	62.3
18	Orlando	61.1
19	Montreal	59.8
20	Charlotte	59.0
21	Atlanta	57.8
22	Miami	57.3
23	Pittsburgh	56.6
24	Phoenix	55.4
25	Cleveland	39.7
26	St Louis	35.1
27	Detroit	28.4

Overall Results

Rank	City	Score
1	Copenhagen	87.31
2	Stockholm	86.65
3	Oslo	83.98
4	Vienna	83.34
5	Amsterdam	83.03
6	Zurich	82.31
7	Helsinki	79.29
8	Berlin	79.01
9	Brussels	78.01
10	Paris	73.21
11	London	71.56
12	Madrid	67.08
13	Vilnius	62.77
14	Rome	62.58
15	Riga	59.57
16	Warsaw	59.04
17	Budapest	57.55
18	Lisbon	57.25
19	Ljubljana	56.39
20	Bratislava	56.09
21	Dublin	53.98
22	Athens	53.09
23	Tallinn	52.98
24	Prague	49.78
25	Istanbul	45.20
26	Zagreb	42.36
27	Belgrade	40.03
28	Bucharest	39.14
29	Sofia	36.85
30	Kiev	32.33

(Figure 2: Economic Intelligence Unit, Global City Index, 2012, p.15 & p.29)

Establishing a set of agreed-upon global metrics for urban carbon emissions, energy consumption, air quality and other key environmental performance indicators would be a major step towards providing policymakers with a comprehensive assessment of their cities' current environmental footprint. More importantly, a consistent set of sustainability indicators would help reveal the most appropriate municipal policies and efficient investments to improve green performance (Economic Intelligence Unit, 2012,

p.11). “There is a correlation between good governance and top performance in the Indexes. The leaders in the regions, such as Copenhagen, San Francisco or Curitiba all set policies that meet or exceed national or state standards” (Economic Intelligence Unit, 2012, p.38). Having a holistic approach to sustainability is the understanding that a lack of performance in one area is associated to the decreased performance or lack of policy in another area. San Francisco has been successful in creating city level environmental policy because of highly accurate data collection occurring at both the small and large scale (Economic Intelligence Unit, 2012).

Unfortunately, this analysis of sustainability does not include community or green space at the local level. The closest the GCI gets to reviewing the community is through an analysis of public participation in green policy, green land use policies, and energy consumption of residential buildings. Apart from these three categories of measurement, there is no mention of community access to green space or to non-transactional activities which are both necessary for the establishment of sustainable communities. All of the above measurements are primarily in the control of businesses and policy makers, none of which directly involve the community but directly affect the community.

Arcadis Sustainable Cities Index (SCI)

The Arcadis Sustainable Cities Index (SCI) reviews people, planet and profit to determine a city's level of sustainability. On the overall index for the SCI, Amsterdam ranks #11 and San Francisco ranks #39. First on the SCI subindex is the people sub index which ranks Amsterdam at 7th and San Francisco ranks at 54th. According to Arcadis,

> U.S. cities are generally weighed down by a high degree of income inequality, high crime, obesity (as part of the health indicator), a lack of affordable housing and long working hours. Many cities that rank higher in the planet and profit sub-indices tend towards lower people rankings, often hampered by long working hours, a skewed distribution of wealth and the affordability of both housing and consumer goods and services. The most reliable predictor of where a city ranks in the people sub-index is income inequality. (Arcadis, 2016. p. 14)

Second, is the planet sub index which ranks Amsterdam at 19th and San Francisco ranks 53rd (Arcadis, 2016. p.21). Arcadis explains that the reason for San Francisco rating so low on the planet subindex is due to having "the highest exposure to natural disasters" but that San Francisco has "the highest recycling rates in the world" (Arcadis, 2016. p.21). This correlation between high disaster and high environmental policy shows that even through strong policy, subjection to certain natural disasters cannot be overcome. Lastly, the SCI profit sub-index ranks Amsterdam at 16th and San Francisco ranks at 12th (Arcadis, 2016. p.27). According to Arcadis:

> Amsterdam exhibits one of the best balances in the Index across the three pillars of sustainability. Historically, Amsterdam is recognized as a city of commerce and entrepreneurship. Its successful entrepreneurial background has built an innovative ecosystem creating synergies between inhabitants, public organizations, schools and businesses. Amsterdam was awarded the European Innovation Capital for 2016. One of the driving factors behind this award was the AMS institute, a consortium of public and private partners developing interdisciplinary metropolitan solutions. 179 European companies are headquartered in Amsterdam. (Arcadis, 2016, p.23)

According to Knox in the *Atlas of Cities*, there are four fundamental functions of cities which include 1) the decision-making capacity of cities, 2) the transformative capacity of cities, 3) the mobilizing function of cities, and 4) the generative functions of cities (Knox, 2014. p.10-11). The decision-making capacity of cities is based on the

centers of political and economic power that bring together public and private institutions and organizations. The transformative capacity of cities is based on the size, density and variety of the cities population that increases the population's ability to experience cultural diversity within the city. The mobilizing function of cities is the ability of the city to organize labor, capital and raw materials into products and profit that creates employment and infrastructure. Finally, the generative functions of cities is the ability for competition and innovation to take place within a city that provides an exchange of knowledge and information across industries. (Knox, 2014)

Knox explains in the *Atlas of Cities* that there are thirteen city-types. Knox defines these thirteen city-types and the major cities classified by each type throughout the *Atlas of Cities*. The thirteen city-types and their core city(s) are listed as the 'foundational city' (Athens & Rome), the 'networked city' (Augsburg, London, Venice), the 'imperial city' (Istanbul), the 'industrial city' (Manchester), the 'rational city' (Paris), the 'global city' (London & New York), the 'celebrity city' (Los Angeles), the 'megacity' (Mumbai), the 'instant city' (Brasilia), the 'transnational city' (Miami), the 'creative city' (Milan), the 'green city' (Freiburg) and the 'intelligent city' (London) (Knox, 2014). In regards to Amsterdam and San Francisco, they are both listed as secondary cities to one of the thirteen city-types. San Francisco is listed under both 'global city' and 'intelligent city' and Amsterdam is listed under 'intelligent city'.

