URBAN STRATEGIES IN HISTORIC BEIJING

A Collaboration of:
California State Polytechnic University, Pomona – School of Environmental Design
Department of Architecture
Department of Landscape Architecture
Department of Urban and Regional Planning

North China University of Technology, Beijing
School of Engineering and Architecture
Since 2005, the College of Environmental Design China Studio has been an interdisciplinary program dedicated to encourage students of Architecture, Landscape Architecture, and Urban and Regional Planning to learn about the collaborative work which leads these professions to create the human-made environment. Taking place in China, students are exposed to non-western canons of cultural, professional, and academic traditions that enrich the program by encouraging students to become socially responsible professionals as they work on real-world design projects in a foreign context.

Students obtain a “first-hand” introduction to planning and design by working in collaboration with Chinese faculty and students, clients, expert designers, and planning officials. Guest speakers and site visits expose students to the social, political, legal, and economic contexts that shape the design and development of buildings and urban settings in China.

1.1 Collaborators
1.1.a College of Environmental Design, Cal Poly Pomona
1.1.b North China University of Technology
1.1.c Support Entities
1.2 Executive Summary
1.2 Executive Summary: Urban Strategies in Historic Beijing

Awards

“PLANNING ACHIEVEMENT ACADEMIC AWARD OF MERIT”
American Planning Association - California State Award
August 2011

“ACADEMIC AWARD OF MERIT”
American Planning Association - Los Angeles Chapter Award
June 2011

An International Collaborative for the Preservation of Culture and the Historic City

The project is the result of a collaborative structure to promote professionals, academia, and planning students to work together in attaining solutions that will shape our world in a time of critical transnational ties and challenges. China’s social, cultural, political, and economic extremes make a delicate and fragile urban setting with the potential to thrive in its world influence or break a fragile balance between people and government, history and tradition, nature and progress, and economic growth and market collapse. The ENV China Program Collaborative takes on the problem of abatement of thousands of years of history imprinted in the city fabric of Beijing, a city of 22 million people existing in a country of 1.3 billion, the most populated country in the world. In Beijing, historic neighborhoods are swiftly depleted and people are displaced from their homes by money hungry developers in collaboration with government efforts to put China at the forefront of the world economy. The problem is a complex one in which poverty looms over the historic districts as these communities have become key locations for migrant workers coming into the urban cores from the agricultural provinces of rural China. In addition, historical buildings are being demolished everyday as historic preservation efforts lag behind a powerful government structure that favors new development in the name of progress.

The ENV China program is committed to collaborating with activist planners and academics in China to create an image of possibility in an environment where people see little hope as the city development forces people out of homes that have been in family histories for generations. On a broader scope, the program’s purpose is to establish opportunities abroad specific to the planning and design professions; to build worldly perspective of young planners; to assist struggling preservation efforts of planners and architects in Beijing’s decaying historic core; to improve the collaborative ties between planning and allied fields of architecture and landscape architecture; and to build the image of the planning profession in the world stage in a country soon to become the world’s top economic engine.
The Project

Urban Strategies in Historic Beijing is a project in response to the desperate need for attributing value to historic fabric and its people as a means to facilitate dialogue between disempowered residents with government agencies and developers. In this project, Cal Poly Pomona partners with North China University of Technology in Beijing to serve as liaisons between the Fayuan Temple Hutong community, south of the Forbidden City, and government entities. The alliance works on developing an image of value to the preservation of historic districts through the development of alternative catalytic projects that benefit the community as well as the government and developers. The immediate goal of the project has been to influence the government to cease plans for demolition of the area on the grounds of its historic value and to redirect developers' strategies towards more sustainable means.

Over three summers of collaboration, participants have developed an in-depth study of the neighborhood bringing to light valuable historic sites like the General Xie Memorial Site. In the process, another valuable resource has been the oral histories recorded that reveal a rich and diverse ethnic community thriving in these dilapidated quarters. Themes of importance that are addressed in this report of the neighborhood and subsequent urban design strategies are: historic preservation, need for mass-housing, ethnic and migrant cultural groups, unhealthy community environments, preservation through oral histories, foreign collaboration in building China’s influence to the world, and the fostering of sustainable planning and design practices in Beijing.

Phase 1: Neighborhood / Site Analysis

This phase records the vitality and functioning of the site from the ground-up. Studies of the area rely extensively on sidewalk surveys that record the community’s rich human impact on the city and the cultural and historic assets and challenges. The assessment is a unique compendium of urban aspects that in China never surface in planning master plans, zoning allocations, or demographic studies due to their non-conforming nature. The project seeks to pose creative urban adaptations as an asset and not as a liability.

An immense challenge posed is therefore the growing density leading to public health issues and quick government demolition strategies.

Phase 2: Urban Proposals

This phase is composed of urban strategies generated from the study of issues in phase 1; it creates a vision of possibility with the community as stakeholders and generators of economic value. The Shadow of the Flower: Empowering and Re-investing in the Youth is a proposal for a foundation that empowers and reinvests in the youth by targeting underrepresented children to overcome discrimination, stress, and displacement. Bridging the Gap: Nurturing Life and Commemorating Death is a proposal centered on intergenerational exchange and aimed at mending the social problems of China’s one-child policy. The Neighborhood of Enclosed Harmony is a project proposal for an ever-changing seasonal locale involving the creation of urban wetlands that will filter grey water runoff, increase housing density and property values and reconnect people with nature.

The urban proposals promote the preservation of historic urban fabric, local residents’ cultures and histories and inclusiveness of diverse publics and ethnic tolerance, specifically the preservation of ethnic minorities and rural migrants’ contributions to local economies. The efforts serve as a means of slowing the rate of slum formation, mitigating hazards, and building safe and inclusive settlements by creating the first comprehensive study of the Fayuan temple neighborhood that promotes human experience, human histories, and historic structures. The study and design alternatives are currently serving to dialogue with city officials on out-of-the-box thinking. Since the initial stages of the project, and as a result of the collaborative efforts in this endeavor, the demolition for the area around the Fayuan temple has been put on hold pending further evaluation.

Process

Urban Strategies in Historic Beijing is a project in which American and Chinese professionals, students and faculty of interdisciplinary backgrounds come together to record the micro scale vibrancy of the impoverished historic and dilapidated quarters; to build upon neighborhood opportunities through divergent thinking and design visioning for profitable re-use and revitalization rather than demolition and social displacement. The result is a comprehensive document to be used by planning academics and professionals in dialogue with local governments.

