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AN EXPLORATION OF SENIOR-FRIENDLY DESIGN INTERVENTIONS FOR
COLUMBUS PARK, NYC

By

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A thesis submitted to the

Graduate School-New Brunswick

Rutgers, The State University of New Jersey

For the degree of

Master of Landscape Architecture

Graduate Program in Master of Landscape Architecture

Written under the direction of

Holly Nelson

And approved by

New Brunswick, New Jersey

October, 2016

ABSTRACT OF THE THESIS

An Exploration of Senior-Friendly Design Interventions for Columbus Park, NYC

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Aging has become a serious problem for nations around the world. Senior populations have increased rapidly in recent decades, and now we have a variety of ways to enjoy retired life. Especially for seniors in an urban area, aging in place can keep seniors from moving to an unfamiliar environment and stay with their families and friends.

Healing garden design principles can help to improve seniors' living environments by creating benefits in terms of physical activity, mental restoration, mental stimulation, and connection with community. This paper explores how research into the theories of healing gardens may help design to increase benefits to senior parks and gardens.

This thesis project aims to apply senior-friendly design intervention to an urban outdoor space currently well-used by seniors. Columbus Park, in New York City, was selected after an analysis of demographics, senior facilities, and their proximity to existing open space. Two case studies analyze how the application of these design principles can influence seniors' experience of urban outdoor spaces. Conversation with existing park users and analysis of existing activities in Columbus Park contributed to the final design proposal.

ACKNOWLEDGEMENT

I would like to show my appreciation to the following people for their kindness and support to my thesis:

Holly Nelson, as my Committee Chair, guided and mentored me in academic field and was always a nice friend; Richard Alomar and Tobiah Horton for their invaluable input and support. I truly appreciate the efforts of my committee to encourage me to complete this thesis research.

The 2016 class of MLA program, my classmates and friends, have been always supporting each other. The faculty members in the Department of Landscape Architecture, Rutgers, were supportive and helpful all the time.

David Kamp shared his knowledge and experience of senior gardens with me.

Wanqing Huang was my translator to help me talk to people in Columbus Park.

My family for being supportive throughout all three years of graduate study in the U.S. I truly appreciate the help and support from all of you.

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Chapter 1 Introduction

1.1 Background of Senior Population Increase Worldwide

The rapid increase in senior population has reshaped the structure of societies in many countries. To accommodate older populations, nations will need to adapt policies as well as the physical structures that relate to daily life to accommodate this demographic trend. In 2015, the senior population (people over 65 years old) represented 8.5 percent or more of the total population in most parts of the world. Meanwhile, by 2050, the number will reach 16.7 percent,

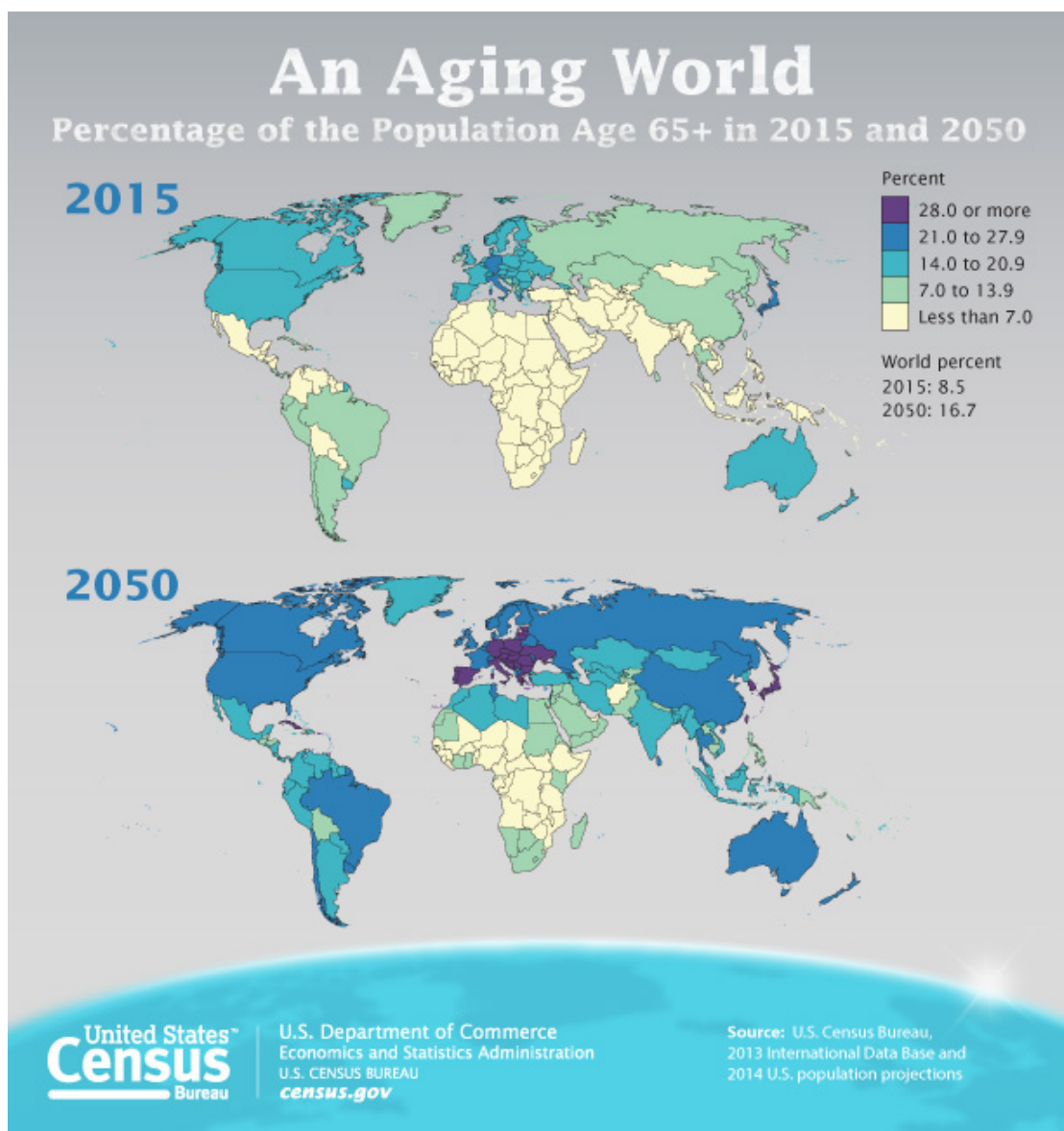


Figure 1. Percentage of the Population Age 65+ in 2015 and 2050 Source

and there will be only 33 countries that have less than 7 percent of seniors for their total population. (Figure 1)

There are some major countries with large populations like China and Japan that have already entered the “aging society”. Japan, as the ‘oldest’ country in the world, had 21 percent of seniors of the total population in 2007, and by 2015, the number reached 27 percent, which represents 34.2 million people. China has the largest population in the world now. Over 10 percent of its total population is senior by 2015, with 17.2 percent (238.8 million) becoming seniors by 2030, and 26 percent (348.8 million) seniors of its total population by 2050. In the United States, with 14.9 percent senior population in 2015, the number is projected to increase to 22.1 percent by 2050, as the “baby boomer” generation (people born between 1946 and 1964) reach age 65. With such large senior populations emerging, there will be many resulting problems. Economic growth, the value of traditional cultures, social facilities and many other existing social elements will be affected by the growth and aging of the senior population.

1.2 Aging in Place for Seniors

There are various levels of independence that people can choose for their retired lives nowadays, like independent living, assisted living, nursing homes, aging in place and so on. In 2007, the World Health Organization (WHO) started a Global Age-Friendly Cities project suggesting the use of a guide to develop active aging in thirty-five cities all over the world. The guide covers eight topics including outdoor spaces and buildings, transportation, housing, respect and social inclusion, social participation, civic participation and employment, communication and information and community support and health services. The guide discusses the features of the city’s structures, environment, services

and policies that may qualify cities as age-friendly. From this report, we see the great benefits and potential for seniors to enjoy their retired lives in the neighborhood where they have been living without moving to a new and unfamiliar environment.

With this understanding, landscape architects need to take the challenges to design communities and facilities that are senior-friendly to create a pleasant living environment for older people. How can landscape architecture enhance the urban senior community experience using therapeutic design principles? Through my literature review, site selection, site analysis and design proposal, I explore the potential landscape design possibilities for aging in place. Practical design principles will be applied in these age-friendly landscape interventions to create an improved outdoor senior experience.

Chapter 2 Literature Review

2.1 Healing Gardens

As the targeted design is for seniors, the garden or outdoor space design should be different from general public-oriented gardens and parks in certain ways. Therapeutic gardens (or healing gardens) and universal design principles are sources of best practices for the design of outdoor spaces for seniors.

The term “healing garden” is used in a fairly broad sense to refer to a variety of garden features that have in common a consistent tendency to foster restoration from stress and have other positive influences on patients, visitors, and staff or caregivers. (Cooper Marcus et al., 1999) Healing can be considered from both physical and psychological standpoints. Having people get outdoors and exercise in the garden creates physical benefit. Meanwhile, bringing natural scenery, pleasant sounds and touchable elements can release stress and be

mentally healing for people. In this paper, we will talk about three important therapeutic elements that produce positive effects in senior garden design: the first is outdoor physical activity, the second is mental restoration and mental stimulation, and the third is social connection to community.

2.2 Benefits for Senior Gardens from a Physical Activity Aspect

Physical activities are essential for senior health and well-being. A good outdoor senior garden encourages people to come out from their rooms to experience nature and strengthen their bodies. Exercise has proven to reduce the depression that can result from being retired or from changing life goals, as evidenced in published articles and citation research. Doing regular physical activities can prevent many of the health problems that seem to come with age, and also helps seniors' muscles grow stronger.

The World Health Organization's *Global Strategy on Diet, Physical Activity and Health* suggested that older adults (who are 65 years and above) need at least 150 minutes of moderate-intensity aerobic physical activity like walking, and muscle strengthening activities on two or more days a week. Older adults with poor mobility should perform physical activity to enhance balance and prevent falls on three or more days per week. Those recommendations are applicable for all older adults in the age range, and there is strong evidence demonstrating that regular physical activities would lower rates of all causes of mortality, coronary heart disease, high blood pressure, stroke and all kinds of senior related body declines and diseases.