According to Derudder (2014) global cities' are common locations for "flagship cultural sites, conference centers, big mixed-use developments, waterfront redevelopments, and major sports and entertainment complexes" (p.115) are considered

key developments that label a global city. These major developments are primary focus points in economic development because they bring tourism, employment, housing, culture and publicity to the city. When deciding on a place to call home, many aspects of a location are considered and deemed important and necessary to the buyer. This buyer could be a single mother and her three children or a multi-million dollar corporation. What these two different buyers deem important and necessary differentiate significantly. The definition of a global city is grounded in economic development but Derudder (2014) argues that global cities also need to focus on the social inequality that increases because of development and "the direct or indirect displacement of low-income groups" (Derudder, 2014. p.119).

Overall there are many areas of focus in determining and ranking a city's level of sustainability but there is no definitive methodology. The following field research methods section is dedicated to analyzing access to green space in both San Francisco and Amsterdam to fill in the data gap within the above measurements of sustainability. The following field work aims to increase our focus on what directly affects a community within a city based on the availability of green space or more specifically non-transactional spaces. According to the *Circles of Sustainability*, connecting society with ecology "lays 'the ecological' across both terms — that is, across 'the natural' and 'the social' — as naming the connections of human and non-human engagement with and within nature, ranging from objects and bodies to zones of engagement" (Circles of Sustainability, 2017). Zones of engagement was referenced only in Circles of Sustainability as a classification for sustainable development but no data or methodology

was given to determine this form of interaction. The below section will be dedicated to analyzing non-transactional spaces or green spaces available to community members in both San Francisco and Amsterdam in an effort to demonstrate the importance of including non-transactional spaces in sustainable development and in measures of sustainability. The importance of each of these global cities is their historical community based approaches to solving issues and their global standing within the framework of sustainability across the varying measurements of sustainability.

Section 5: Field Research Methods

Field research for this thesis began in San Francisco, California in Spring 2017 followed by field research in Amsterdam, Netherlands in July 2017. I traveled to Amsterdam from San Francisco to analyze the green space, open space, eco-communities, and non-transactional interactions available in Amsterdam in contrast to San Francisco. Upon my arrival on July 8th, 2017, I spent two weeks traveling and analyzing the community and engagement in non-transactional interaction. Prior to arriving in Amsterdam I arranged several meetings with multiple sustainable design organizations that have planned several neighborhoods and eco-communities within Amsterdam. Unfortunately, the timing of my travels coincided with the busiest and most popular time for travel amongst Amsterdam residents. This hindered my ability to meet and interview with different organizations due to my travels coinciding with peak tourism season. Regardless, I was kindly given direction on where to focus my research from an associate at Metabolic, a consulting and venture building company that works to resolve

global sustainability challenges, and from De Gebouwengids (the Building Guide), an organization that provides excursions on architecture, urban planning, urban development and sustainability.

My methods of research in both San Francisco and Amsterdam included an ethnography, an analysis of public transportation and accessibility, access to green space from varying locations of the city, and observations of interactions between individuals and green spaces. Beginning my fieldwork in San Francisco, California was easy because I currently reside in San Francisco. Unfortunately, living in San Francisco is extremely complicated and overwhelming which is why I chose this global city as my starting point. It is almost impossible to find yourself engaging in a non-transactional interaction anywhere within the city. Between the extreme cost of living and the high rate of homelessness, everything costs money and everyone needs money. The majority of people who live in San Francisco can agree upon two things, they love San Francisco but it's too expensive. This section will review the history of San Francisco with a focus on the accessibility of non-transactional activities and green space available to the community with similar analyses of Amsterdam to follow.

San Francisco, California

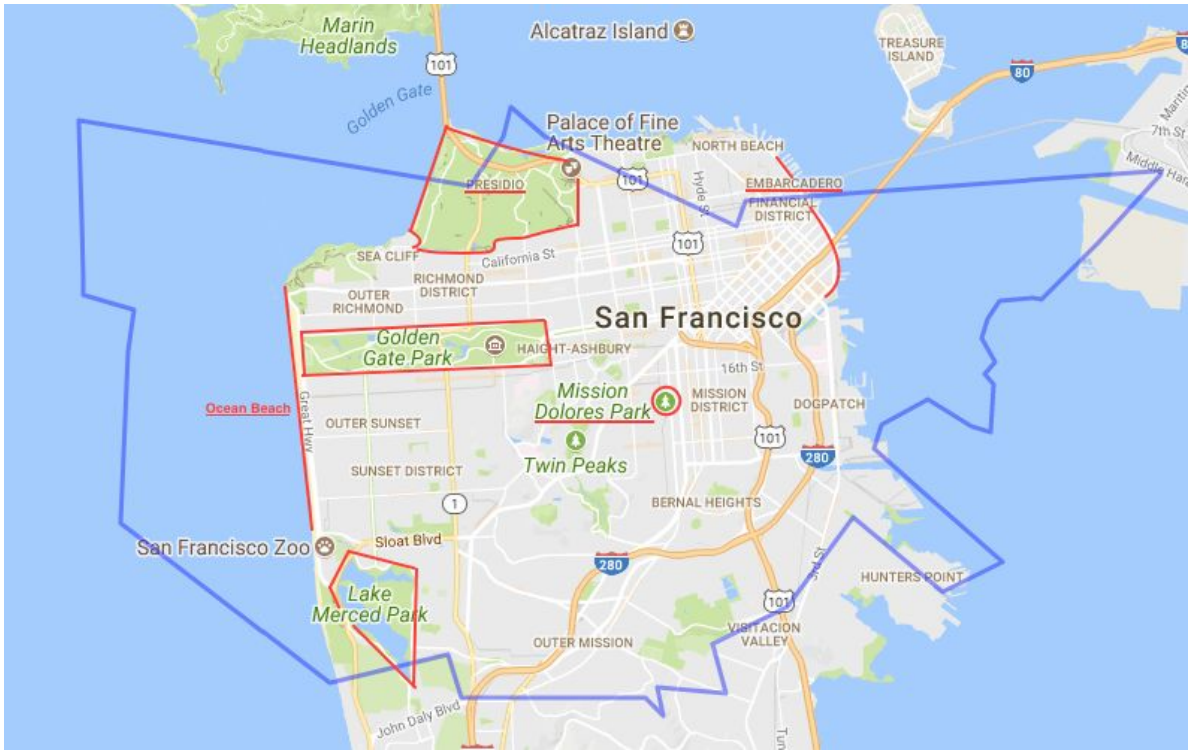
California became apart of the United States Territory in 1848. San Francisco, now known for being a technology hub originated in the 1800's because of the gold rush and railroad industry. The population grew from several hundred to 50,000 in one year and due to the "commercial and cultural center of the ensuing rush, San Francisco's