The collaboration is supported by consulting and support of local planning and design firms, government entities, and local advocacy groups. Among the collaborators are global companies like ARUP construction (engineering firm with departments of urban design, architecture, and landscape architecture); The Beijing Department of Urban Planning; The China Academy of Urban Planning and Design; and the Los Angeles Times Beijing Bureau.
Lessons and Challenges

The planning profession is a young struggling profession in China, a country driven by massive demolition of the old and urgency for the modern. The biggest challenge of the project has been the alarming censorship and control enforced by the government that has at some points closed doors to our inquiring participants. Over the last few years, some of our project’s websites have been blocked. China’s political climate of censorship and political unrest limits our ability to ask big questions and most importantly, get real answers not only from government but from fearful citizens. The challenge has created opportunities for development of survey questions focused on family histories. Persistence of the project’s inclusivity is displayed by the continued interview process conducted with community members as an integral part all phases of the project. This endeavor supports planning by promoting the empowerment of traditionally disempowered publics in a challenging top-down political arena.

The ENV China Program started as a collaborative project between the department of Urban and Regional Planning and the department of Architecture at Cal Poly Pomona. The program has since expanded to welcome the department of Landscape Architecture. The experience exposes participants to non-western canons of cultural, professional, and academic traditions. The program encourages socially responsible professionals and students as they work on real-world design projects in a foreign context. These are mutually beneficial encounters as parties share ideas about the roles of planners in the west and the newly developing east. In the initial stages, we were challenged by a territorial and antagonistic relationship between planners and architects rooted in the roles that each plays in the making of the built environment. It has taken tremendous collaboration to achieve a fruitful collaborative effort which is now the programs biggest asset.

China has served as a setting away from home to help mediate the differences. Team members rely on each other to survive the daily challenges of a not quite user-friendly China. In addition, the shocking urban practices engage all levels of thinking as western solutions are not always appropriate and as language barriers and unfamiliar professional settings challenge the team to create inventive communication and connections.

Opportunities and Recognition

The collaborative provides visionary project ideas that can serve as a catalyst for new thinking. The approach capitalizes on China’s hunger for progress, economic development and recognition. In the last couple of years, China has become increasingly uncomfortable with its undesired status as producer of cheap low quality goods; in turn China has begun a campaign to develop the label “Invented in China” versus “Made in China.” The time for this idea’s realization is still to come, but its making shows promise to facilitate the collaborative of this project that engages Chinese academics, students, and professional entities with American counterparts in a quest for new ideas and methods. The effort of this transnational endeavor has recently received two prestigious awards: The American Planning Association-Los Angeles Chapter Academic Award of Merit, and the American Planning Association-California Chapter Planning Achievement Academic Award of Merit.
Phase 1: Neighborhood / Site Analysis

The project calls for the assessment of existing conditions and the proposal of ideas for development in a historic residential area of the city of Beijing historic core just south of the Forbidden City and in close proximity to the Temple of Heaven.

The current fast development trends in China have become a fast-paced threat resulting in the demolition of vast parts of the city that house historic buildings of significance that have gone undocumented and forgotten. Many of these neighborhoods are low-rise residential communities with traditional courtyard buildings in tight alleyways. These old historic neighborhoods are traditionally called Hutongs. Although there has been targeted development of some hutongs to cater to tourism, many more remain dilapidated, lacking running services, and housing a poor segment of Chinese population.

The project is part of on-going efforts by NCUT faculty for the protection of The Fayuan Temple Hutong area. Students worked side by side with Calpoly Pomona, NCUT faculty and Beijing City planning agencies to assist in the documentation and preservation of this area. In this project, the students immerse into discussion of historic preservation, modernity, development trends, community culture and value, and possibility.
2.1 Historical Background

2.1.a Introduction

2.1.b History of City Planning in Beijing

2.1.c General History of Hutongs as an Urban Element

2.1.d Significance of General Xie and the Memorial

2.1.e Historical Context

2.1.f Development Trends

2.1.g Historic Preservation

2.1.h Preservation Case Studies
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2.1.a Introduction

China has been experiencing rapid urbanization beginning in the 1980’s, when the Open Door Policy was adopted. * Foreign investments and relationships have allowed China to rapidly expand its economy. Furthermore, China’s vast labor force and technological advances have resulted in unprecedented urbanization trends. Figure 2.1.a demonstrates the urbanization trends for China in comparison to Japan, the United States, and the United Kingdom. China was able to achieve 39.1% urbanization in 2002 within a time span of 22 years, while it took the United Kingdom 120 years to reach the same level of urbanization centuries ago (Quinn, 2009).

China’s growing economy has also increased quality of life, specifically in the urban areas. China’s economic and social transformations have raised concerns regarding the country’s future sustainability and climate control. As China continues to grow and develops a larger middle class, the demands for oil and pollution rates will continue to increase. As a result it is imperative that China be examined and researched in order to develop solutions to issues that will be encountered in the near future.

*The Open Door Policy refers to a foreign affairs policy adopted by China in 1899, that allowed all European nations and the United States to trade with China and invest in China’s economy. Refer to 2.1.e for more information.

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The current global environment has also placed China in a predicament specifically regarding climate change and environmental accountability. Since 1995, China has participated in sixteen United Nation conferences geared toward climate change and carbon emissions (Weiskel, 2010). However, many of these agreements, like the 1997 Kyoto Protocol, have been unsuccessful because of the lack of consensuses among the nations on how to reduce carbon emission without hindering the development of developing countries. As a result, the Chinese government has the complicated task of meeting international demands, while also developing domestically.

On the last treaty meeting held in Cancun during October 2010, China held a proactive position towards the reduction of carbon emissions. China is reorienting its economy toward sustainability and renewable energy. It has invested billions in renewable energy, energy efficiency, public transportation and developing standards for products, buildings, vehicles and fuels. In September 2011 China’s most powerful agency, the National Development and Reform Commission, announced that China was setting up low-carbon pilot sites in five provinces and eight cities. In addition China has been producing green technology on a massive scale. Through aggressive government investment and central planning, Beijing has become a leader in solar panel technology, wind turbines and electric vehicle manufacturing (Weiskel, 2010).

*Based on figured by Professor Lu Dadao, president of the Geographical Society

Figure 2.1.1. Urbanization Rates by 2002

Figure 2.1.2. Crowds in Beijing.
Along with environmental concerns, China has been encountering insufficient housing problems due to the continuously growing urban population. Large influxes of Chinese immigrants from rural provinces into cities have resulted in the construction of high-rise residential structures to meet ever-increasing housing demands. A majority of Beijing's redevelopment projects have targeted areas strictly along Beijing's North-South and East-West axes. In particular, the areas north of Beihai Park and south of Tiananmen Square have been heavily redeveloped.

For example, the Wangfujing Shopping Mall north of Beihai Park was developed in 1992 to become a "first class international commercials district." City planners hoped that the newly developed area would create jobs and attract tourist. Quianmen, (Figure 2.1.v) another shopping district south of Tiananmen Square was recently redeveloped in 2005 and focused on preserving historical buildings and communities. About 76% of the original buildings were preserved and the surrounding hutongs were protected from demolition.