2.3 Benefits for Senior Gardens from Mental Restoration and Mental Stimulation Aspects

Mental restoration and mental stimulation in senior gardens are less visible but nevertheless important. Mental restoration and mental stimulation are tools for seniors with dementia to stimulate and recover their memory. Also, being in the garden with other people rather than staying alone encourages seniors to be socially active again, and makes them feel less abandoned from general society. Based on the Oxford English dictionary definition, psychological healing is often referred to in the context of the grieving process. In psychiatry and psychology, healing is the process by which neuroses and psychoses are resolved to the degree that the client is able to lead a normal or fulfilling existence without being overwhelmed by psychopathological phenomena. There are also many medical and scientific studies which show that being in nature and gardens can help to reduce patients' anxiety and stress, lower blood pressure and lessen pain (M.H.M. De Moor et al., 2006). Depressive symptoms and agitation can also be lowered using outdoor restorative environments.

Being in the garden, sensing the texture of physical elements like plants and other materials, feeling the light and water can offer heightened interactions with nature. A positive distraction is an environmental feature or situation that promotes an improved emotional state in the perceiver, that may block or reduce anxious thoughts, and fosters beneficial changes in the physiological system such as lowered blood pressure and stress hormones (Ulrich, 1992a. 1992b). Positive natural distractions can improve emotional states, diminish stress and depression, and create positive psychological outcomes (Ulrich and Parsons, 1992).

2.4 Benefits of Senior Gardens from Connectivity with Society and Community

The sense of connection with society and community is another benefit that senior gardens can provide to the users. A successful senior garden could be a small microcosm of society in a local community. Having seniors go out and stay with younger generations could create new social circles for older people. In such a way, seniors would have more chances to be active in community and thus, bring more opportunities to engage in physical exercise and feel less depression. Being lonely and isolated is harmful for people generally and especially for seniors. A 2007 study found that social and emotional isolation such as: being single, having few friends, and participating in few activities led to an increased risk approximately 51% for older adults to develop dementia (Wilson et al., 2007). This fact can encourage designers to provide more opportunities for seniors to remain physically, socially and emotionally active both indoors and outdoors.

In the case study of the central garden in Kaiser Permanente Medical Center in California by Cooper Marcus and Marni Barnes, 88% of 50 respondents reported that relaxing is the most appreciated activity in the garden; 70% of people reported talking is the primary activity in the garden, 42% of people went to visit the garden with a patient, 18% of people said they were watching kids playing and 16% went to the garden to attend a meeting. While “relaxing” scored high on the report, at this Kaiser facility, a higher proportion of respondents than other case studies for comparisons reported using the garden for eating, talking, visiting with a patient, watching their kids play, and attending an outdoor meeting (Cooper Marcus et al., 1995). It would appear

that social spaces that support this wide range of activities would be more beneficial.

The fact that social support has been found rather consistently to be an important factor in reduced stress and wellness suggests that it should be included in a contemporary theory of stress-reducing design. However, only a small number of studies have examined how health facility design can facilitate or unintentionally hinder access to social support. For future senior garden design improvements, landscape architects can keep the social support benefit in mind when proposing concepts for the garden. Despite the gaps in research on health facilities, the findings from current studies indicate that the benefits of social support are so convincing that it seems justified to assume that gardens that foster opportunities for supportive contacts will tend to ameliorate stress and otherwise benefit user health (Cooper Marcus et al., 1999).

2.5 Positive Connections between Three Aspects

It is widely agreed that physical wellbeing is directly related to mental restoration and mental stimulation. Stress may be the most considerable element that affects physical wellbeing, and its responses include numerous psychological/emotional, physiological, biochemical, and behavioral changes (Gatchel et al., 1989; Evans and Cohen, 1987). There is growing evidence that exercise for cardiac rehabilitation patients can have a small to moderate effect in reducing stress, anxiety and depression (Kugler et al., 1994). Being outdoors and doing physical exercise may also help produce a small but significant improvement in both physical and emotional health, primarily by reducing stress levels.

Research findings indicate that gardens and parks are the most important elements for seniors' social interactions. Research has found that, "People who live in walkable neighborhoods... are more likely to know their neighbors, participate politically, trust others, and be socially engaged" (Southworth, 2005, p.248). Having seniors spending time outdoors can provide better opportunities for them to build social interactions with other people and reduce feelings of isolation, which can cause physical functional decline and dementia.

Additionally, being socially active can help seniors build up their confidence and gain renewed passion for life. Changes in one's independent and self-sufficient lifestyle can affect the ego, self-esteem, feelings of control

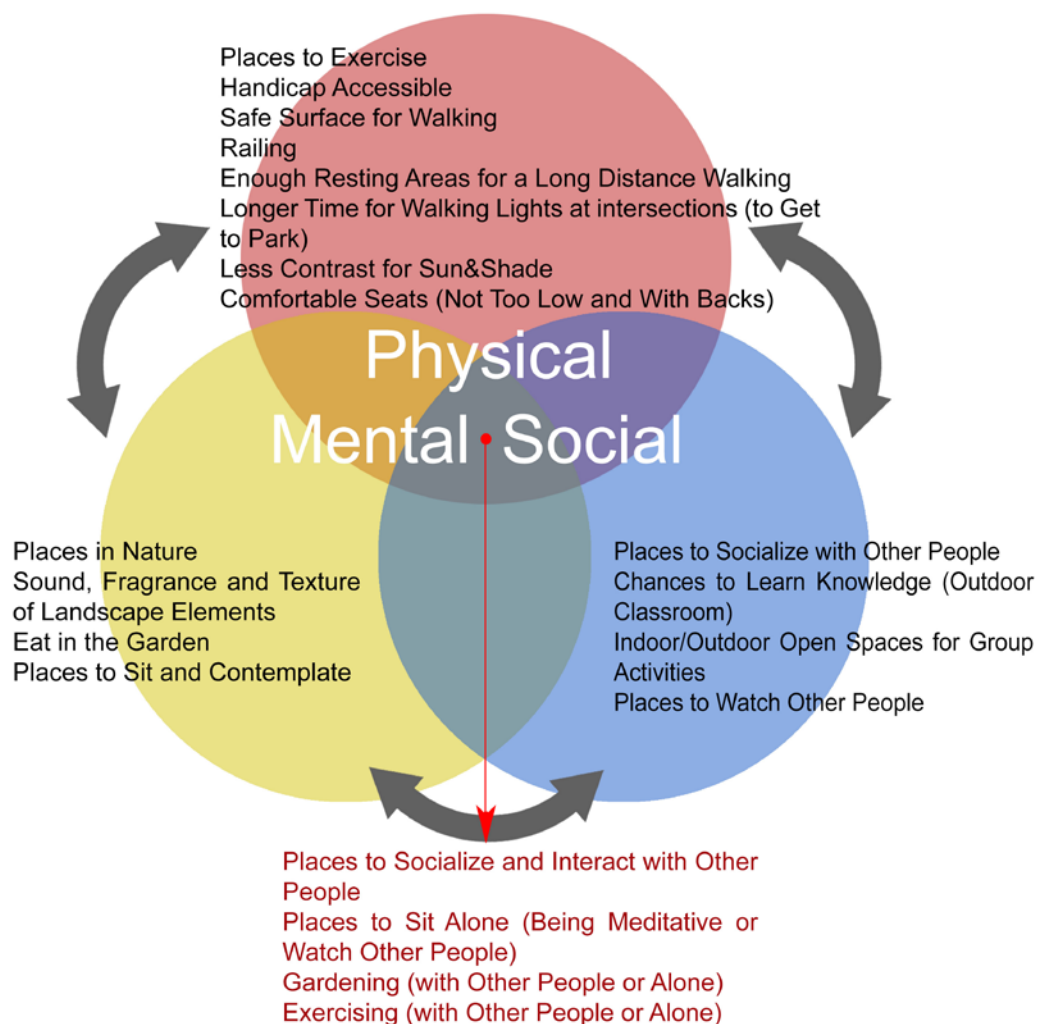


Figure 2. Connection Between Three Design Principles: Physical, Mental and Social Aspects of Therapeutic Garden

over the environment and over life, feelings of worth and belonging, and even the ability to touch and communicate with others (Pauline S. Abbott et al., 2009).

To summarize briefly, the relationships between physical activities, mental restoration and mental stimulation, and social support are synergistic and comprehensive. In Figure 2, there are lists of important elements for the design of healing gardens for seniors. Some of them (in black) are more concentrated on one aspect of the three design principles (physical, mental and social). Some (in red) represent places where people benefit from all three principles, like places to socialize and interact with other people/ places to sit alone and places for other activities (gardening with other people or outdoor exercise). Positive changes in either of the above aspects can realize benefits for the other two elements. At the same time, for a successful senior garden design, all three aspects should be considered and thoughtfully applied.

2.6 Design Principles to Apply in Senior Gardens

First of all, in the area of physical activity, there are four structuring theories that can be applied in senior garden design: universal design, natural distraction, walk-able communities and the prescription park program.

As the most essential and fundamental element, there are seven principles for universal design. Principle one: equitable use, which signifies that the design is useful and marketable to people with diverse abilities. Principle two: flexibility in use, which refers to how the design accommodates a wide range of individual preferences and abilities. Principle three: simple and intuitive use, which suggests that use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. Principle four: perceptible information, which indicates the design

communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities. Principle five: tolerance for error, which means the design minimizes hazards and adverse consequences of accidental or unintended actions. Principle six: low physical effort, which implies the design can be used efficiently and comfortably and with a minimum of fatigue. Principle seven: size and space for approach and use, which shows appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility (Molly Follette et al., 1998). Universal design is for people of all ages and abilities, and at its best, features on site can be designed to be so well integrated that they are almost indistinguishable. Universal design principles are useful for evaluating the existing site conditions, guiding the design process, and educating designers and users about the characteristics of more usable designs (Molly Follette et al., 1998).

Positive natural distraction can be considered as one of the elements that achieves positive effects in garden design. There is mounting evidence that viewing certain types of natural scenes can significantly reduce stress. Accordingly, it seems very likely that one major way in which gardens in healthcare facilities can improve medical outcomes is by providing visual exposure to nature (Cooper Marcus et al., 1999). In their study of gardens in healthcare facilities, Cooper Marcus and Marni Barnes found out that in most facilities, natural elements like plants, trees and flowers are frequently mentioned as significant by participants, followed by birds, open spaces, fresh air and other natural elements. Respondents reported that these natural

elements help them to experience feelings of calmness, relaxation, strength, refreshment, and a sense of escape from work.