population doubled every ten days" (San Francisco Center for Economic Development, 2013). San Francisco's population grew from 56,802 in 1860 (Bay Area Census. n.d.) to 870,887 as of 2016 (U.S. Census Bureau. 2016) and the metropolitan area grew from 114,074 in 1860 (Bay Area Census. n.d.) to 4.6 million in 2016 (World Population Review. 2017). According to San Francisco's 2017 Homeless Count and Survey, there are currently 7,499 homeless individuals in the city of San Francisco (Housing Instability Research Department, 2017). The primary form of employment in San Francisco is hospitality and tourism, information and communication technologies, and health care services (California Employment Development Department, 2017).

San Francisco is 46.87 mi² with the Pacific Ocean on the Western side and the bay to the North and Eastern side. The temperature of San Francisco fluctuates between an annual high of 63.8 and an annual low of 50.8 degrees Fahrenheit (US Climate Data, 2017). Much of the industrial area of San Francisco has been redeveloped into areas for housing and commercial space. According to the Office of Community Investment and Infrastructure (OCII), the newly redeveloped Mission Bay Area has "6,404 housing units, with 1,806 (~30%) affordable to moderate, low, and very low-income households" (OCII, 2017). In 1998, the OCII Board of Supervisors established that the Mission Bay North and South would become a new redevelopment project focused on sustainability. "San Francisco's new Mission Bay development covers 303 acres of land between the San Francisco Bay and Interstate-280" (OCII, 2017) located just South of the Bay Bridge. According to the OCII, the Mission Bay is expected to create more than 30,000 new permanent jobs, specifically because of the new University of California, San Francisco

(UCSF) medical and research facilities that have dominated the newly constructed area (OCII, 2017). Although development began in 2000, it is estimated to take a total of 20 to 30 years to complete and is estimated at costing over $4 billion USD (OCII, 2017).

Map of San Francisco with Amsterdam City Limits in Blue



(Figure 3: Created by Raina Whittekiend via MAPfrappe)

The map above depicts the difference in size between Amsterdam and San Francisco city limits. The areas where field research took place are located in the red highlighted areas on the map. Further below is a second map focused on Amsterdam with the city limits of San Francisco shown and areas of field research are also highlighted in red. These maps show the difference in city size and the association of field research that took place in similar areas of both cities to ensure the most accurate research possible. The areas of field research that took place include access to green space, access to non-transactional activities, bikeability and walkability, access to public transportation,

and access to small businesses for local transactional experiences. Local transactional experiences are those that take place within the city and include all forms of entrepreneurial businesses that are of small to medium size.

Amsterdam, Netherlands

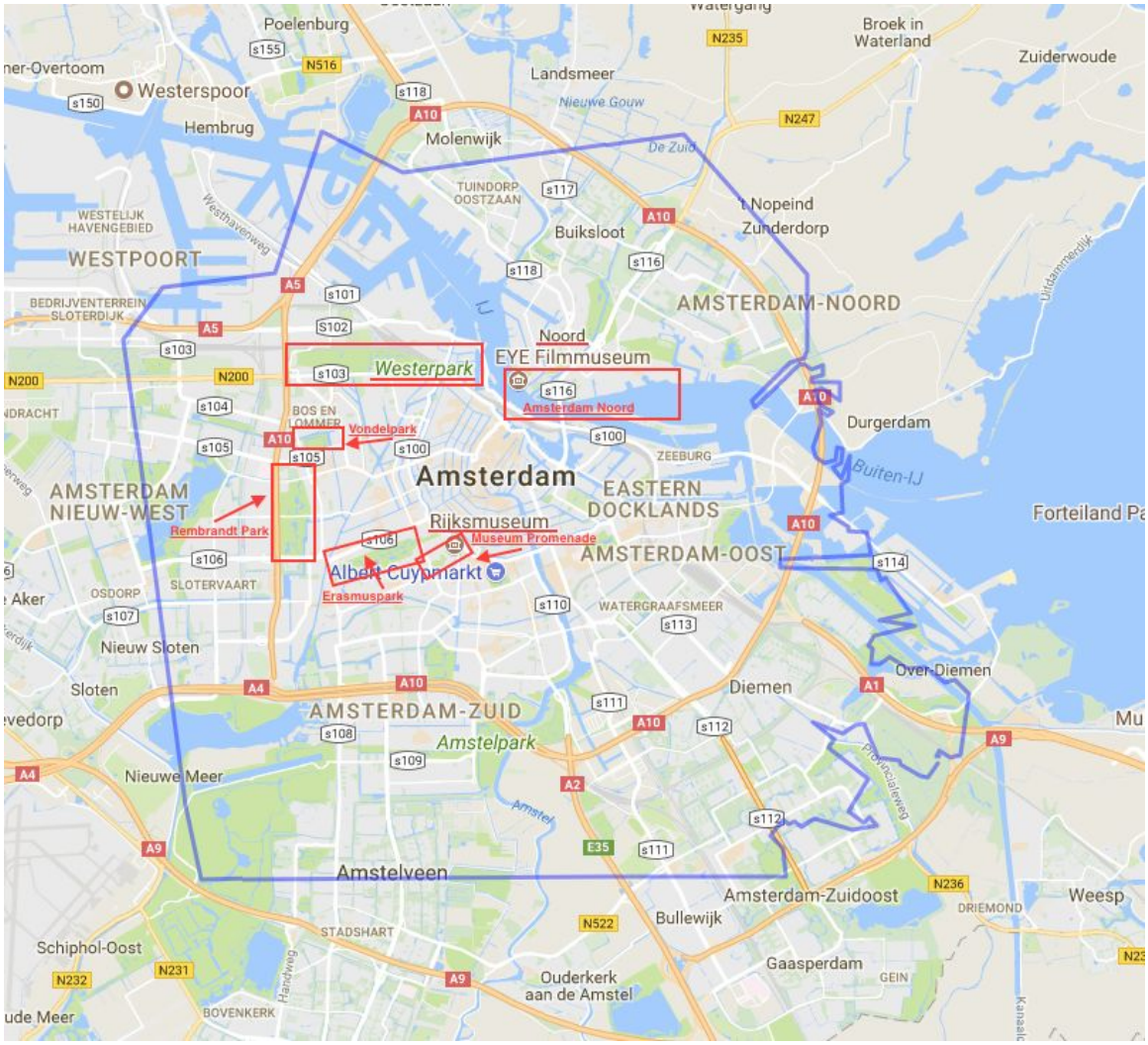
Amsterdam began as a small fishing village in the thirteenth century and has developed into Europe's greatest planned city. Through the centuries Amsterdam has gone through war and recession but today has become one of the wealthiest cities in the world. According to the Organization for Economic Co-operation and Development (OECD), Amsterdam developers and planners state that development trends are meeting housing demands. Amsterdam has developed an ingenious concept of building residential islands on the bay around Amsterdam while also utilizing unused and underused spaces such as office buildings and abandoned industrial sites (OECD 2017). The inner city population of Amsterdam is 821,752 as of 2015 (UN Data, 2015) and 91.4% of population lives in urban areas (CIA The World Factbook: *NETHERLANDS*, 2017).