Unfortunately areas that do not fall on the North-South or East-West axis have been neglected and demolished instead of being preserved or redeveloped. This has been the case for the hutong communities located north of the Fayuan Temple. The Fayuan Temple is located southwest of the Forbidden City, in the Xuanwu District* (Figure 2.1.c). The Fayuan Temple itself and the hutongs located south of the temple have been identified as historical structures and are protected against demolition. However, the hutongs located north are not considered protected and many have already been demolished or are in the process of demolition. Years of inadequate maintenance have precipitated the dilapidation of the buildings.

These specific hutongs are also the home to the Xiegong Memorial Temple, a courtyard structure built during the Ming Dynasty to commemorate General Xie. Although the Xiegong Temple does not fall in the historic protected area, there has been a movement to preserve the Xiegong Memorial Temple and the surrounding neighborhood.

* The Xuanwu District was annexed in 2010 to become part of the neighboring Xicheng District. The project still refers to the General Xie Memorial Site as being a part of the Xuanwu District due to the recent annexation of the district. The Xicheng District is much larger and of a higher income, and does not specifically represent the project's site.

Although these historical communities were built surrounding the Forbidden City according to the principles of Feng Shui and the North-South axis, their importance have been overlooked in modern times.

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The city of Beijing underwent significant transformations in order to host the 2008 Beijing Olympics. Besides building impressive stadiums to hold the Olympics, the government also demolished historical hutongs, an ancient system of narrow streets or alleys, most commonly associated with Beijing, China (Meyer, 2008). In Beijing, hutongs are alleyways formed by the walls and intersections of siheyuan, or traditional courtyard residences. The term siheyuan literally means a courtyard surrounded by four buildings (Beijing Review, 1997).

Years of inadequate maintenance have precipitated the dilapidation of the buildings...

Figure 2.1.3. Map of Imperial City
2.1.7 2.1.6

2.1.6 History of City Planning in Beijing

Beijing was the selected capital for the Jin, Yuan, Ming, and Qing dynasties. Beijing was selected and designed by the standards of the “ideal city” described in the Kao Gong Ji, part of the ancient ritual texts of the Zhou Li (Selugga, 2008). The location of the site was determined by its location near the celestial North Pole (Han, 2001). This location was aided by other elements of Feng Shui. The site was strategically located near the Taishang Mountains and Yanshan Mountains (Han, 2001). The physical shape of the surrounding mountain ranges around the city looked similar to a star constellation called the “Ziwei Constellation” (Han, 2001). In addition, the city region also contained an extensive network of lakes and rivers. The water elements from the Tongzihe River, the moat, and six seas were incorporated and integrated into the city design and building structures. Beijing became the moral and spiritual center of the entire country (Selugga, 2008).

The major streets ran along the North-South axis, and the smaller alleys, or hutongs, ran East to West.

The beginning of Beijing’s urban form dates back to the Yuan dynasty (1271-1368). However, it was the Ming dynasty (1368-1644) that dictated the current organization and structure of the city (www.warriortours.com). Beijing’s architectural and city layout followed strict guidelines based on Feng Shui and the needs of the feudal emperors. For example, Feng Shui masters shifted the axial line further east during the Ming Dynasty to control the “imperial momentum” left behind by the Yuan Dynasty (www.chinaculture.org).

The Feng Shui masters also created a new Feng Shui layout that was built along Jingshan Hill and the Forbidden City. The layout created rings around the Forbidden City, which was built on the North-South axis and was considered the city’s center. The Imperial City surrounded the city center, the Inner City surrounded the Imperial City, and the Outer City surrounded all three inner rings (Figure 2.1.d). In addition, during the Ming and Qing Dynasties, the Outer City had seven gates, the Inner City had nine gates, and the Imperial City had four gates. The gates stood either on the central axis or were bilaterally symmetrical, creating a sense of symbolic importance and security (www.warriortours.com).

The importance and hierarchy of architecture in the city was determined by the colors of the buildings. The colors of the common houses were gray and black brick, highlighted by green trees from the streets and courtyards. These colors contrast with the imperial buildings’ red walls and yellow tiles and the green and blue glazed temples.

The major streets ran continuously for 7.8 kilometers from Yongdingmen in the South to Zhnggulou in the North (www.warriortours.com). The most important structures are near the central axis such as Yongdingmen, the Temple of Heaven, Xianmeng Tan Temple, Shenyangmen, Tiananmen, Tiananmen, Temple, Shijian Altar, Forbidden City, Jiangshan, and Zhonggulou (Figure 2.1.c). Standard street sizes contributed to the city’s orderly and symmetrical layout. The large streets were 24-pace-wide. The small streets were 12-pace-wide. Gate towers, decorated archways, palaces, altars, temples, pavilions and towers were used to frame the symmetrical grid of streets (www.warriortours.com).

The Ming and Qing Dynasties maintained and improved the road layout. During this time the roads were defined into three categories: street, lane and alley (www.warriortours.com). Today the roads are composed of ring roads, arterial roads, minor roads, and sidewalks.

2.1.7 2.1.6

The major streets ran along the North-South axis, and the smaller alleys, or hutongs, ran East to West.
2.1c General History of the Hutongs as an Urban Element

Hutong-siheyuan residences are the courtyard homes and narrow alleys that are specific to the layout and structure of historic Beijing. Hutongs emerged during the Zhou dynasty (chinavine, 2011). The term originated from the Mongolian word hottog, meaning “water well” (chinavine, 2011). During the Yuan dynasty (1271-1368), under the reign of Kublai Khan, communities were formed around the water supply forming courtyard houses and narrow roads (chinavine, 2011).

Under the Ming dynasty, the layout of the hutongs were socially stratified, with the aristocrats and kin to the emperor living closer to the Forbidden City on the East and West of the palace and the common people living to the North and South (chinavine, 2011). The hutongs were originally six horse paces, and currently range from 100 yards to over 4 miles. The hutongs are sometimes referred to as “the lanes” due to their irregular and narrow perspective (chinavine, 2011).

Famous Chinese architect and professor, Wu Liangyong* states, “A typical hutong block has three characteristics: the accessibility to both main streets and to individual dwellings; the mixed land use by ordinary houses as well as shops, temples, offices and mansions, and the integrated system of alleys and courtyard houses. With these characteristics, hutongs offer residents a quiet and safe living environment and yet a close knitted social network” (chinavine, 2011).

Hutongs have perpetuated the traditions and communities in Beijing. Some hutongs have survived for over 900 years, creating a dynamic local history. The layout of the hutongs and their corresponding courtyard structures provide a home to multi-generational and extended families. This interaction is coupled with shared public restrooms and bustling pedestrian thoroughfares, creating a supportive environment for community growth.