Researchers have long documented the physical benefits of walking as a form of exercise. Physical activities like walking can help reduce the risks of Type 2 diabetes and cardiovascular disease (Jenum et al., 2006). Living in a walk-able community provides more opportunities for seniors to participate in spontaneous exercise. Being outside and doing mild exercise also provides the opportunity to get close to nature and have connections with the principle of positive natural distraction.

As a relatively new concept, the prescription park is a concept that links the healthcare system and public lands (such as parks, trails, and green open spaces) to encourage a healthier lifestyle. The National Park Prescription Initiative encourages local government and park prescription partners to create a national agenda for implementing park prescriptions more widely, and to elevate the concept of park prescriptions to a best practice in preventive healthcare (National Recreation and Park Association). A prescription park system can help seniors to set up reasonable daily physical exercise goals either in a unit of time or by distance according to a doctor's prescriptions. Also, researchers established pedometer-determined physical activity thresholds for adults by different levels of steps they walk every day. It is a potential way for doctors to give pedometer-based prescriptions for seniors to encourage them to engage in physical exercise. Thus, bringing in markers or signs with measured distances in senior gardens and/or communities can be a medically supported treatment for senior exercise.

From a mental restoration and mental stimulation aspect, there are two major concerns that we have to pay attention to in design, the first is the sense of control, and the other is access to privacy.

Researchers have shown that a sense of control can affect people's ability to deal with stressful situations and illnesses that are related to stress. Control refers to a person's real or perceived ability to determine what they do, to affect their situations, and to determine what others do to them (Gatchel et al., 1989). Having people know that they are in a safe and controllable environment can help with stress reduction and better health status. Studies found that users who report a sense of control over surrounding environment feel more relaxed and less stressful than people who are in uncontrollable environmental conditions, like those with excessive noise, lighting or traffic (Glass and Singer, 1972; Evans and Cohen, 1987).

Even though we know that having a sense of control is essential for seniors when they are using a garden or walking in a community, studies have shown that during the aging process, the brain and nervous system tend to slow down; the sense of recognition may be reduced, and reaction time may slow. Also, orientation (way-finding) and short- and long-term memory may be affected. The experience of walking outside or doing routine activities can be very different for seniors than for younger generations. Knowing of the existence of the garden, being able to find and access the garden without physical difficulties, and being able to use the garden without safety concerns are the problems designers need to pay attention to.

Privacy plays an important role in creating the sense of control. Privacy in a garden can provide a temporary "escape" for users, a sensation of "being

away”, and an opportunity for a user to gain control of his or her emotions and refocus attention (Daniel Winterbottom et al., 2015). Creating a garden with multi- functional spaces that can satisfy the needs of different groups of people can help users to build the sense of control, and also create relatively private spaces for users to safely “escape”. However, public safety issues in an urban area should also be considered during design. According to Jane Jacobs’s *The Death and Life of Great American Cities*, “There must be a clear demarcation between what is public space and what is private space. Public and private spaces cannot ooze into each other as they do typically in suburban settings or in projects”. Considering these recommendations, designers can use carefully designed dimensions to create public spaces that feel “isolated” but are actually safe for use.

There are two things for designers to pay attention to relative to creating community interaction in park design. Mixing different age ranges of users and types of functions to create more events and activities for a senior garden or senior community can help with the levels of activity in our designs. Meanwhile, a garden that provides social support does not mean it has to give up possibilities for privacy and a chance to be alone.

Chapter 3 Case Study

3.1 Analysis and Comparison between Stuyvesant Town and Peter

Cooper Village

Stuyvesant Town—Peter Cooper Village in Manhattan, New York has been considered successful for socially supporting its senior community. The community is a large, post-World War II private residential development on the east side of the New York City. Although built in the same time period, right now

these two communities have different age distributions. Peter Cooper Village, with 5,286 residents, has 21.85% of senior population over 65, which can be considered a senior-oriented community by NYC definition. Meanwhile, in Stuyvesant Town, with 17,710 residents, 14.811% of the population is over 65, so it can be considered as an age-friendly, but not a senior-oriented community. Both communities now have mature landscapes and similar building patterns; however, the author's experiences in the two communities were quite different. Through the comparison of these two developments, we can see if mixing different age range of users can help to improve the general activity levels and richer social interactions in a community.

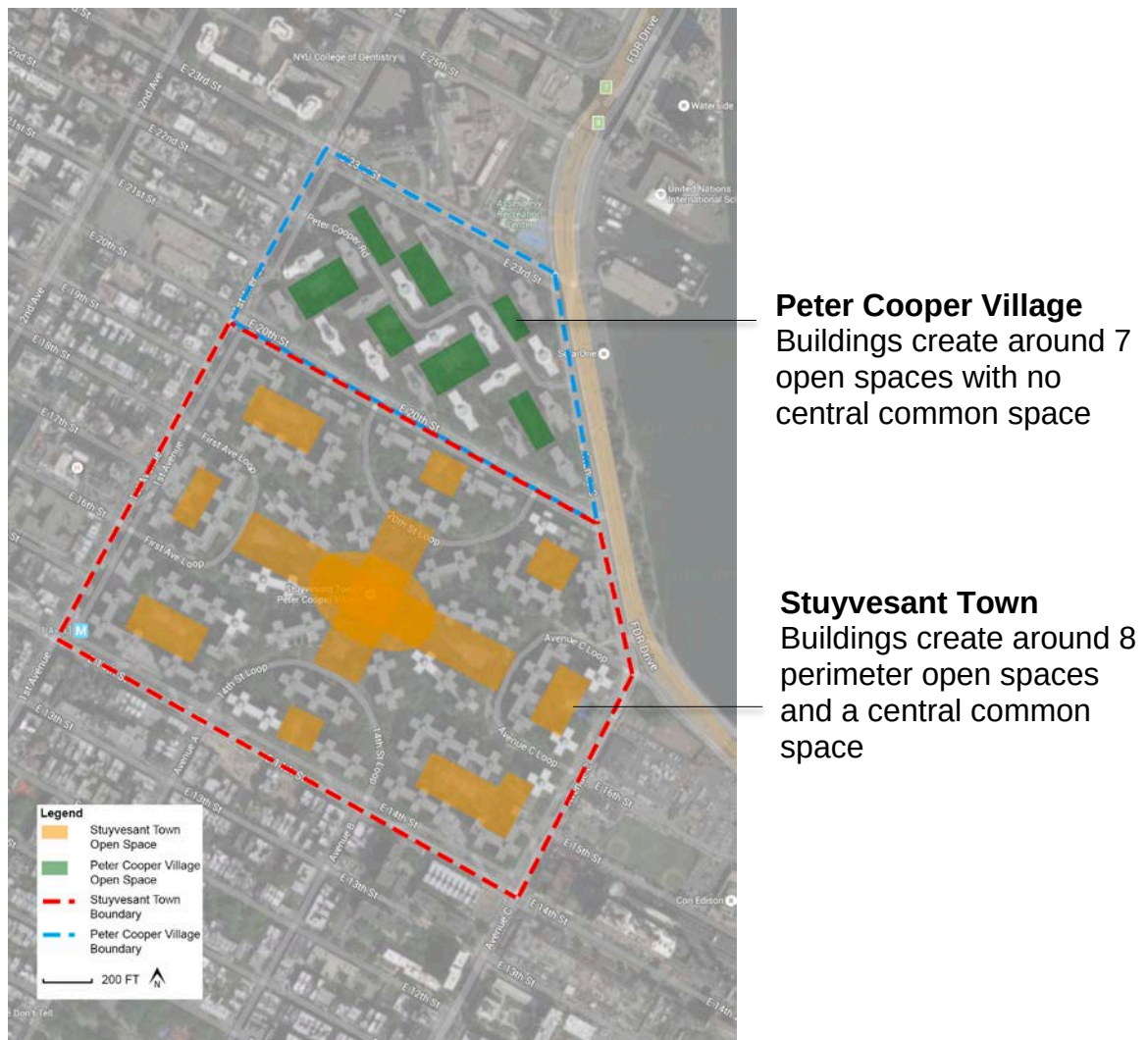


Figure 3. Open Spaces Distribution in Stuyvesant Town and Peter Cooper Village

These two huge formerly affordable housing projects are located on the east side of downtown Manhattan. The community extends north from 14th street to 23rd street, and east from Avenue C to 1st Avenue. Peter Cooper Village (blue frame) sits north of Stuyvesant Town (red frame), and 20th Street is the boundary of the two communities. From the satellite map we can tell Stuyvesant Town is more than twice as large as Peter Cooper Village, and Stuyvesant Town has larger public gathering areas (in yellow) than Peter Cooper Village (in green). (Figure 3)

The author's site observation on October 11th showed a day in which Peter Cooper Village was much less active than Stuyvesant Town. First, Peter Cooper Village at 0.045 square miles is smaller than Stuyvesant Town, which is 0.226 square miles. With less land and less open space, the chances of having facilities and activities may be reduced, so there may be fewer public events happening in Peter Cooper Village. Second, Stuyvesant Town has more mixed age ranges than Peter Cooper Village. When I was in both communities, it was a very different experience to observe people using the open spaces. Peter Cooper Village has a small fountain plaza in the middle of the community as their major gathering space. (Figure 4) Seniors were the major residents



Figure 4. Two seniors Sitting Around Fountain in Peter Cooper Village



Figure 5. Young Children and Their Parents in the Playground in Peter Cooper Village

walking outside in the middle of a sunny Sunday. A few children were playing in the playground in the community, and there were several seniors strolling or bicycling around. (Figure 5)

Meanwhile in Stuyvesant Town, in the central gathering plaza, there were a lot of people sitting around the oval fountain, in the coffee shop, and on a big open lawn. As it was a Sunday, there was a farmer's market in the community, people came out to shop, talk with each other, and meet new or old friends. Even the playground by the market was full of children and parents. Seniors were everywhere in the community, but with the mixture of age, the whole community at Stuyvesant Town seemed much more active both physically and socially than a more traditional senior community like Peter Cooper Village. (Figure 6, 7)

The more mixed community at Stuyvesant Town made it appear more active than Peter Cooper Village; however, we were not sure if more seniors choose to live in Peter Cooper Village than Stuyvesant Town because they prefer to live in a quieter and calmer place than an active but relatively noisier place? Do they like the landscape in Peter Cooper Village which has more quiet places for meditation or big gathering areas in Stuyvesant Town which offers more activities for socializing with other people? What are seniors' essential



Figure 6. Central Common Place in Stuyvesant Town Plaza



Figure 7. Pathway to Farmer's Market in Stuyvesant Town

requirements when they choose a place to live? How important does socialization stand in seniors' lives? These questions need to be considered for a successful senior community.