Located below is a map of Amsterdam similar to the map of San Francisco shown in the above section. The city boundary of Amsterdam is larger in scale than San Francisco which is shown in the blue outline of San Francisco's city boundary within the map of Amsterdam. The areas highlighted in red depict the areas within Amsterdam where field research took place. The areas are of similar geographic spacing as those researched in San Francisco. A major difference between Amsterdam and San Francisco is the amount of scattered green space that is accessible from many areas of the city. As

mentioned above in Section 1, Mumford argues that there is a need to incorporate smaller more accessible areas of green space throughout a city instead of focusing on large green spaces focused on attracting tourists and global acknowledgement (Mumford, 1963).

While researching in Amsterdam, the major areas of public space analyzed include Westerpark, Rembrandtpark, Vondelpark, Erasmuspark, and Amsterdam Noord. When I traveled to Amsterdam to perform my ethnographic study, research of accessible green space and access to non-transactional activities, I focused on these five specific locations because they are geographically located in the same areas as the locations chosen in San Francisco. The reason for choosing these locations was due to the size of Amsterdam being larger in scale than San Francisco. San Francisco is 46.87 mi² and Amsterdam is 84.68 mi². With this in mind, the area of focus was within a 47 mi² of the city center of Amsterdam to assess the amount of green space available in both areas.

Map of Amsterdam with San Francisco City Limits in Blue



(Figure 4: Created by Raina Whittekiend via MAPfrappe)

The new Houthaven District began development in 2010 and is expected to be completed by 2021. The Houthaven has a long history of industrial activity that is no longer of use to the city of Amsterdam. Due to the changing economy and increase in population, the Houthaven is undergoing a major metamorphosis into a sustainable residential area that incorporates businesses and public green spaces (City of Amsterdam, 2017). The average rent in one of Houthavens new sustainable residences is estimated at $1,950 for a one bedroom and one bathroom apartment (Funda, 2017) according to a

popular apartment rental website. According to Zillow a popular housing rental website in the U.S., a one bedroom one bathroom apartment in the comparable new development area of Mission Bay in San Francisco starts at just over $3,000 a month (Zillow, 2017).

One of the sites I visited while in Amsterdam was in the newly developed Houthaven District located in the Northwestern part of Amsterdam. This site has many similarities to San Francisco's Mission Bay District with a combination of houseboats, industrial areas, ports, and open water. The area is already under construction with many sustainable design apartment complexes and public green space. The major aesthetic differences are the wind turbines that have been installed offshore in the water surrounding the new development area. San Francisco has not yet incorporated any form of wind or wave turbines offshore for renewable energy production even though the city is known for its windy climate.

Focusing on community, access to green space and non-transactional activities meant that I had to begin by researching ways in which community and green space are measured and then perform my own analysis. Fortunately, as shown in the preceding sections, community and access to green space are not analyzed or incorporated into measures of sustainability which meant I was able to create my own measurement based on accessibility of green space, non-transactional activities available within green space, and originality of green space. Below you will find a comparison of parks and green space that have been chosen based on their positioning within each city. Both San Francisco and Amsterdam pride themselves on being sustainable but, this analysis will review how green space and community are calculated when measuring sustainability.

Golden Gate Park: San Francisco, California

The idea of the Golden Gate Park first took place in the 1860's and was designed by a field engineer named William Hammond Hill in 1870. Golden Gate Park is just over a thousand acres in size, stretching four miles in length and half a mile wide between the center of San Francisco and the Western shoreline of the North Pacific Ocean. This park was once primarily covered in sand dunes but from the beginning of the park plans in 1870 to 1880, approximately 155,000 trees were planted. The park was designed to have curvy roads to decrease speeding, private paths away from roads, and trails that encouraged a sense of tranquility and escape from the city. In the past, the Golden Gate Park had farm animals at the children's playground and moose, caribou and antelope lived throughout the meadows. Today, Golden Gate Park is the third most visited park in the United States. The park is free to visit during the day but there are several popular attractions within the park that charge admission such as the Academy of Science. According to The Cultural Landscape Foundation, the Golden Gate Park is also home to the oldest conservatory of flowers in North America and one of the earliest children's playgrounds. (The Cultural Landscape Foundation, 2016).