* Wu Liangyong is a professor of the Department of Architecture of Tsinghua University and has been influential in his work on the Beijing Ju’er Hutong New Courtyard House, winning him a gold medal by Asian Architects of Regional Council Award for Architecture and the UN World Habitat Award (www.chinaculture.org).
Organization of the Siheyuans

A siheyuan is the historic single-story courtyard house that defined the urban landscape of old Beijing. The siheyuans complement the hutongs and are arranged in an orderly pattern from North to South. The structure and layout of the siheyuans are deliberate and follow the principles of Feng Shui and communal living. The siheyuans have a southern orientation in order to maximize the warm sun and protect the interior from cold northern winds (Chong, 2009).

The northern building is the best room in the courtyard. It has the highest roof and keeps the best temperature in the hot summers and cold winters (Chong, 2009). This room was designated for the parents or grandparents. The southern room is the smallest and was intended for servants. This room was also the most public area and would be the space in which the family would greet guests. The eastern room was designated for the daughter. The western room was designated for the son, and would have a slightly higher roof than the daughters’ room (Chong, 2009).

The structure of the siheyuan is comprised of four main buildings. The height of the buildings designates the hierarchy of importance in the family. The eastern and western rooms are not structurally connected to the northern or southern rooms. However, all the rooms are connected at the corners by a communal walkway (Chong, 2009).

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Gardens in the Siheyuans

A further continuation of the principles of Feng Shui are found in the inner courtyard gardens. This was the area where all buildings opened up to and where family members could gather. The inner courtyard could be a quiet, contemplative place for one to relax, while also providing an area for social activities and family dinners (Xu, 1998). The plant selection, as well as other elements, were all derived from traditional symbolic meanings (Xu, 1998). Pomegranate trees were selected for their many seeds, which translated into many children and healthy and strong future generations (Xu, 1998). The apple tree symbolized harmony and happiness between siblings (Xu, 1998). The pear and date tree were not planted in the courtyard because they symbolized “early divorce” (Xu, 1998). Other plants were used in the courtyard for more functional necessities. For example, grapes and gourds were planted for decoration and to create shade. Goldfish and water elements were located in the courtyard as well, symbolizing wealth and luck (Xu, 1998).


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**Homes of the Hutongs**

**Elements**

- **Wood** symbolizes growth and healing.
- **Fire** symbolizes passion and creativity.
- **Earth** symbolizes stability and grounding.
- **Metal** symbolizes wisdom and structure.
- **Water** symbolizes harmony and balance.

**Garden Design**

- Koi fish symbol of wealth and prosperity.
- Pomegranates symbol of longevity, wealth, and fertility.
- Chinese date trees symbol of fertility, prosperity, and used as medicinal.
- Red cutleaf maple symbolizes fire, red in color with triangular shape.
- Water features influence wealth and health.
- Stones and rockery symbol of metal, yang, hard surface makes chi flow faster.
- Wood symbol of health, helps with personal growth and creativity.
Present-day Hutongs

Tight living spaces and lack of privacy has created a history of communal living. Hutong communities are composed of families and businesses that watch out for each other (chinavine, 2011). Hutong neighbors commonly perform acts of courtesy, creating a community of individuals responsible for one another and the entire neighborhood. The formation of neighborhood watch by retired residents has also made the hutongs safer since strangers are noticed and children are closely watched (chinavine, 2011).

With the collapse of China’s Dynastic era at the turn of the 20th century, hutongs traditional roles in the community shifted (chinavine, 2011). Originally, hutongs were constructed following an organized layout but after the 20th century, hutongs began to appear on the city’s outskirt in disorderly patterns and informal structures began filling in the courtyards (chinavine, 2011).

Destruction of the Hutong-Siheyuan

Since the Communist era in 1949, siheyuans have been destroyed through overcrowding, disinvestment, and informal attachments (Chong, 2009). Improvised kitchens and extra rooms permanently disfigured the houses. During the Cultural Revolution people damaged the siheyuan structures through the construction of air-raid shelters (Chong, 2009). Currently, the siheyuans are being demolished to meet the needs of the rising urban population. The hutongs are quickly being replaced with high-rise apartment buildings in order to accommodate current population and housing trends. Between 1990 and 1998, 4.2 million square meters of old housing were demolished. Out of the 3,000 remaining siheyuans, only 539 are in cultural and historical conservation areas (Chong, 2009).

Figure 2.1.9. Destruction and Changes in the Hutongs

Currently, the siheyuans are being demolished to meet the needs of the rising urban population.
The particular neighborhood this project focuses on houses the General Xie Memorial Site. Although the courtyard buildings are dilapidated and the history of General Xie is less widely known, the neighborhood shares a boundary with the Fayuan Temple Historical and Cultural Zone, a protected area of historic buildings. Therefore, it is important to understand the history of General Xie and the General Xie Memorial Site in order to attempt to protect more of the surrounding neighborhoods and buildings from the impending developments.

Xie Fangde (1226-1289), a famous patriotic general and minister in South-Song Dynasty, was born in Jiangxi Province (Bo, 2008). In 1256, he was appointed general and chairman of the Fuzhou district. When intruders from the Yuan Dynasty became a threat to the district, General Xie fought with great effort, but ultimately failed and was forced to escape from Jianyang (Bo, 2008).

General Xie's history and the Fayuan Temple are closely linked.

After the Yuan Dynasty replaced the Song Dynasty, General Xie was nominated many times for high positions by the new government, but he declined every invitation and remained an active dissident. General Xie was arrested and transferred to Beijing by Yuan Dynasty officials. He was locked in the Fayuan Temple and died of starvation while on a hunger strike (Bo, 2008). Although the exact location of his death is unknown, General Xie's history and the Fayuan Temple are closely linked.

An ancestral hall in southern Chinese architectural style was erected in 1456 during the Ming Dynasty to commemorate General Xie as an intelligent, courageous, and loyal national hero (Bo, 2008). Zhang Bo (2008), professor of Architecture and Historic Preservation from North China University of Technology, states, “The study and preservation of this Ming Dynasty building has high academic value and historical significance due to the fact that it is the only one of this style in Beijing”.

2.1.e Historical Context

The end of Imperial China was a time of turmoil and rising nationalistic movements. End of Imperial China

The end of Imperial China was a time of turmoil and rising nationalistic movements. The collapse of the Qing Dynasty created a power vacuum and marked a concentration of warlord activity (Hsiung, 2009).

The conflict of power resulted in the creation of two main political powers: the Chinese Communist Party and the Nationalist Party (Kuomintang, KMT). Originally both groups worked together to overthrow the warlords (Hsiung, 2009). However, soon after the Nationalist turned on the communists and began to kill them during the “White Terror” era of 1927 (Hsiung, 2009).