3.2 Preliminary Application of Three Design Principles: Landscape of Life Meditation Garden

Landscape of Life Meditation Garden is a healing garden design where I applied several of the therapeutic design principles. The garden was recently designed by the author and her advisors. While the Landscape of Life garden was not designed specifically for seniors, the author had the opportunity to incorporate some essential age-friendly design elements into a built garden.

Landscape of Life Meditation Garden serves as a healing garden for organ donors' families that also memorializes and demonstrates gratitude to the organ and tissue donors and their families. Our client, New Jersey Sharing Network (NJSN), is a non-profit, federally designated organ donation organization. The 8,200 SF site was an open lawn area behind the NJSN headquarters facing a large parking lot. There are two entrances to the building from the parking lot-- the main staff entrance, and another entrance for organ delivery, both of which pass by the garden, giving clear information for users about its location and accessibility. The garden's spatial arrangement is linear, and it is divided into three patio areas, two walkways and smaller private gardens for the bereaved. The main gathering space for larger groups is situated between a water feature and the donor wall, an extension of the indoor donor walls. Three birch trees subdivide the big area into two smaller spaces in order to create shadier smaller group gathering opportunities without giving up the feeling of one large room as a main gathering space. Two more intimate hedged gardens for private

conversations or personal meditation are planted with flowering shrubs and perennials. Taller hedges create privacy so that people walking by the meditation garden would be unaware if other people are inside those small spaces or not. Meanwhile, people inside the hedged garden would not be disturbed by other garden users. A meditation walkway under Dogwood trees allows visitors to walk through the garden and to take refuge in the shade. Landscape of Life Meditation Garden provides different functions in one garden

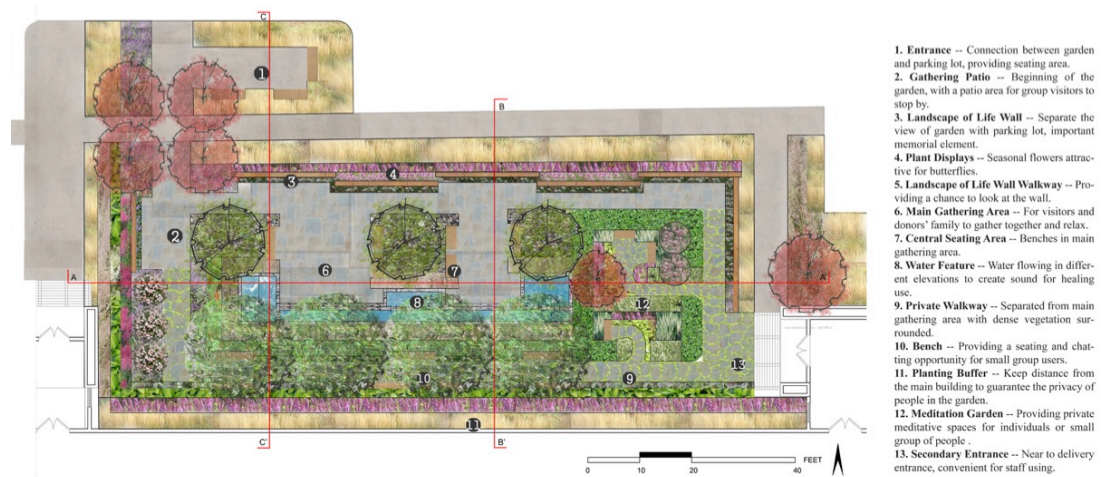


Figure 8. Landscape of Life Meditation Garden

by using plants and structures to divide spaces, and helps users to reduce stress and temporarily “escape” from reality. (Figure 8)

This small garden design incorporates new opportunities for physical activity, mental restoration and social connection. The Landscape of Life Meditation Garden provides varied places for people to be outdoors and have connections with nature. The garden creates spaces for users to calm down and find peace. Especially for donor families that suffer from emotional losses, having a garden with some private spaces can help them release negative feelings. The garden provides staff, who sometimes have to work under pressure, with a good way to release stress outdoors. Staff can also counsel clients in a garden setting if that is preferred. The garden has two major

gathering spaces for events or big group gatherings, but smaller spaces and pathways provide chances to “be away” from other people.

Although the design for Landscape of Life Meditation Garden was not designed for seniors specifically, I started to wonder if therapeutic garden design could be applied to an urban senior community to improve the senior living environment. I decided that I would like to apply the three design principles, which are physical activity, mental restoration mental stimulation, and social connection as well as other principles from universal design and therapeutic gardens to a public, more urban age-friendly park for seniors in New

York City – one of the most urbanized cities in the world.

Chapter 4 Site

Selection

4.1 Senior Population and

Senior Facility

Distribution

There were three major factors that needed to be considered during the site selection: senior population distribution, senior facility distribution, and the proximate walking distance to parks and green



Figure 9. Senior Population and Facility Distribution

open spaces. For this study, senior population distribution affects site selection most directly. Based on the data from the United States Census Bureau, 2015, Figure 9 map shows the distribution of senior population density across Manhattan. The darker the blue is, the denser the senior population this area has. I found three concentrated areas (in the red frames): midtown west; midtown east; and lower Manhattan near Chinatown. Second, senior facility distribution (pink dots) indicates the concentrated areas for senior activities and living. The senior facilities included here are: senior centers; assisted living facilities; retirement homes; and non-profit organizations. There are two



Figure 10. Senior Facility's Accessibility to Parks and Green Open Spaces

concentrated clusters of senior facilities located at midtown west and lower Manhattan. This mapping indicates that the senior facilities' locations basically follow the senior population distribution, although other elements like community income and types of senior services (like services that deliver to the house) can also affect the map outcome.

4.2 Senior Facility's Accessibility to Parks and Green Open Spaces

Parks and green open spaces can affect the quality of senior living and levels and types of activity. An outdoor garden or a park can encourage people to be outside to experience nature and strengthen their bodies. The red dots on Figure 10 locate the senior facilities, and the pink circles represent a 1500 feet walking radius from the facility (approximately 8 minutes walking distance for seniors). The green areas are parks and green open spaces. From the map we can tell that some areas are close to big parks and green open spaces; the cluster in midtown west is close to Central Park and Riverside Park, whereas an area like Chinatown in lower Manhattan does not have as much accessibility to parks and recreation as are present in midtown west.



Figure 11. Site Location

4.3 Site Location

Having considered the three elements above (senior population distribution, senior facility distribution, and the proximate walking distance to parks and green open spaces), I chose my site as Columbus Park in Chinatown (see Figure 11), which has a dense surrounding senior population, as well as some senior facilities (including

the Chinese American Planning Council Chinatown Senior Center right across the street), and only a few medium-size parks and green open spaces nearby. The 3.2-acre Columbus Park serves a relatively high density of senior population. The park itself is located in a tract containing 1,001-1,500 seniors; it is adjacent to a tract containing 1,501-2,000 seniors and another tract that contains about 2,001-2,744 seniors by its east side. There are approximately 4,500 – 6,200 seniors living in the neighborhood serviced by Columbus Park and a few small parks nearby. Columbus Park could play an important role in a large number of senior people's lives. (Figure 11)

4.4 Naturally Occurring Retirement Communities

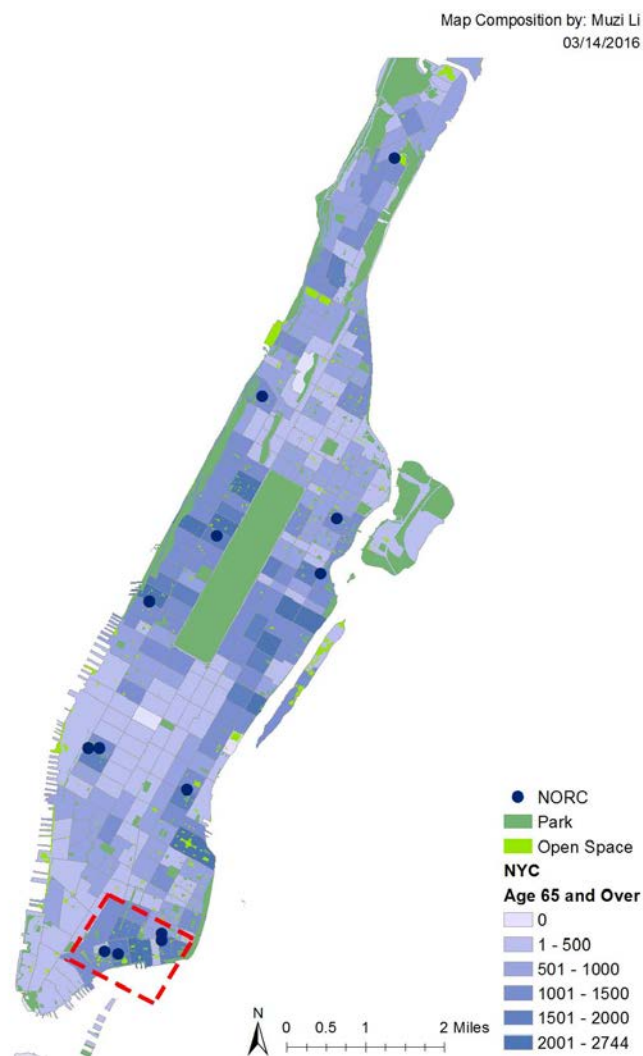


Figure 12. NORC Distribution in Manhattan

Columbus Park is located in a Naturally Occurring Retirement Community (NORC). The demographic term “NORC” was first coined in the 1980s by Michael Hunt, a professor of urban planning at the University of Wisconsin-Madison. Hunt defined NORCs as neighborhoods and housing developments, originally built for young generations, in which 50% of residents are 60 years or

older and have aged in place. There are different standards for NORCs in different areas. The federal government definition requires that at least 40% of the heads of households are older individuals. Meanwhile in New York City, a NORC must have at least 45% of housing units with heads of household 60 years old or older with a minimum count of at least 250 seniors, or at least 500 older adults who are 60 years old or older (regardless of the percentage of housing units).

Unlike planned retirement homes or senior communities, NORCs develop naturally either when seniors age in place or when seniors move into a non-age-restricted community. A NORC is a more flexible way to improve seniors living environment because NORCs can help aging people stay in their own neighborhood, and keep the social connections with old friends and families. Outdoor green spaces in NORCs can provide platforms for social interaction for diverse ages of users, especially in an urban condition such as Manhattan where people live in apartments that do not get many chances to get to know one another inside the buildings. In addition, parks provide opportunities for mental restoration and physical health. Figure 12 shows the distribution of NORCs in Manhattan. The area in the red frame has the highest concentration of NORCs, and contains my site, Columbus Park.