Golden Gate Park is similar to parks located in Amsterdam in multiple ways. The park's size allows access to varying neighborhoods and provides free events on a regular basis. Accessibility being the key to non-transactional interactions within urban areas increases community involvement from different groups. Golden Gate Park has become home to many music festivals, cultural events, marathons, and fundraisers due to its accessibility and size. These events allow for people to engage with one another through

non-transactional activities that encourage diversity and community in one setting. Unfortunately, poor public transportation from one side of the city to the other does not allow for individuals living in the East side to easily commute to the Western side where this park is located. My experience and research shows that the average commute time via the Muni (San Francisco Municipal Railway for public transportation) is 1 to 1.5 hours from one side of the city to the other.

Westerpark: Amsterdam, Netherlands

Westerpark was the first green space analyzed during my field research in Amsterdam and was the first municipal park in Amsterdam created in 1845 and is known for its collaboration of nature and culture. Westerpark was originally created to provide an escape for residents from the heavily industrialized and polluted area. In 1989 there were thirteen buildings from the historic gas plant operation that operated next to the park, the largest gas plant in the Netherlands until 1967 when natural gas was discovered in the North Sea which ceased the operation of the Westerpark Natural Gas Plant. When it was decided that Westerpark was going to be expanded to meet the needs of the growing population in surrounding neighborhoods, major clean up was done to the previous gas plant location due to the heavily contaminated soil that was polluted with cyanide, tar, and other mineral oils. The thirteen buildings located on this contaminated site became national monuments after years of being reclaimed as storage units for the park. The traditional red brick buildings have been redeveloped and utilized as areas for artist to showcase their artwork. (I AMSTERDAM, 2017)

The overall importance of this park is that Amsterdam found an opportunity to not only redevelop a brownfield into a fully redesigned green space, but they incorporated many other aspects of culture and activity to not only make a park with green space but a park with many opportunities for individuals to engage with one another. Westerpark is not only a mildly tamed natural environment with large areas of perfect grass, winding paths, bike lanes, ponds, creeks and canals, animal farms, sustainable water recycling plants, and composting facilities, it is also a destination for food and culture. Between the sustainable produce restaurants, wine bars and brew houses, Westerpark also has the North Sea Jazz Club that has a musical lineup regularly, Sunday craft festivals, dance clubs, an art house cinema, and an overly expansive array of natural green space to meet the needs of every individual.

This design concept is one that has placed the importance of citizen happiness and cultural diversity above economic development but not ignoring economic development entirely. Amsterdam discovered how to create green space as a place that contributes to the public in a multitude of approaches all in one location while providing the opportunity for economic success at the local level while attracting individuals at the global level to indulge in a place that meets the varying needs of different individuals. This development scheme is one to recreate everywhere in an effort to provide non-transactional experiences with transactional experiences. It integrates the public into one area that does not have a class establishment that segregates those who can afford the experience or cannot afford the experience. The collaboration of non-transactional and

transactional interactions are woven into one place which creates a space that allows all community members to interact and engage with one another through multiple activities.

Mission Dolores Park: San Francisco, California

In 2011 Dolores Park underwent a Historic Resource Evaluation (HRE) to evaluate the park's historic significance of cultural landscape. The park met Criterion A for Historic Event and Criterion C for Design/Construction. According to Page & Turnbull the park is associated to the Progressive Era ideal of land acquisition and for the increased availability of parks at a smaller scale in numerous areas. Page & Turnbull also found that the park was strongly associated with the major relief efforts that took place after the 1906 Earthquake and Fire. In addition, their study found that "the park is also significant under this criterion as an example of the work of master gardener John McLaren, Superintendent of Golden Gate Park for nearly six decades" (Page & Turnbull, 2011. Pp 2).

As stated by Page and Turnbull, "By the 1930s, parks were viewed less as idealistic vehicles to social reform, but rather as necessary components of the urban landscape" (Page & Turnbull, 2011. Pp 28) which in turn caused parks to become more standardized and less like the original 'pleasure grounds' that originated in Europe and became apart of San Francisco when William Hammond Hill planned the Golden Gate Park in the 1870's. Mission Dolores Park has held true to the original 'pleasure ground' definition of traditional parks in the early nineteenth century through the various activities that take place in this urban green space. Over the years I have visited Mission Dolores Park regularly for protests, outdoor movie nights, live music, picnics, and just to

relax and enjoy the mid-afternoon sun and breathtaking views of the city. The individuals that reside in the surrounding Mission District neighborhoods as well as across the city have insisted upon keeping Mission Dolores Park true to its original roots of enhancing the quality of life for everyone that takes time to enjoy the park.

Mission Dolores Park is home to many in search of non-transactional interactions. The park is filled with picnic blankets, home cooked food, groups and singles, as well as dogs and children. The park has a children's area built on one side of the park that is divided by a cement pathway that cuts the park in half. This pathway is known to locals as a barrier between those who are looking to party at the park and for those who are looking to enjoy the park's play area with younger individuals. Although this park is not sizable to Golden Gate Park, it still hosts a series of events that attract people from all over the city. The Muni public transportation system goes directly through the Northern section of the park. The park is best visited by public transportation, biking or walking due to the lack of available parking in this highly residential area. Also, the park is located near multiple hip neighborhoods that offer a variety of culture and diversity. Located down the street is the famous Castro District best known for being one of the first gay neighborhoods in the United States. Today, the same level of pride is shown throughout this area of the city and hosts some of the best events centered around equality and human rights on a regular basis.

Rembrandtpark: Amsterdam, Netherlands

Rembrandtpark is a serene and quiet park in comparison to Westerpark.

Rembrandtpark is also home to Uylenburg, the oldest petting zoo within Amsterdam. Rembrandtpark offers an island playground called *Bouwspeelplaats - Het Landje* (Building site - The Land) that is made of reused materials and is built on site by attending children. This section of the park is dedicated to immersing children into the natural environment. Offering wood rafts for the children to play on in the surrounding creek and ponds, treehouses with swings, farm animals, a small barn kitchen for cooking lessons, and a pony club offering riding lessons.