In an effort to defeat the Communist Party, resources were diverted from improving infrastructure. This resulted in a rise of corruption among Chia Kai-shek’s officials and inflation (Hsiung, 2009). The economic instability worsened the poor living conditions of the already impoverished. Eventually, the Communist Party created The Chinese People Liberation Army with the help of the Soviet Union and were able to defeat Chia Kai-shek (Hsiung, 2009).
Chinese Communist leader Mao Zedong, announced the creation of the People's Republic of China (PRC) on October 1, 1949. Mao and the Communist party began to restructure Chinese society and industry. Farmers were organized into collectives and industry became state-owned. Any resistance was quickly repressed. In order to promote Chinese Communism, Mao launched the Great Leap Forward. The movement aimed to mobilize labor to increase agricultural and industrial output (Hsung, 2009). However, the movement proved to be ineffective and actually caused the death of about one fifth of the population (about 30 million people) through famines.

The Communist era put emphasis on production and industrialization. The Communist era put emphasis on production and industrialization. Narrow, tree-lined boulevards were widened in order to improve the flow of goods and raw materials. In the 1850s the historic outer wall was demolished and a ring road was established. During this period, the urban population increased and the historic housing stock fell into disrepair (Chong, 2009).

2.1.17 Open Door Policy

Once Mao died in 1976, China began to open its doors to foreign investors and began a movement to privatize industry (Pabbi, 2003, Minqi, 2011). Foreign architects and designers came to China to work on high profile projects (Chong, 2009). After the 1980's, China began to slowly implement reforms towards a capitalistic economy (Yang, 2010).

Technological revolutions have expanded the industry sector much quicker than the agricultural sector causing larger economic disparities between urban and rural communities (Solloum, 2004, Minqi, 2011). China's Gross Domestic Product (GDP) has been steadily increasing. The GDP growth during 1990-2004 was around 10%, however during the economic recession China's GDP growth began to slow down, but has fluctuated per quarter and slowly has begun to pick up (Solloum, 2004, Minqi, 2011).

In order re-assist his power, Mao launched the “The Cultural Revolution” in 1966. The movement resulted in the purging of people considered “impure” and a threat to Communism.

Mao began to establish a relationship with US ... Schools were closed down and the students were encouraged to join the Red Guards units (Hsung, 2009). Entertainment and social activities unrelated to politics were denounced. In addition, teachers and scholars were persecuted. Books that did not agree with Mao’s philosophy were burned and any collectables or luxury items were forbidden (Hsung, 2009).

The Cultural Revolution resulted in corruption among Mao’s officials (Hsung, 2009). Murder, violence and torture became prevalent and it is estimated that about a million people died during these purges. Mao began to establish a relationship with US towards the end of the Cultural Revolution due to the perceived Soviet Union threat (Yang, 2010). During the Cultural Revolution, a large rural population entered the city and began to construct informal infill buildings within the courtyard of shiyuan houses (Chong, 2009).

Foreign architects and designers came to China to work on high profile projects.
Figure 2.1.16. Timeline of China’s Urban Development and the General Xie Memorial Site
2.1.f Development Trends

Characteristics of Housing Trends

1950-Private Rental Housing
Private housing was concentrated in the hands of a few landlords that rented housing to the working class (Huang & Clark, 2002).

1956 to 1976- Public Rental Housing (Socialist Transformation/ Cultural Revolution)
The State controlled housing allocation, rent standards, and management. Original landlords received rent from the state instead of tenants. Work Units paid low wages to employees but also had to provide subsidized housing for their employees (Huang & Clark, 2002). State provided housing investments to the Work Units based on importance of the Work Unit and the Work Units in turn constructed housing for their employees. People who were not in working units qualified for public housing if they were in the Hukou System (Household Registration) (Huang & Clark, 2002). Public Housing was only for rent since home-ownership was discouraged.

1988 to Present
There has been an increase in home-ownership and a decrease in rental housing. Private housing and homeownership have been encouraged through government subsidies (Tam, Tso, & Lam, 1999). The lower prices encourage tenants to buy the homes they are renting. Also “affordable housing” targeted to the lower and working class is only for sale and not for rent (Tam, Tso, & Lam, 1999).

Families have more freedom in choosing housing types. Presently, housing has become more complex with a mixture of public and private housing and a mixture of rental and owner-occupied housing. Concerns regarding vague property rights for renters and owners have been raised (Tam, Tso, & Lam, 1999).

China’s urbanization level has more than doubled over the past two decades. At the beginning of the socialist period in 1949, 10.6% of 542 million China’s lived in the areas that were officially designated as urban (Tam, Tso, & Lam, 1999). 30 years later, just prior to the onset of socioeconomic transformation away from Mao’s socialism, only 19% of 975 million people were urbanites (Tam, Tso, & Lam, 1999).

By the end of 2005, the urban population augmented to 562 million, amounting to 43% of the total population. From 1978 to 2005, the urbanization rate increased by nearly 1% annually (Tam, Tso, & Lam, 1999).

Rapid population growth has resulted in continuous land and housing restructuring and reorganization. Current development trends have fostered constant growth and expansion of the city. Since 1949, Beijing has built the largest number of new housing amongst major Chinese cities from 1949 to 1977 (Tam, Tso, & Lam, 1999). In a span of 28 years, 61 million square meters of space was constructed; one third of which were residential housing. By 1978, the per capita floor space in Beijing (4.56m^2) was above the national average of 3.6m^2 (Tam, Tso, & Lam, 1999).

Private housing and homeownership have been encouraged through government subsidies.
Redevelopment Approach in China

In recent years, the government has opened up opportunities for property-led development and has provided various types of support to accelerate the redevelopment process. This practice is an attempt by the government to create the image of China as a modern city before the Chinese people and the rest of the world (He & Wu, 2006). The Olympic games was a catalyst for much of the recent large-scale infrastructure projects and iconic buildings.

Unfortunately, the large infrastructure projects have been built through the destruction of historic buildings and neighborhoods in the Old City. In 1949, there were over 7,000 hutongs in Beijing (Fang, 2000). By the 1980s there were only 3,900 left. From 1990 to 1998, Beijing demolished 42 million square meters of housing in the Old City (Fang, 2000). Approximately 32,000 families, or about 100,000 people, were not relocated, while others waited over five years to find a new home (Fang, 2000).

Gentrification is very common in renovated housing areas. As the housing prices increase, the original population is often displaced from the location and pushed to areas of lower rent outside of the city center. This process is aided by the developers’ monetary gain when relocating existing residents in order to sell as many units as possible at the marker price.

Redevelopment trends in China have failed to incorporate resident participation in the redevelopment process. Instead, residents are usually forced out, relocated, or left displaced. Some scholars blame redevelopment projects for the loss of diversity, vibrancy, and community (He & Wu, 2006). The rapid redevelopment and residential displacement have broken original resident’s social networks (He & Wu, 2006).