Chapter 5 Site History

Columbus Park used to be called “Five Points”, which was a messy neighborhood where cruel gangs like the Dead Rabbits made illegal deals in the side alleys. Five Points was home to about 1,000 Chinese back to 1800. The Chinese immigrants started to organize a large self-supporting economy in their neighborhood, with an internal structure of governing associations and

businesses to supply jobs, economic aid, social service and protection. Chinatown continued to grow through the end of the 19th century like a self-isolated kingdom in this little neighborhood in Five Points. In 1882, the Chinese Exclusion Act was passed, making Chinese workers the first nationality to be prohibited from immigrating into the United States. The Exclusion Act prohibited the immigration of the wives and children of Chinese laborers living in the US, and Chinatown became a real “bachelor neighborhood”. Under such a harsh living situation, an underground, internal political structure was built up in Chinatown to provide work illegally to Chinese laborers. “With their own organization, the illegal Chinese laborers were able to live without leaving the blocks they called home”, Sarah Waxman wrote in *The History of New York City’s Chinatown*. In 1887, the New York State legislature passed the Small Parks Act to provide working classes in densely populated neighborhoods with amenities like fresh air and sunshine. This Act had a huge impact on improving Chinatown’s living environment. By 1897, Calvert Vaux, the designer who was responsible for Central Park with Frederick Law Olmstead, had replaced much of the slum housing in Chinatown with the newly planted Mulberry Bend Park, which was renamed Columbus Park in 1911. The park brought some refreshing air and created a lively outdoor living room for this shabby area. After the Chinese Exclusion Act was lifted in 1943, Chinatown started to grow slowly through the 1940s and 1950s. The garment industry, the hand-laundry business, and restaurants continued to employ Chinese internally. Meanwhile, Columbus Park started to host the annual Chinatown Community Play Day that featured ball games, foot races, Chinese Boy Scout troops, and healthiest baby contests to encourage people who lives in the neighborhood to use this park. Today’s

Chinatown is a “tightly packed yet sprawling neighborhood” that remains very Chinese and continues to grow rapidly, expanding into Little Italy just north of it. Columbus Park now has been such a popular gathering place for the surrounding community that you can find representatives from every generation.

Chapter 6 Site Analysis

6.1 Chinatown Neighborhood Land Use

Columbus Park is located in the southwest of Chinatown. By the park's north is Little Italy and by its southwest are important large-scale government buildings (shown in green on the map), like New York City Criminal Court, City Hall, New York State Supreme Court, United States District Court, and NYC Health Department.



Figure 13. Land Use in the Neighborhood Around Columbus Park

There are several land-uses in the neighborhood around Columbus Park (between Walker Street, Lafayette Street, Worth Street and Bowery). (Figure 13) Restaurant business and residential (in red) occupy over 50% of the buildings around Columbus Park. The Chinese American Planning Council's (CPC) Chinatown Senior Center (in blue) located right across the street from the park provides congregate lunches with a very cheap price for seniors living in the neighborhood. The senior center also provides case assistance, field trips, indoor physical exercise, and recreational and educational classes like fan dance and ballroom dance for seniors. There are also educational and health workshops provided monthly. There are three churches (in yellow) and two private schools (in purple), and other mixed function buildings like banks, offices and other commercial uses in the neighborhood. The complexity of land uses near Columbus Park means that the park is heavily used and highly active.

6.2 Function Analysis



Figure 14. Four Functional Sections in Columbus Park

Columbus Park has been divided into three different functional sections. (Figure 14) The northern part (in red frame) serves as an open plaza and has a landmark historical pavilion (blue frame). The pavilion is a traditional Chinese styled two storey structure located by the north of the plaza on Bayard Street. There are three pavilion entrances: the red arrow shows the only handicap entrance to the first floor from the street outside of the park, and the other two entrances (blue arrows) are with steps to the pavilion. The partially submerged ground floor is used for indoor activities like Ping-Pong and a drawing classroom for residents nearby; however, it is closed now due to the flood during the winter of 2015. The second floor is an open space, and right now

people playing table games often occupy this area. The pavilion itself has an elevator (shown in orange), and as the city park closed the first floor, the elevator is not operational so people can only climb the stairs to the second floor.

The sections in the middle and southern most sections of Columbus Park contain a soccer field and three basketball fields (green in middle). During the daytime, this section attracts many teenagers and schoolchildren in the neighborhood to play soccer, football and basketball. The playground in the south part of the park (in yellow) offers facilities for younger children, and there are several additional basketball courts located adjacent to the street (green in the bottom). Every section of the park is heavily used at different times of day due to the complex function and diversity of users in the neighborhood. Because a very tall fence (blue dashed line) surrounds the active middle section of the park, there is no circulation from one section of the park to the next except to walk along the city sidewalk, which make user's walking experience less consistent. (Figure 15)



Figure 15. Fence Along the Middle Section

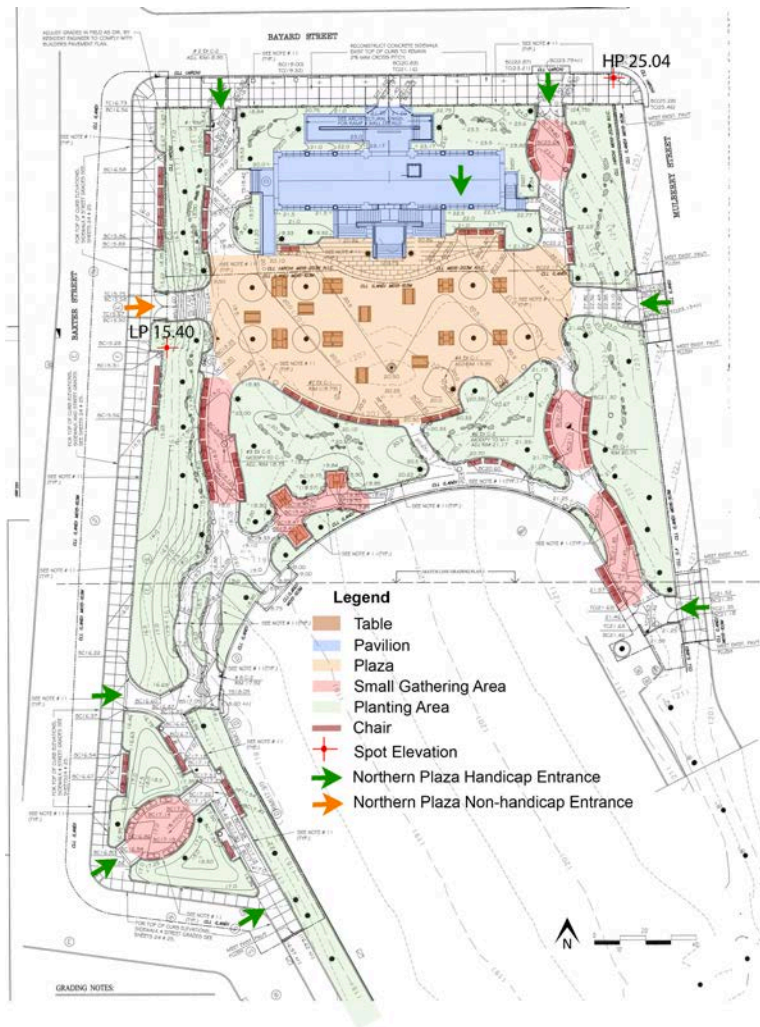


Figure 16. Functional Analysis in North Plaza

park as an outdoor living room. (Figure 16)

There are seven entrances for this north section in the park, and only one of them is not handicap accessible (orange arrow). There are four major functional spaces: the landmark pavilion by the north (blue area), the open plaza with tables and chairs (orange area), the smaller gathering spaces (red areas), and planted areas (green areas). The green dashed line shows the major circulation pattern in the plaza. This site has a 9.5' elevation change from west to east, but the park uses slowly rising pathways to reach the main open plaza, which is flat enough to provide spaces for tables and chairs.

I chose to focus on the northern plaza (the red section in Figure 14) as my site to propose design interventions to serve the senior population in the neighborhood. The northern plaza section attracts many Chinese seniors living in the Chinatown neighborhood in New York City as well as former residents and relatives to use this

6.3 Shade Study



Figure 17. Microclimate Analysis in North Plaza

There are many existing plants on site now. (Figure 17) The major mature trees on the plaza are mostly London Plane Trees, and those trees have at least 18 inch diameter trunks. In summer, these deciduous trees provide cool shade for people using the plaza, while in the winter time after all the leaves are gone, the sunshine passes through the branches to warm park users.

In the winter time, the cold wind comes from northwest, and may be blocked by the pavilion, which gives people chances to shelter by the southeast of the pavilion to avoid the freezing wind. Meanwhile in summer time, the cool breeze blows in from the open south east direction.

6.4 Existing Activity in Columbus Park

Columbus Park Existing Activity	Physical Activity	Mental Restoration	Social Connection
Table Games			
Singing and Performance			
Eating, Chatting and Reading			
Tai chi			
Community Garden			

Figure 18. Design Principle Benefits on Five Major Activities

Currently there are five major activities in the northern plaza: table games, singing and performance, eating, chatting and reading, Tai chi and community gardening. According to the three design principles in my literature review, those five major activities can be categorized under the three design principles.



Figure 19. Existing Programs in Northern Plaza

(Figure 18) For example, table games can create benefits for mental restoration and social connections for senior users, and community gardens may benefit senior users on all three aspects.

Each activity happens in certain areas in northern plaza. Some

activities require specific spots while others are more spontaneous or flexibly located. (Figure 19)

Table games benefit social connection aspects, and they are very popular in the park. People gather around tables on the plaza. Some game players even bring their own furniture to the pavilion's second floor. On a sunny day, you can see people who were not able to occupy a table sitting on the rocks and using the rocks as their chess tables. (Figure 20) Table games, like playing cards and chess, are common activities for retired seniors in China. This activity usually happens in a table game center or small parks in the neighborhood. There, certain groups of people in the neighborhood would gather together, play table games and socialize.



Figure 20. People Playing Table Games

Table games make the park active because there are certain people who come to the park every day to play, but the players also occupy most of the major plaza, and thus other programs have very little space. Also, as the site furniture was not arranged efficiently, there are a lot of left over spaces in the middle of the plaza.