When I visited Rembrandtpark I spoke with several of the people working at the Bouwspeelplaats. They explained to me that most of the activities are free and children under ten years of age should have a parent with them but that children older than ten are welcome to attend without parental supervision as long as they know how to swim. According to the park staff, most of the children in the area spend their summer days riding their bikes to this park. Rembrandtpark is a ten minute walk from the fourth canal in Central Amsterdam and is easily accessible via public transportation (Kidsproof Amsterdam, 2017).

This entire park is a non-transactional paradise. The park is surrounded by water that has little boats tied up to docks or afloat with families on board. The paths are dedicated to pedestrians and have separate lanes for cyclists. The roads are not visible except at one area where the road goes over the park on a large green hill that has beautiful sculptures above and a pedestrian and cyclist path through the hill to the other side of the park. Many people lay out reading books, eating food, enjoying the company

of others or simply the relaxing promenade between hills and trees that lead to other remote feeling areas of the park.

Ocean Beach: San Francisco, California

Ocean Beach is a three and half mile long white sand beachfront that is unobstructed by highrises, residences or businesses along the Western edge of San Francisco on the Northern Pacific Ocean. This beach is heavily used by surfers and is the best location for surfing in the Bay Area. Many beach goers out for the casual promenade along the water gather at Ocean Beach but few go in for a swim apart from avid surfers. The cold water combined with ten months of heavy fog from November to August does not meet the needs of avid swimmers and sunbathers but it does permit great wave watching with the occasional whale, dolphin or seal sighting. There are over twenty fire pits that are available to the public along the beach that are heavily used during the days and evenings for groups. Families layout blankets and stay for the day or walk with shoes in hand along the edge of the waves. Ocean Beach is located adjacent to the Golden Gate Park and is a part of the Golden Gate National Recreational Area.

The wonderful aspects of Ocean Beach are the completely unobstructed views and public only beachfront. Everyone gets to enjoy access to the beach and it is accessible via the Muni and provides plenty of parking for anyone bringing surf boards, coolers or more than one person. Although Ocean Beach is maintained by the Parks Service, it is cleaned regularly by volunteers. Volunteering is an amazing non-transactional interaction that brings people from every community together in an effort to enhance the areas they share. Every year San Francisco hosts the International

Coastal Cleanup Day which takes place in mid-September. Since 1985, when the California Coastal Cleanup Day first took place until now, there have been approximately 1.4 million volunteers and just over 23 million tons of trash removed from shorelines. This level of active participation in protecting the environment is highly shown on Ocean Beach on a daily basis and is an event many look forward to on an annually.

Vondelpark: Amsterdam, Netherlands

Vondelpark, also known as the Museum Quarter, is by far the most attractive and entertaining park in Amsterdam. Located between some the world's most famous museums, such as the Rijksmuseum, Stedelijk Museum and Van Gogh Museum, Vondelpark has something to offer everyone. According to Amsterdam Parks, "Vondelpark is the largest city park in Amsterdam, and certainly the most famous park in the Netherlands, which welcomes about 10 million visitors every year" (Vondelpark in Amsterdam, 2017). Although this park is popular amongst tourists, you can see the local community gather for recreational activities across the sprawling green grass or taking their lunch break with co-workers and friends on the grass hill that leads up over the top of a popular grocery store. And the area is surrounded by embassies, houses, and apartments which allow small businesses and restaurants to flourish.

Vondelpark first began in 1864 due to a prominent group of Amsterdam citizens who formed a committee in order to raise money to fund the beginning idea of Vondelpark. The committee raised enough money to purchase eight hectares of land and commissioned Jan David Zocher to design the park. After the park opened it was expanded to the 45 hectares it is today. Due to the fundraising to create this park,

Vondelpark has expanded into the park it is today and has brought many benefits to the surrounding community. Vondelpark first began as a non-transactional agreement between individuals that aspired to have a better quality of life that included greenspace. Because of this amazing non-transactional agreement Vondelpark has become a historical attraction that provides non-transactional interactions within a community. (Vondelpark in Amsterdam, 2017)

Embarcadero: San Francisco, California

The Embarcadero in San Francisco has changed drastically over the past thirty years as well as in the past 154 years since its establishment as a major shipping port. Over one hundred years ago this area was a shipping yard, thirty years ago it had established buildings along the water and a double decker highway consumed the views of the bay along the Embarcadero. Today, the Embarcadero is a pedestrian and bike focused walkway along the Bay, hosting a variety of farmers markets, craft markets, retail and restaurants. The Embarcadero connects from Mission Bay and wraps around to the Golden Gate Bridge. The most popular activities that take place are long promenades and bicycling. These non-transactional activities are available along the seven mile path that wraps along the edge of the city from the AT&T Baseball Stadium to the Golden Gate Bridge.

Along the Embarcadero are multiple green spaces, sitting and viewing areas, and beachfront for swimming. In the winter an ice rink is set up in an area that hosts movie nights and concerts during the summer. The street along the Embarcadero is closed to vehicles during parades and holidays to extend the pedestrian walkway. Closing the

major street during large events promotes public transportation and encourages community engagement through accessibility and community oriented interactions. Vendors set up and sell street food and people bring picnic baskets, chairs and blankets and set up on the sidewalks and limited grass areas to celebrate the festivities with the local community. Events such as this only occur on major holidays but are highly attended and loved by locals for the high availability of non-transactional activities that take place.