Rapid redevelopment and residential displacement have broken original resident’s social networks...

Figure 2.1.17. The demolition sign painted on the wall of a dilapidated siheyuan wall

Figure 2.1.18. The Water Cube in Olympic Park: A symbol of new, iconic structures in Beijing
Historic Preservation in China is a relatively new concept. Throughout China’s recent history, urban development has focused on modern buildings and high density housing. The tension between “old” and “new” are in constant conflict in the realm of architecture and design. This conflict has created two opposition sides: those who support modern development and those who insist on preserving the tradition and cultural heritage of the city. It is only recently that a dialogue has begun to bridge the two sides and find a possible solution for urban development in Beijing.

Decades of housing disinvestment during the Cultural Revolution produced dilapidated and unsafe housing structures. Following this period, during the Communist era, China’s way of developing housing was to destroy the old and build the new. Therefore, historical preservation was not part of the urban plan and concept. Preserving the past was seen as the opposite of progress and modern. With the securing of the 2008 Olympic Games, Beijing’s government began putting a lot of funds into the renovation of historical districts in order to attract tourists (Johnson, 2008). Money was used to repair, repave and upgrade the basic services. Much of the renovations of these areas is in order to produce successful commercial areas such as Guimmen (see 2.1.1).

The recent historic preservation programs supported by the government are attempt to attract tourists (Johnson, 2008). China spent $57 million since winning the Olympic bid in order to improve Beijing and renovate historic areas (Johnson, 2008). Money was used to repair, repave and upgrade the basic services. Much of the renovations of these areas is in order to produce successful commercial areas such as Guimmen (see 2.1.1).

Historic Preservation

Local Concerns

Government

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International attention has recently been attracted to Beijing’s historic preservation movement. During the 2010 Shanghai Expo forum “Cultural Heritage and Urban Regeneration,” global scholars discussed the need to end the pattern of development that creates identical cities at the expense of cultural and unique identities. Architects, designers, and planners scolded China for creating identical cities for the sake of modernity and losing their cultural identity. Experts discussed the need to create a cultural heritage protection policy in order to sustain and degine Beijing’s unique identity.

Prince Charles has been an avid supporter of the Old City and a challenger of China’s development. His foundation, the “Foundation for Architecture and Urbanism” is attempting to create low-carbon adaptations of the current hutongs (Booth & Watts, 2008). The Prince wanted to save Da Shi Lan as well as create thousands of new courtyard homes instead of the high-rise apartment blocks. The prince’s spokesman said, “It is not about criticizing China’s development per se, just about ensuring vulnerable heritage is not lost” (Booth & Watts, 2008).

Citizens

Grassroots citizen organizations have been created in order to support the local protection of specific sites and neighborhoods. Residents, students, and89 architects and planners have come together to halt the destruction of specific areas. One such group is the Beijing Cultural Heritage Protection CEnter is a non profit that has fought for the protection of Beijings historical core for over ten years. In recognition of the urgency of current situation, the preservation of the historical and cultural city was included as a key objective for the first time in the Master Plan of Beijing. The goal of the preservation strategy is to protect important relics, preserve the physical environment, as well as maintain any existing social and cultural practices of the site (bjghy, 2011). In 1990, the Conservation Plan for 25 Historic Areas in Beijing’s Old City was created in order to designate and outline preservation methods in and around the Forbidden City and the Old City’s historic North-South axis (bjghy, 2010). These sites included 260 hutong and 2,000 siheyuan, protecting 17% of Beijing’s Old City and 5% of the remaining hutong neighborhoods (bjghy, 2011). This was China’s first attempt at a holistic preservation approach, focusing on entire areas rather than on single structures. Although this was plan was seen as a step forward in terms of historical preservation, there were many unintended consequences. Firstly, those neighborhoods not listed were targeted for quick demolition and redevelopment. Secondly, the preserved areas also needed to be brought up to code, which allowed for demolition and recreation of the areas (Campanella, 2009).

International and Academic Concerns

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It is important to refute the presumption that the taller the building, the higher the building density...

Project Name: Hutong Bubble 32
Architect: MAD Architects
Location: Beijing, China
Date Completed: 2008

This is a new approach towards urban renewal that contradicts the current practice of high-rise developments. Before redevelopment, hutong area suffered from overcrowding, lack of amenities, and informal infilled courtyards. Observing the effects of such problems in a community, Liangyong designed a courtyard house that would meet the community’s needs. In this design, every unit has a private outdoor space dedicated to small yards, balconies, or terraces. Communal courtyard spaces were also available to share amongst multiple households. This concept was intended to address the need for these residents to have an interaction with the land, as well as the lack of outdoor spaces found in the high-rise apartments.

The development included the previous residents into the development process by investigating them into the cost of construction. Existing residents had first choice in terms of purchasing a unit at a discounted rate (Chong, 2009). This project supports an alternative strategy to the previous demolition approach.

The Hutong Bubble is a metallic bubble attached to the side of a traditional Beijing courtyard house. It contains a bathroom and stairs and attaches the ground floor to the roof through a set of stairs. Although the shiny surface and bubble shape are unlike anything around it, the metallic surface creates a “visual link” to the surrounding area by reflecting the traditional buildings. The bubble creates a modern feature and improves the quality of life for the residents. The architect believes that the increased demand for the bubble structure will increase demand for hutong style living and help support the fight against demolitions and densification. This design features influences are project by giving new meaning and function to the courtyard style housing.

The Qianmen Street project is a 840 meter street that begins at Tian’anmen Square and extends to the Zhushikou Street (sino-impression, 2011). The project is a restoration of one of Beijing’s oldest streets and was part of a series of government-led beautification projects completed in time for the 2008 Olympic Games (sino-impression, 2011). Architects and designers referred to historical photographs from the 1920’s and 1930’s as a guide for redevelopment, as well as through community studies and discussions (sino-impression, 2011). The restoration included the widening of the streets and the refurbishing of the old fashion trolley-cars. The project aims at attracting high profile businesses such as Prada and expensive restaurants.