Singing and performance (blue dots) create benefits for physical activity, mental restoration and social connection aspects. They are also popular activities in the park. Different from the table games that happen everywhere, as long as there are tables, the singing groups are always in certain spots. There are two semi-circular seating areas where the musical instrument players can sit on the semi-circular shaped benches, and the singers can stand in the

middle. (Figure 21) From my observations, I realized that these special forms required for performances as well as those required for table game players (occupying tables and chairs on the open plaza) are the two main reasons singers and instrument players decided to stay in specific spots, and these reasons should be considered during the new proposal.



Figure 21. Singing and Performance

Being outdoors and enjoying small things can also create benefits for mental restoration and social connection. There are always places needed for eating, chatting and reading in the park (purple dots), and all these activities



Figure 22. Eating, Chatting and Reading

can happen everywhere with flexible seats and forms. In Figure 22, we can see that people climbed over the fence to sit on rocks inside the planting bed. I saw an old man sitting on a rock reading a

newspaper because it was shady and away from the noisy and crowded people in the open plaza.

I noticed that there are many people just sitting in the park and watching other people. Being in the park and talking with other people can keep seniors from suffering loneliness and isolation that might lead to further mental

degradation. Activities like eating, chatting and reading are so flexible and spontaneous that they can intersect with every other program in the future proposal for Columbus Park.



Figure 23. Community Garden Program in Columbus Park

The community garden (orange dots) creates many benefits for users to both actually participate in or just watch other people working in the garden. Right now, the community garden program in Columbus Park is mostly for children in the summer time, and it is difficult to access because the planting bed is fenced. (Figure 23) Since community gardening is limited by its seasonal seasonal character, it is hard to activate the program in winter time; there is a question of how to extend the community garden's form and function from just being planting beds to a combination of physical activity, social connection and mental restoration program, which will be considered in a future design proposal.

Tai chi and dancing (green dots) are some of the most direct examples of physical exercise. They are also good ways to experience mental restoration and social connection. The Tai chi group comes to the site almost everyday in the early morning and at dusk. There are classes every Saturday afternoon in the basketball courts in Columbus Park, and few blocks away from Columbus Park. There are many Tai chi and Kong Fu classes being taught by Chinese masters.

Currently in Columbus Park, the Tai chi group was driven to use the



basketball court instead of using the northern plaza. (Figure 24)

Conflicts

Figure 24. Tai chi in Basketball Courts in Columbus Park

between people

who prefer more physical exercise and people who prefer table games (many of whom smoke) are obvious, so I hope through the new proposal to coordinate all the programs in the park in better ways to reduce the conflicts and rearrange spaces more efficiently.

From the programs above, we can devise some common needs for spatial arrangement and site furniture. According to Figure 25, chairs and portable furniture are two main elements that can be easily applied in the new proposal, and from my observation, these two elements were in a large demand. Rocks as a landscape element on the site performed not only as decoration, they were also used as tables and seats for eating, sitting and gambling as well. Smooth surfaces on the plaza may be considered as locations for Tai chi and other types of physical exercise; however, there may be conflicts with smokers and table game players in the open plaza. A walking loop with an ADA surface

	Chair	Table	Rock	Open Plaza	Portable Furniture	Smooth Surface	Planting Bed
Table Game							
Performance							
Tai chi							
Community Garden							
Fortune Teller							
Jogging							
Sleep							
Watch People							
Eat Lunch							
Chat							
Read							

Figure 25. Site Furniture and Spaces for Programs

around the park with measurable markers may better meet the criteria for a prescription park.

Seniors who come to the Chinatown neighborhood occupy the northern plaza for outdoor activities (although some activities are less active than others), which makes the northern plaza a multi-functional outdoor living room for seniors. According to the observation and analysis of existing programs which happening in Columbus Park's northern plaza, I had a better understanding about how a senior garden (or a garden in a NORC) could join or adapt existing programs and spaces to contribute to physical, mental and social health for seniors.

6.5 Access to Columbus Park

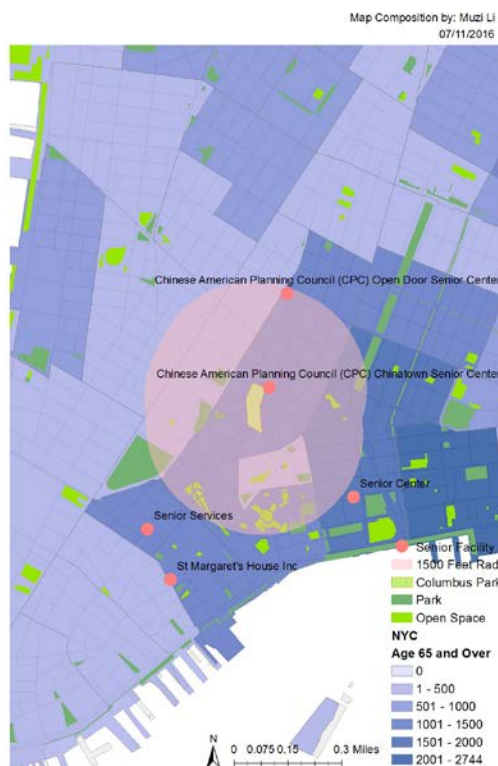


Figure 26. 1,500 Feet Radius from Columbus Park

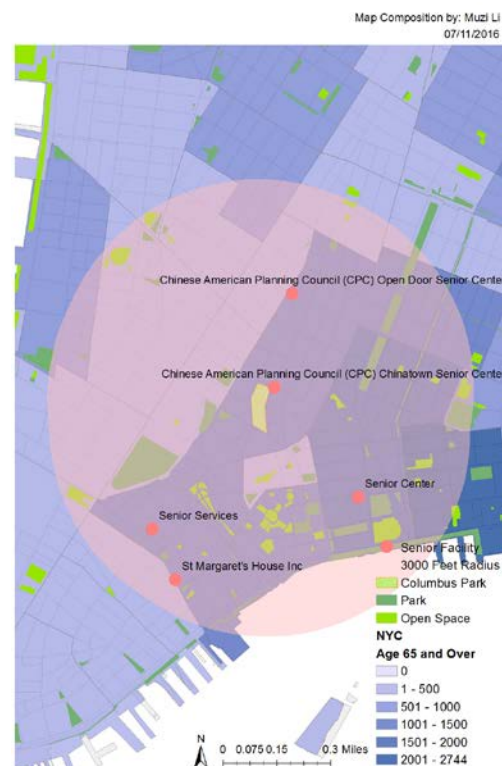


Figure 27. 3,000 Feet Radius from Columbus Park

As one of the biggest parks in Chinatown, Columbus Park serves as a walkable park for senior residents who live in the neighborhood. According to

Diane Y. Carster's "Site Planning and Design for the Elderly: Issue, Guidelines and Alternatives", we can calculate that it takes about 8-10 minutes to walk 1,500 feet and 15-18 minutes to walk 3,000 feet for seniors. And the recommendation for older adults is 150 minutes of exercise per week. In Figure 26 and 27, the maps showed the coverage of Columbus Park with different walking radii. If a senior lives 1,500 feet away from Columbus Park, he/she should walk to the park every day to reach the 150 minutes walking requirement. And for a senior lives 3,000 feet away from the park, he/she should walk to the park 3-4 times a week. Thus we can say the park is walkable for seniors who live in Chinatown neighborhood. However, the time to get to a park cannot be considered as the only standard for accessibility, we also need to consider if there are enough resting areas during the walking distance, and if the surfaces are handicap accessible or not. And for walking to Columbus Park, seniors live in the west and south west have better accessibility than other directions because there is less commercial activity and fewer tourists.

As a public park, Columbus Park was not intended to be used as a senior garden/park. Yet, the northern plaza now is predominantly used by Chinese seniors. However, the various programs still make the park an attractive destination for many different users. From my observation, people use the park in many spontaneous ways. For example, rocks in the park are used as benches to eat lunch, and also tables to play poker games. Meanwhile, the arrangement of the site furniture suggested the designer's original user intention. The chess tables and benches implied the original proposed programs, and the pavilion stands clearly as a landmark building in Chinatown.

Columbus Park now serves as a great social space for seniors living in Chinatown and those who used to live there. The various programs in the park and in the adjacent community provide income opportunities for some people (fortune telling, ect.), and these people also use Columbus Park frequently. Columbus Park is a platform for seniors who live or work in the community to socialize and exchange information about their daily lives. Having an active park within a walkable distance encourages people to come outdoors to exercise and socialize. I've observed some people walking from their house every day to visit to the park. Even though they may not play cards or chess, nor participate in singing or dancing, sitting in the park and watching other people can be an interesting activity for them. Coming to the park can provide opportunities to engage in physical exercise (even though just mild exercise). Being in the park also gives seniors chances to talk with other people, or just sitting alone and reading newspapers. Seniors may not notice how beneficial these little things are for their physical and mental health, but the real benefits do exist, and that is why the landscape architect needs to pay attention to current ways that seniors use park space in order to improve design for senior-supporting gardens.

Chapter 7 Design Proposal

Using my site observations and analysis together with senior-friendly design principles from my literature review, I created several design proposals to make Columbus Park even more senior-friendly than it is now.

7.1 Option 1.

Design intervention one divided the park into two functional areas: the table games area and the performance area. The concept is to keep the

while also protecting several different scale performance spaces adjacent to the table game players, separating the two uses with planting beds that accommodate existing trees.

The first design proposal retains the form of the existing planted pathway (labelled A) because its southern side functions well as a sitting area for gamers while its northern side provides seating for performances. These sitting areas and planting screens separate the gambling areas from the proposed performance area (B). The planted areas (C) can be considered as green screens to separate two potentially conflicting usages. This will provide more sitting opportunities for people to both watch performances and to play table games. The proposed planting areas (C) subdivide the large space in front of the pavilion to several separate areas for gambling and for performance. They will follow the layout of the existing trees on site; thus we can protect existing vegetation and keep enough space for table games, keeping almost the same number of tables but organizing them more compactly in a smaller space.

From the observation of Columbus Park, I discovered that table games are very popular, and the gamers would come to the park every day. Talking with some people in the park made me realize that most of the senior users in Columbus Park are from the same city called Taishan in China. Since these seniors share the same hometown, it is more possible that they would share the same cultural background and similar hobbies like playing table games and singing traditional Cantonese songs. Unlike playing table games in an organized game center in China, seniors who have immigrated to the U.S. had hard time finding a free indoor game center like the one in their hometown. A

park which offers table sets in the neighborhood is a perfect space for playing table games and socializing with other people.