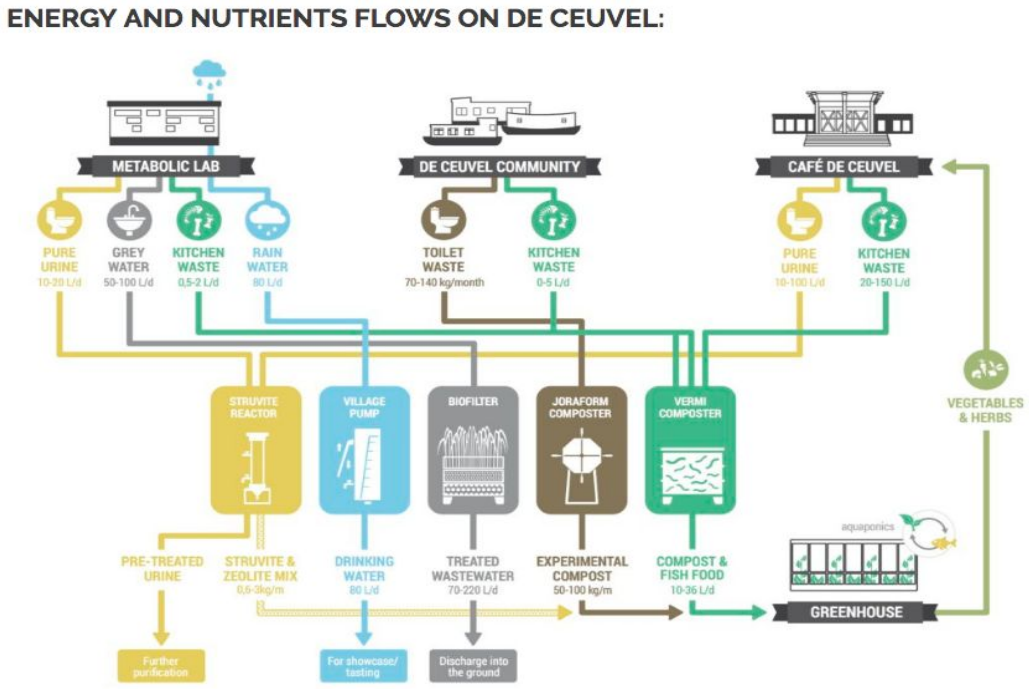
Amsterdam Noord: Amsterdam, Netherlands

Behind Centraal Station there is a hidden world waiting for tourists and locals to travel along the water. Amsterdam offers free ferries that operate almost twenty four hours a day and run every five to fifteen minutes. While it is no secret that the ferries are free it is still an area that is not yet traveled due to it being across the water from central Amsterdam. While visiting Amsterdam Noord I had the ability to tour many sustainable development projects that have arisen over the past several years and one worth mentioning and of importance is the De Ceuvel. When you walk through the gates of de Ceuvel, you are welcomed by an array of houseboats on land, green space, a cafe, and winding paths that take you on a journey past different homes and offices. The main concept of the De Ceuvel is to increase the ability to create circular systems at the local level that can be adapted in other communities. According to De Ceuvel,

> The transition to a circular economy and society is not only a technical transition, it is also a cultural transition: people have to learn new modes of thought and how to apply new techniques and technologies. The mission of the cultural programme of De Ceuvel is to plant seeds in the

> hearts and minds of our visitors that will grow into more involvement with sustainability, innovation and the role of culture and art in that movement.
>
> Concretely, this vision results into sustainable workshops and lectures, but also arthouse films, music evenings and art exhibitions that are not necessarily related to sustainability. Besides a cultural centre for the green innovation community, we also want to be a place where citizens from the neighborhood can come together and enjoy art and culture in a circular urban hub. (De Ceuvel, 2017)

The below diagram shows how De Ceuvel is on a C2C system that utilizes all waste. Once this process is developed to meet the needs of residents on a larger scale, it can be implemented in neighborhoods to further foster the C2C system and prevent excess waste from intruding on other closed systems. Although this system is non-transactional because everything is recycled and reused, it is not something that can be easily implemented due to the existing infrastructure already in place across the world. But, De Ceuvel as a pilot project has the ability to transform many new development schemes that can easily implement many of the energy and nutrient flow systems shown below.



(Figure 5: Energy and Nutrient Flows, De Ceuvel, 2017)

Presidio, San Francisco, California

The Presidio Park is located at the Northern point of the Embarcadero and is the surrounding area to the entrance to the Golden Gate Bridge. The Presidio was a military post for 218 years that ended in 1994 after Congress decided to close the post in 1989. Since the closing of the military post, the Presidio has been redeveloped and rehabilitated back to its natural landscape with native plants and hiking trails. The abandoned military buildings have been restored and are used for varying businesses, public centers and museums. In correlation to Amsterdam, the Presidio is most similar to Westerpark which was converted from a heavily industrial area into a park. The buildings have been restored and are now mixed use and dedicated to the public.

Presidio offers many non-transactional activities and offers 24 miles of trails, 25 miles of bikeways, and 10 scenic overlooks and vistas (Presidio Trust, 2017). The Presidio incorporates many non-transactional areas to promote the health and wellbeing of the surrounding community and visiting community. Presidio has converted a previous airfield into the Grass Airfield for dogs and families to sit, play and enjoy as well as the West Bluff Picnic Area, East Beach, Golden Gate Promenade/Bay Trail of 4.3 miles, the San Francisco National Cemetery, as well as galleries, clubs, recreation centers and education facilities.

Erasmuspark: Amsterdam, Netherlands

Erasmuspark is completely surrounded by canals and is filled with beautiful flower gardens. Erasmuspark is not known for being a tourist attraction but instead

known for being a family oriented park that offers the community an area that is non-transactional with wonderful gardens and canals to walk and play along. Established in 1939, on what "was a Dutch polder with locks, pastures and gardeners a century ago....the park design, the landscaper was looking for harmony in terms of paths, trees and grass." (Amsterdam. 2017) Erasmuspark is located in a residential area where ground floor unit apartments and houses open out onto the park and provide urban dwellers a sense of tranquility in the busy city. This park offers an escape from the city and provides a sense of tranquility due to the design that offers secluded areas and is not surrounded by busy streets. The closest train stop is a few blocks away but this park was designed with locals as the primary focus of use.