Project Name: Qianmen Street
Architect: Wang Shiren
Location: Beijing, China
Date Completed: 2008

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Project Name: 798 Space
Architect: Wang Shiren
Location: Beijing, China
Date Completed: 2002

This art district has similar elements as 798 Space and 798 Space was originally the site of state-owned factories that originally produced electronics. In 2002, artists and cultural organizations began to divide the building structures and through adaptive reuse, have reinvented the function of the space without drastically changing the exterior structures. Local materials were used in landscaping in order to create continuity and this art district has similar elements as our site. Graffiti, wall spaces, and fashion shows create a stimulating environment that increases and sustains local participation.
2.2 Community Fabric and Social Components

2.2.1 Population Demographics Affecting the Preservation Area and the Memorial Site

2.2.2 Methodology

2.2.3 Cultural Trends Affecting the Preservation Area and the Memorial Site - Site Interviews

2.2.4 Common Themes from the Interviews

2.2.5 Adjacent Background

2.2.6 Opportunities and Limitations

2.2.7 Sources

2.2.8 Appendix
2.2.2 2.2.3

2.2.a Population Demographics Affecting the Preservation Area and the Memorial Site

In 2000, the Xuanwu District reached a population of 632,000 people in a land area of 16.5 square kilometers (2000 Census). The household size was approximately 3.11 people. The population density was 38,303 per square kilometer. In 2010, this population density declined slightly to reach 29,878 per square kilometer (2010 Census). The Xuanwu District was the third largest district in Old Beijing.

The total yearly family income in the Xuanwu District in 2008 was 28,321.74 yuan. This income afforded a 25,289.31 yuan disposable income. This figure is low when compared to the average income for Beijing. According to the Beijing Municipal Bureau of Statistics, the average annual income in 2010 was 50,145 yuan.

In the specific General Xie Memorial Site, there are 960 people. Of this population, 17% are Hui and are practicing Muslims. The other majority is predominantly Han. 210 families currently live in the site. More than half of the residents rent their property, and 2/5 own their property (2010 Census). More than half (65%) of the population has attained a high school degree. 25% of the population has a higher degree, and only 10% has a degree lower than high school.

A growing number of the population, between 200-300 people, are foreigners, meaning they are not originally from Beijing. The majority of the population (63%) is between the ages of 40-70. 17% of the population is under the age of 25 (2010 Census).

However, in 2010, the district was annexed and incorporated into the Xicheng District. The Xicheng District has approximately 200,000 more people and double the land area. Due to the recent merger between Xuanwu and Xicheng, the average monthly rent in the Xuanwu District rose between 50 and 600 yuan. Likewise, housing prices increased by 1,000 yuan per square meter (Chao, 2010).

The Xuanwu District is traditionally thought of as a less-developed and lower income area when compared to the northern districts (Chao, 2010). Since the change is so recent, scholars can only speculate on the potential changes the merger will have on the former Xuanwu District. However, if the more affluent Xicheng District can support the improvement of housing stock and services to the area, the demographics of the area are subject to change as well. More recent demographic studies will need to be conducted in the future in order to fully realize the impacts of the recent merger.

"Dongcheng is noble, Xicheng is affluent, Chongwen is poor, Xuanwu is dilapidated" - Popular phrase amongst Beijingers (Chao, 2010)

Figure 2.2.1. Beijing's Districts
2.2.4 Methodology

Population demographics were collected through surveys, site observations, and Chinese census data. The data was collected and translated through the help of our Chinese partners. The interviews and census data is based on the exact neighborhood boundaries determined by the Xie Memorial site and by the 2010 Xuanwu District. Census data was supplemented by on-site demographic interviews. The interviews were translated into Chinese and were administered over the course of two days in July 2011. The data was analyzed and coded, and demographic information was compared to the Census data in order to verify accuracy.

Population density was measured by a combination of interviews and site analysis. The number of families per courtyard can be determined by counting the number of meters on the structure. Counting the meters in each structure validated interview questions about family size. Both of these numbers were also validated by the census data.

The surveys are based on a convenient sampling method over a two-day period on weekdays during the afternoon hours in the month of July. The first interview occurred on July 2nd, 2011 from 4-6pm. The second interview occurred on July 4th, 2011 from 2-6pm.

On the first day, informal interviews allowed for an understanding of the general layout and themes of the neighborhood demographics. The first questions were based on basic demographic data. The translated responses were collected and codified in order to learn major themes and commonalities (Appendix 2.2a). In order to better qualify our themes, a second range of questions were created and a matrix was created in order to organize the responses (Appendix2.2b). A second site visit was conducted on Monday July 4th from 2pm until 6pm. Over the course of the visits, 12 interviews were collected.

Interview Teams

Interviewing teams were composed of two American English speaking students and two Chinese speaking students. During the process, one Chinese speaking student would interview and translate to the English speaking student who would record. The other two students would photograph the resident and make notes about the surroundings.

Interview Etiquette

The Chinese students were given a list of questions in which to ask the residents. An introduction was given to tell the resident the purpose of our visit and of the questions. The name of the individual was not asked as a sign of formality. According to the Chinese students, it is not polite to ask for someone’s full name on the first visit. Photos were taken with the permission of the resident. House visits were made with the permission of the resident. Pictures inside the courtyards were sometimes not allowed upon the request of the resident.

Limitations

Collecting data through in-depth interviews usually result in small sample sizes. In addition, the interviews are not selected on a random basis but rather by convenience. The interviews were based on who was available during the hours we were on site. The 2010 census for the site recorded a population size of 960 people. Of the 960 people, our team was only able to interview 12, leaving 80% of the population unanswered for. As a result, any findings cannot be generalized.

Performing in-depth interviews requires extensive planning cooperation from professional and translators. Although the interviewers may have script to follow and specific questions to ask there is still a chance of inconsistency between the interviewers. Furthermore, the results of the interviews rely heavily on the integrity and intellectual honesty of the researchers. Personal interviews also reduce the chance of anonymity, which can result in biased answer from the interviewee. Documenting the interviews can be difficult since field notes do not record body language and tone and some interviewees do not want to be recorded or filmed.
2.2.c Cultural Trends Affecting the Preservation Area and the Memorial Site

Community Interviews

Interviews were performed in order to gain a better understanding of the perspectives of those living in the preservation area. Questions and responses provided the current demographics of the area, as well as the personal histories of the area. The interviews also provide insight on the hopes and fears of the current residence in order to understand the local attitudes towards modern development.

Outside interviews were conducted in order to provide another point of view to those of the residents. A local architect, professor, and two college students allow for a different perspective on the motivations behind historical preservation and the importance of the General Xie Memorial Site.

This man (pictured above on the left) owns the market located on the main street by the entrance of the preservation site. He is a 51 year old man who lives in the new apartment buildings across the street with his wife. His only child is a 25 year old woman who is currently serving in the army. Women in the military became very common under Mao Zedong, who encouraged young people to join the military by closing all the schools. The store owner currently lives in the new apartments on the 6th floor across from the preservation site. As a child he grew up in the area when all the houses were single story courtyards. He currently likes living in the apartments buildings but he loved living in the hutongs as a child. It has only been 10 years since the hutongs around that area were demolished to build the high rise buildings. His childhood friends have since moved out of the area, not by choice but because they were forced to relocate. They were not able to afford living in the new homes, so instead they moved out of the area. As a native from this area he is aware of the General Xie Memorial, but knew very little history or information about it. He was interested in having the memorial protected, not because of its history but because of what they represent. He believed that in general the traditional houses in Beijing should be saved because they tell a story of the local people.
The rickshaw driver knew a lot about the history of the area, as well as the overall changing urban climate in Beijing. He stated, “Since the year 1949 when the People’s Republic of China was established, the purpose of culture has changed.” He went on to say, “…There was a commitment to development and progress, and as a result the government destroyed some remarkable historical buildings and landmarks.” He also noted that since the change in government many foreign Chinese have flooded the city. This resulted in a gap between traditional people of Beijing and immigrants.