For such a high-demand program, I decided to rearrange the layout of the current tables and chairs to fit in almost the same amount of table sets in a smaller space. In addition, providing portable chairs gives gamers more flexibility to move around the game tables or vary the number of people around a given table. Moving table gamers closer to the pavilion may also deepen connections between “indoor” and outdoor spaces (the second floor of the pavilion is used for gaming also). From the micro-climate aspect, pushing table sets closer to the pavilion can help to protect gamers from the cold winter wind blowing from the northwest of the pavilion, and gamers may be willing to play cards outdoors earlier in the spring.

Currently there are two groups of instrument players in the park using the two semi-circular sitting areas (E). As these two spaces function very well, I decided to add another similar sitting area on the west side of the plaza by creating a similar bench layout on the west side of the park.

There are other minor changes such as setting back the benches from the fence to give some buffer distance for people to watch children playing in the soccer field (F); creating more sitting opportunities for people to watch, chat, read and eat (G).

7.2 Option 2A.

Add more tables for table gamers.
Move tables near to the pavilion to connect pavilion with outdoors.
Bring in portable chairs to give flexibility for people to move around.

Table gamers and people watchers in the pavilion may watch singing and performance downstairs in the open plaza.

Create more seating opportunities for people watching, chatting, reading and eating.

Use shrubs to separate table games areas with singing and performance area, bringing rocks as seats, also as screens to separate two spaces.

Open area for events and performances. Use a different surface material/pattern to separate from table games areas.

Set back seats to give people watchers a buffer distance from the fence.

Add another semi-circular sitting area for singing and performances.

- A. Performance Plaza
- B. Table Game Area
- C. Proposed Planting Beds
- D. Instrument Players
- E. Watching Children Play
- F. People Watching, Chatting, Reading, Eating

Design Intervention Option 2A



Figure 29. Design Intervention 2A

The second design proposal approaches redesigning the park in two variations. Both design proposals create more space for singing and performance than for table games. This scheme changes the prominent program from table games to physical exercise. The big performance plaza welcomes physical exercise like Tai chi and dancing to use this space. Meanwhile, the table games are maintained but they become less dominant in the plaza. By proposing such a layout, I hope that without removing the existing table games in Columbus Park, the proposed design can encourage seniors to participate in more physically beneficial programs than sitting still by the game tables.

The second proposal creates a big space in the middle of the existing plaza for events and performances (A). In order to create enough space for the middle plaza, I pushed the table games to the two sides (B), and used shrubs and rocks as screens to separate gambling areas from singing and performance areas (C). By doing so, the plaza could have more flexibility: it can be one big open plaza or it can be used as three separate small spaces. Meanwhile, using a different surface material or pattern on the middle plaza can help to indicate the separation of two different spaces. By creating such a layout, not only will there be more sitting opportunities for people to watch the performance on the plaza, gamers and people watchers in the pavilion may also watch singing and performances from upstairs.

The second proposal keeps the same minor changes from proposal one, including adding another semi-circular sitting area on the west side of the plaza (D); setting back the benches from the fence to give some buffer distance for

people to watch children playing in the soccer field (E), and creating more sitting opportunities for people to watch, chat, read and eat (F).

7.3 Option 2B.

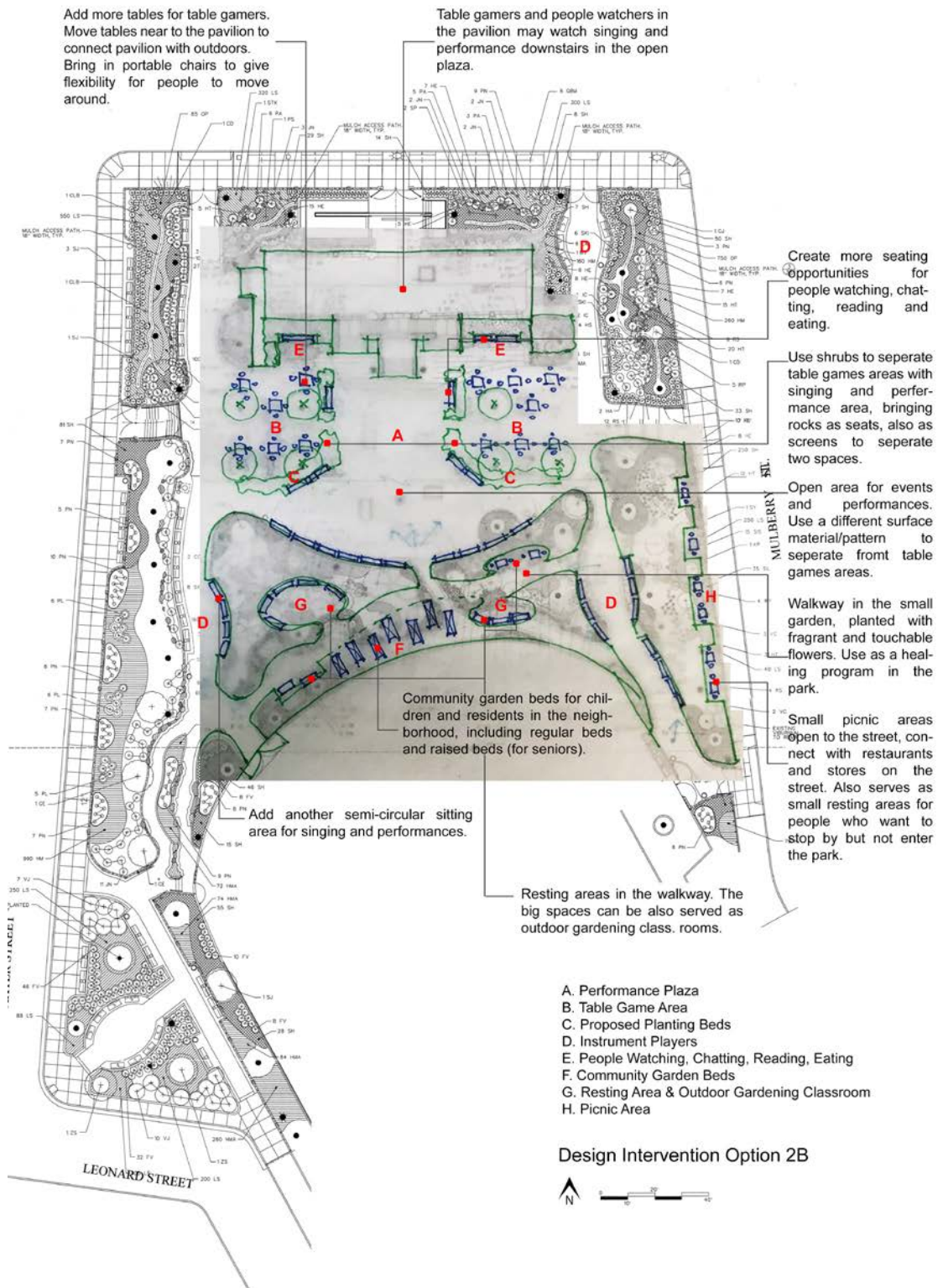


Figure 30. Design Intervention 2B

Option 2B keeps the basic structure from proposal 2A, and adds two more programs in the park. By adding new programs in the park, I hope to explore if it is appropriate to have this many programs in a relatively small space by layering and coordinating programs in ways to satisfy diverse and complex user groups in a relatively small space.

One is the combination of community garden and healing walkway. The short walkway will go through the current planted area by the south of the plaza. There will be fragrant and touchable flowers planted in the walkway for healing purposes. The community garden beds (including regular beds and raised beds for seniors) will be placed facing south because currently there is no vegetation planted in the new locations. Here, the garden beds can be fully exposed to the sunshine (F). There are also some resting areas in the pathway to serve as outdoor gardening classrooms for children, different residents and seniors in the neighborhood (G).

This program can create physical, mental and social benefits for seniors. Taking care of a community garden can be considered as a physical exercise for seniors. The fragrant and touchable plants in the garden can create mental restoration and mental stimulation. Also, a focus on gardening may help seniors to reduce stress and anxiety. The mix of users in community gardens can create social benefits by providing a platform for seniors to get to know other people and interact with younger generations. Community gardens exist at present, but there is a lack of supervision. So in order to restart this program, the park needs to cooperate with local residents and organizations.

Another new program element is to create a series of small picnic areas by the eastern edge of the park. Those small spaces will open to the street,

connecting with restaurants and stores across the street. The picnic area will attract people who want to stop by but not enter the park. They can sit down and take a rest, or have their lunch. As these picnic areas will have tiny picnic tables and they are open to the street and public, I believe that gamers may be less likely to take over the tables for gambling, so these new, or improved programs could be the draw for other types of park users – beyond table gamers, so I think it's a good move to concentrate gaming while adding other things that will draw new park users.

7.4 Final Design

The final design combines the layout of the table game plaza from Option 1 and other programs from Option 2B (Figure 31). This proposal kept the prominent position for table gamers (A). Instead of removing table games from the park, this proposal showed understanding and respect for the existing park users by rearranging the game tables' layout to have the area function more efficiently. While adding activities like community gardening (E) and picnicking (G), this proposal provides more opportunities for non-gamers to have physical exercise, mental healing and social activities in the park. The proposed planting beds (B) separate the table games plaza (A) from performance area (C) to reduce the potential functional conflicts.

Figure 32 shows the differences between the existing and proposed designs' spatial experiences. In the existing section, table games and performance are mingled in one open plaza, which sometimes make conflicts for the two groups. For example, table gamers may smoke and occupy too much space, taking it away from potential performances. As the section shows, the proposed planting bed is used as a screen to divide one open plaza into

two smaller separated spaces with different functions to reduce the conflicts between table gaming and performances. The table game area in the pathway is transformed into community garden and outdoor classroom spaces on the proposed section, which makes the pathway area work more efficiently.

The application of different surface materials also helps to distinguish different functional areas. While area A for table games can keep the original pavement, area C for performance and dancing can apply a non-slip pavement for safety reasons. The pathway in area D which serves community garden and outdoor classroom spaces could be a stone dust surface with a border of previous pavers on the edge. The edge protects the muddy walkway from washing away on a rainy day, makes the walkway handicap accessible and also well-drained which is especially important when watering the garden beds. There will be mulch applied in area E around planting beds to keep the garden clean and dry rather than having people standing on the exposed soil.