Parklets, San Francisco, California

San Francisco strives to provide non-traditional areas of public space to combat the overwhelming urban environment that has gradually increased since the 1990's. One non-traditional form of public space that has become more common across the city are termed 'parklets' which are parking spaces that have been converted into extended sidewalk areas. These areas provide extra seating and outdoor space in popular neighborhoods as well in residential areas while also providing community members with access to non-transactional interactions through accessible areas of engagement. Providing areas for individuals to enjoy people watching or to take a break from a nice promenade, as well as designing them to stand out culturally and artistically enhances the community. According to the San Francisco Planning Department, "Parklets are temporary programmed uses of a public parking space that can express a neighborhood

use…..well-designed pedestrian environment increases walking, the success of the neighborhood, and overall comfort and safety" (SF Planning Dept., 2017, p.60-64). These parklets are temporary and sporadically pop up in new areas with different themes. Parklets have been highly regarded and utilized by community members.

Section 6: Conclusion, Limitations, and Future Research

Over the course of this research and thesis, we can see that there are varying definitions of sustainability as well as varying terms in academic literature to define cities as sustainable. Apart from the lack of policy and definitive methods to classifying or determining sustainability, there are still major variations between San Francisco and Amsterdam that make Amsterdam more sustainable than San Francisco. The overall difference is within the accessibility to non-transactional activities for community members. Amsterdam, regardless of being aware of it or not, has developed an urban space that understands the importance of non-transactional activities that increases the quality of life within the community. This major variation of community access to non-transactional activities between San Francisco and Amsterdam is most prevalent through the overall appearance and development style of Amsterdam. San Francisco has 'parklets' while Amsterdam has canals, wide sidewalks and separate streets dedicated to pedestrians and cyclists throughout the city. The barrier of green space between sidewalks, bike lanes, and roads increases the usability of these pathways between destinations.

In regards to the accessibility of green space, during my research in Amsterdam I first traveled to all of the reviewed parks by walking and then traveled by cycling. From the location I resided at in Amsterdam, each park was approximately 15 minutes walk from one another in a loop around the city. The parks located the furthest from my location were thirty minutes walk or ten minutes cycling with parks located along the route. In San Francisco I reside in the Mission Bay Area and I am five minutes walk from Embarcadero and thirty minutes to two hours away from all other parks reviewed in this research. Due to the lack of bike lanes throughout San Francisco it is difficult and dangerous to bike to certain parks. With increasing economic development in job creation and infrastructure, San Francisco needs to develop alternate forms of transportation that enhance the accessibility to green space in order for green space to be properly utilized by the community.

Overall, there needs to be a definitive definition of sustainability that cities can use as a tool to becoming more sustainable instead of the creation of new terms that define various versions of sustainability. Currently both Amsterdam and San Francisco have been defined or ranked in various ways and in regards to various forms of sustainability. Without an exact definition of sustainable, and without a methodology to determine sustainable, cities cannot be verified as sustainable. With this lack of a definitive definition of sustainability, communities are left to adopt a form of sustainability that is expressive of their core values as a community. Global cities such as Amsterdam and San Francisco fluctuate between terms such as ‘intelligent city’, ‘global city’, ‘sustainable city’, ‘smart city’, ‘green city’, and ‘ecocity’ (Derudder, 2014; Jong,

2015; Economist Intelligence Unit, 2012; GPCI, 2016; Arcadis, 2016). When referring to the original definition of sustainability from the Brundtland Report (1987) combined with the three pillars of sustainability from the Venn Diagram, we can determine from the above research that Amsterdam has one of the best balances between environment, economy, and society. But, as terminology has evolved in academic literature, we see San Francisco has become a prominent sustainable city in terms of 'smart', 'intelligent', and 'global'.

I conclude that urban development in San Francisco stems from economically driven mass production that incentivizes transactional interactions that prevent individuals from engaging in community relationships and thus prevents people from incorporating sustainable living techniques into their lives. This conclusion is based on the foundation that green space as a non-transactional activity has become standardized within San Francisco and green space is limited due to the distance between large green spaces. Access to green space has become standardized in new development areas such as Mission Bay Area but access to green space in other areas of the city is historic. Although San Francisco is labeled as 'smart', 'global', and 'intelligent', these are categories that meet the new academic terminology of sustainable in the global network of cities. Thus, San Francisco does not meet the local need for non-transactional activities and access to green space.

Access to green space needs to become a priority in development schemes in order to enhance sustainable living techniques across cities globally. Jong (2015) explains that:

> Each of the city categories harbors a different view of what the city is and how it works, with respect to the role of citizens and the way they relate to the governance of the city, with respect to the interactions between the city and its natural environment, and with respect to the role of urban infrastructure systems and services in the city's economy and liveability. We should, therefore, stress the need for rigor in the use of these terms if one wishes to comprehend their policy implications and the explicit and implicit choices made among various public values in urban development. (Jong, 2015, p.22)

In other words, San Francisco is an example of a city that is focused on sustainability in terms of "smart', 'intelligent', and 'global' but not 'local.' Amsterdam has shown they believe in sustainability through the provision of accessible green space at the local level while maintaining many of the same sustainability labels as San Francisco at the global level. Turning the page to creating a sustainable future must begin within a community to build a society that believes in sustainability because they have access to sustainable activities such as non-transactional spaces and green space.

From the beginning of this research there have been many limitations primarily due to time restraints and time of year. Planning travel for research needs to occur early on in the research process and time of year can be critical. Although my research in Amsterdam took place during peak tourist season, I do not believe this altered my analysis of the utilization of non-transactional spaces but increased the value of my research because it displayed a diverse group of individuals utilizing the spaces and not just local utilization of the spaces. This is critical because it shows that people from other cities display the same need and want for non-transactional space. Moving forward with this research I plan to visit Amsterdam again during the off season of tourism to see if the parks are still utilized to the same level as during July, 2017.

The continuation of this research will primarily focus on policy and governance at the local and international level to determine how San Francisco and Amsterdam implement non-transactional spaces and activities into urban planning and development. Although this research has shown the importance of incorporating accessible non-transactional spaces, specifically green spaces, it is necessary to understand how these spaces are planned and if they are planned with the intention of including non-transactional spaces or just for providing green space. Even though this research has shown that non-transactional spaces are not included in the varying methodologies for determining a city's level of sustainability, it is necessary to pursue in order for non-transactional spaces to be incorporated in future policy and sustainability ranking systems.

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