Flexible furniture can help users to experience the spaces more spontaneously. In Figure 31, A1 shows the fixed table sets for table games, while A2 shows how flexible tables and chairs might be arranged. Currently, two to three seated people play the game at each game table, while there could be three or more people just standing by and watching. The fixed table sets in the park now cannot satisfy the amount of people who have demand to play table games. Sometimes people bring their own furniture to the park to play table games. Flexible tables and chairs in the table game plaza can help to solve the problem of high demand for site furniture. Flexible chairs can be used also in the enhanced area for performance to create more seating opportunities.

While providing flexible furniture have the benefits above, there are management issues that include cleaning, storing, and maintaining the furniture. Flexible furniture may have the risk of being removed from the park. Suggestions like registering names with IDs when borrowing the furniture from park office can be considered. Also, in order to keep the unique quality of each space, flexible game tables would need to be removed from performance spaces for special events.



Figure 31. Final Design



Figure 32. Sections of Existing Design and Proposed Design

The final design arranges the layout of different functional areas in a clearer way to reduce the potential conflicts between different users. There are also more activities for non-game users of the park: the table game plaza has been condensed close to the pavilion to enhance the connection between gamers inside and outside the pavilion. Condensing the gamers creates a new performance area, separated from the gaming space by plantings. The table game plaza offers a space for seniors to play table games and to socialize. Talking with people and doing mild mental exercise like playing cards and chess can help to prevent or delay dementia. The enhanced performance area and additional musical performance seating area provide more defined spaces for singing and dancing, which can create benefits which include physical

activity, mental restoration, mental stimulation and social connections. The new community garden area places garden beds in a sunnier area and promotes watching younger people playing sports. The community garden may attract users of different ages to participate. Community gardens can benefit on not only physical activity, but also social connectivity, mental restoration and mental stimulation. The additional seating areas and picnic area serve for seniors and all other ages of users, no matter they are children or tourists or staff from offices in the neighborhood. The variety of users in the park may create more opportunities for seniors to socialize with other people, and make the park more active. Places to socialize and interact with other people, places to sit alone and be meditative or watch other people, gardening areas and physical exercise areas in the park can help to make Columbus Park into a “healthier”, more diverse and balanced public park in physical, mental and social aspects.

The final design's walking loop (Figure 33) may help to resolve circulation between the park's three sections. Currently, the northern section, middle section, children's playground and south section are all heavily used at different times of day. (Figure 14) However, the tall fence around the soccer field in the middle section blocks the connection between the different sections. Proposing a walking loop just outside all sections reconnects the park, while also providing opportunities for physical exercise and social connections between users of different ages. The walking loop would be inserted into the ten-foot-wide planted area separating the park from the city sidewalk. Makers or signs with measured distances can be applied in the walking loop to make the walking exercise measurable. The pedometer-based walking loop may help doctors to

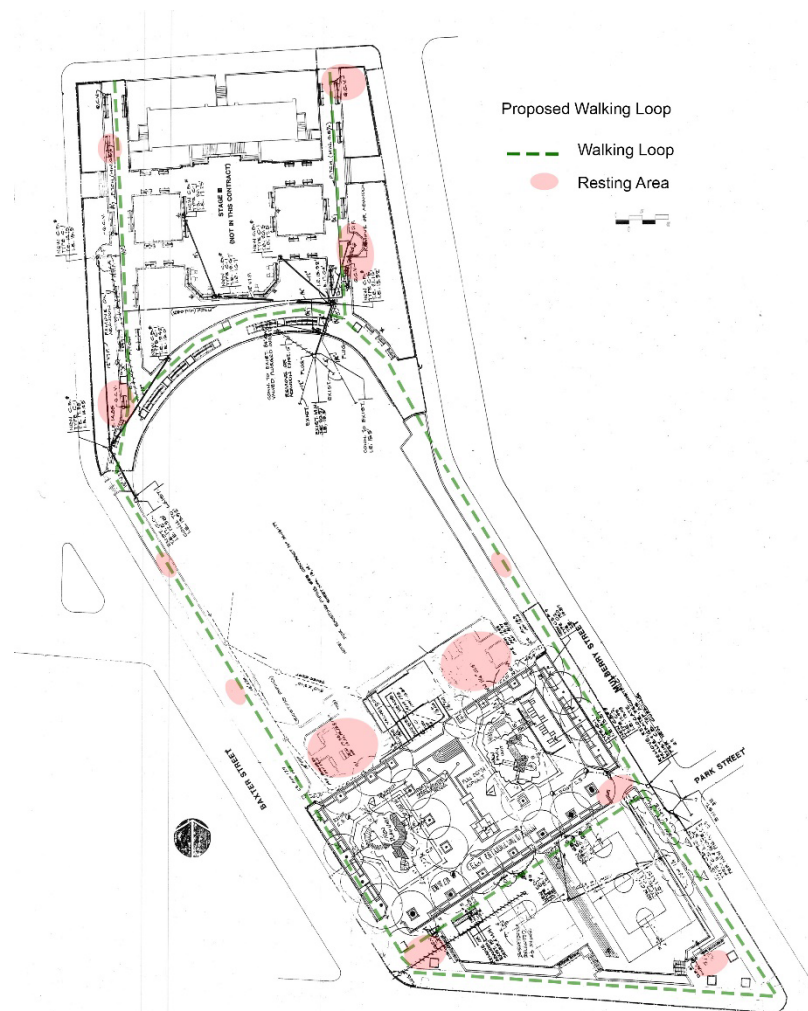


Figure 33. Proposed Walking Loop

give prescriptions for physical exercises, and also encourage seniors to engage in outdoor exercises too.

The new design proposal for Columbus Park has five important aspects. Because the park at present meets so many user demands, the first is to try to keep all the existing major programs in the park, which include table games; singing and performance; eating, chatting and reading; Tai chi; and a community garden. Second is to reduce the conflicts between different users by rearranging the layout of programs and site furniture. Third is to create a more comfortable physical environment for users. This could include the analysis of sun-shade, micro-climate, circulation, universal design principles, flexible seating and so on. Fourth is to apply one or two new programs in the northern plaza which could create physical, mental and social benefits for seniors, to expose people to new activities that they may enjoy. Fifth is to solve the division of the park into the separate sections by applying a walking loop that connects the northern plaza, soccer playground in the middle and children's playground in the south. The walking path can encourage physical activity and also foster social interactions between different ages.

By applying the five concepts above, the existing programs in the northern plaza will be kept and rearranged in a more efficient way. Also we do not want to add too many new programs in such a small site and create potential conflict.

Chapter 8 Conclusion

Columbus Park functions well today has been a very attractive place for people, especially seniors, in the neighborhood. People come to the park to play table games, chat, sing and perform. Columbus Park has become a part

of peoples' routine –a destination where seniors socialize, exercise and spend time.

After site observations and talking to people in the park, my first impressions about the redesign of Columbus Park changed. When I first visited Columbus Park on a cold spring afternoon, there were only a few groups of table game players (some of them were retired) gathered around the tables watching and playing poker, and some of them were smoking. My first reaction was to rearrange the whole layout of the park to eliminate table games instead of allowing people to play cards and smoke in the park. In order to change the park to be a “healthier” place for seniors, my first design concept was to try to minimize the number of tables for table games, create more private spaces for reading and chatting, and maximize the plaza area for uses such as physical exercise and community gardens.

However, as I visited Columbus Park and talked with people there, I understood that the current programs in the park were not proposed or envisaged by designers. Most of the activities were organized by people who live in the Chinatown neighborhood. These self-organized uses indicate that people have high demands on certain activities like table games, singing and performance, dancing and even Tai chi. From the perspective of people's demands in a public park, designers should resist defining which programs are good and should be kept, and which are bad and should be removed; it may be inappropriate to force people to give up their traditional habits. There will always be conflicts for different groups of users (like between smoking gamers and Tai chi people). Our solution for a successful park program could be to optimize

spaces instead of removing or forbidding the existing programs to avoid conflicts.

The redesign of Columbus Park to optimize senior friendly spaces has general implications for senior-friendly design. We found four aspects of senior park design which call for further study.

First, universal design principles should be the foundation of senior park design. The ADA Standards for Accessible Design can give designers guidelines to meet basic requirements for seniors. There are other elements like less contrast of light/darkness and temperature from indoors to outdoors, shady areas for resting, and adjustment of micro-climate that we need to pay more attention to in order to improve the senior and general users' experience.

Second, attention to universal design should extend beyond park boundaries to the arrival sequence to the park from the seniors' perspective. Seniors and residents come to Columbus Park from the Chinatown neighborhood and even further. Columbus Park is already a popular and successful park in a Chinese neighborhood. There are seniors who live in New Jersey, Brooklyn and Queens who take public transportation to come to the park during the week. For Columbus Park specifically, we do not need to worry about how to attract more people to come to this park by improving the travel experience because the park has a strong base of user groups. The experience of walking to and from home to the park needs to be considered. The distance from where seniors live to their nearest public parks should be comfortable with resting opportunities during the walking experience. The relationship between pedestrians and vehicles should be considered, by extending the time for

seniors to cross an intersection or by dividing one crosswalk into several shorter crosswalks.

Third, according to the three design principles in the literature review, programs that benefit physical exercise, mental restoration, mental stimulation, and social connection should be considered in the design of senior parks. These design principles can positively affect each other, creating synergies through multiple benefits. Programs that promote mixing between users of different ages may keep a senior park more active.

Finally, we should keep the successful existing programs in the park. Understanding and respecting users' demands and habits is important. Some activities and programs which were not originally intended, express the demands of users. For example, the chess tables and picnic tables in Columbus Park are occupied by table gamers now; however, the table gamers are only one group in the park. What is more, for some seniors in Columbus Park, table games might be one of their routine activities when they were in China. Significant existing cultural activity for specific ethnic groups deserves deeper thought when designers are evaluating the existing programs in a park. For example, if designers choose to remove table gamers from Columbus Park, the park may lose an important group of users and become less active. So when we are trying to apply "healthy" or "helpful" programs in senior parks, it does not necessarily mean to remove other types of successful programs but instead to optimize their positive aspects.

Site visits, conversations and program analysis taught me how a designer can treat existing users and programs in a public park respectfully. Sometimes a new design idea is exciting; however, many times we can evaluate an existing

design and try to solve problems with minimum changes without destroying the habits of users. The concept of naturally occurring retirement communities and aging in place will be options for senior populations. To create better living environments for seniors, landscape architects need to understand and explore new ways to serve the potential huge senior population. A combination of healing garden design with an understanding of the unique characteristics of senior communities, and the respect and understanding of different cultures and habits may lead landscape architects to think about senior community design in a different direction and more appropriate manner.

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