Age: 72  
Occupation: Rickshaw Driver  
Family Size: Unknown  
Years Living in Xuanwu District: 72  
Residence: Single story courtyard

The public security woman is a 68 year old, retired woman currently volunteering for her neighborhood. We asked her what she thought about the possible new development in the area and she responded that she was extremely anxious to live in the new high-rise buildings. Unfortunately, she could not be relocated because she lives in the protected area behind the Fayuan Temple. She invited us to her home and led us through the narrow passage ways that weaved in and out of courtyards and past many homes. As an individual who lives in these homes she had a very strong opinion about what she disliked and liked about living here. There was a problem of the home being too narrow and crowded. Even though she had the largest home in that area, 18 square meters for 4 people with an additional kitchen, she said it is very difficult to cook and shower. She would like a larger, more comfortable space.

One of the most significant changes she has witnessed in her years living in the neighborhood was the number of people who moved in and out of the area. According to her, over 70% of the current population is not the original people. Many of the older residents have died and newer people from rural China have moved into the vacant homes. We noticed that many people in that area had small plants and gardens in and around their homes. She mentioned to us that she grew plants to incorporate green space into her home and to visually enjoy the plants.

Age: 68  
Occupation: Retired, Public Service Volunteer  
Family Size: 4 People  
Years Living in Xuanwu District: 30  
Residence: Single story courtyard
Born in 1921, this retired factory worker has lived in the neighborhood for 50 years. She is originally from Tong Xian, which is east of Beijing. She moved to Beijing when she got married because her husband's family lived in this area. She was unaware of the history of General Xie or his Memorial Site. She enjoyed living in the area because of the single story buildings and quiet atmosphere.

Age: 80
Occupation: Retired Factory Worker
Family Size: 5 Children
Years Living in Xuanwu District: 50
Residence: Single story courtyard

Many of the native people we interviewed were frightened to take pictures and give us their names. This group of three women told us we could not get their names for fear of the government. Of the three women, one lives in the new high rise apartments whereas the other two live in the single story courtyard houses. When asked what they thought of the new apartments the one living in the courtyard houses said she did not like them because they shaded her house. However, she mentioned that she would like to live in the tall building. All of the ladies claimed to have children, most of whom lived in apartments nearby. The three women knew of the General Xie Memorial, but did not mind if it was torn down to build new apartments as long as the developers did not build high buildings that overcrowded the Fayuan Temple.

Age: Approximately 70
Occupation: N/A
Family Size: Approximately 3 Children
Years Living in Xuanwu District: 50
Residence: Single story courtyard and apartment
This man has only lived in the Hutong for 3 years, but has worked at the local market for many years. He lives in the single story courtyard houses but would like to live in the high rise apartments because he perceives them as nicer and cleaner. He was unaware of the General Xie Memorial, reflecting the general lack of knowledge of many of the local residents.

Age: 80
Occupation: Clerk at local market
Family Size: N/A
Years Living in Xuanwu District: 3

As a native Beijing resident, this man is proud to live in a place of history. This man is one of the few we interviewed who knew about the history of the buildings he resides in. He and four other families occupy this courtyard. He enjoys the courtyard house because he is close to the ground. When we asked if he thought the government would save this memorial he responded, “The government doesn’t care about me, they don’t care about my opinion. If they decide to do something they will do it. Also there is no use trying to save this building because no one cares about it and no one will come visit. All we can do is to get used to this kind of living condition.”

Age: 50
Occupation: Building Manager
Family Size: 1 Son
Years Living in Xuanwu District: 50
As a more recent resident to this area this 60 year old woman, along with her 25 year old daughter, prefer living in the single story homes. They moved here about 3-4 years ago to be closer to the center of the city. One of the reasons they liked living in the hutongs was because of the cost. It is much cheaper to live in the hutongs than the apartment buildings. Her daughter mentioned that for her it is much easier to raise children in these homes because there is more space for them to run around, she is not interested in ever moving into the new apartment buildings. When she was asked about the Xie Memorial she dismissed our question and didn’t want to comment on anything that had to do with government business.

We encountered this woman in the courtyard of a commune of different homes. She was very busy washing her clothes. In her late 20’s she moved into the hutongs in Beijing. She is not a native but moved here from a rural area in China. She decided to move there because the rent was cheap and close to work. Among 12 families that live in that courtyard, three are foreigners. She currently rents a single room with a kitchen and lives there with her husband and small child.
As a senior who has lived here for 60 years, this woman is still hopeful and anxious to move into the new buildings. She states, “The land belongs to the government. If the government wants to demolish it then I have to move.” Even after so many years of living here, she is willing to move and prefers to be relocated into a new home instead of staying. She was not attached to the home or the history of that area. Her life and need for safety is more important than the physical location and history of the place. She preferred that the homes be torn down so she can relocate into a better house and a better living environment.

Age: 86
Occupation: Retired
Family Size: Unknown
Years Living in Xuanwu District: 60
Residence: Single story courtyard

These two young girls were very apprehensive to participate in the survey. However, they did respond to a few of the questions. When asked if they liked living in the small courtyard houses they both agreed “Yes.” Growing up in the small neighborhood here they have many friends close by and in walking distance. At the age of 13 the girls walk 20 minutes from home to school. They enjoy plants and flowers but don’t have room to grow trees. When asked if they would prefer to live in high rise apartments or small courtyards both agreed they would rather stay in their small courtyard homes.

Ages: 13
Occupation: Students
Family Size: Unknown
Years Living in Xuanwu District: 13
Residence: Single story courtyard
The store owner has lived in her courtyard home for 30 years. She says “I was born here, I want to live here and die here.” She enjoys living in the smaller buildings because it is convenient for older people and children. When asked whether anything could be done to make life better in her neighborhood, she said “Nothing, it is all good.” She wants it to stay the same but she did show a concern for buildings that might fall down. In regards to vegetation, she showed a love for her vegetable garden and fruit trees. She said she couldn’t live without seeing the greenery.

Name: Store Owner
Age: 30
Occupation: Store Owner
Family Size: 1 Daughter
Years Living in Xuanwu District: 60
Residence: Single story courtyard

This man (pictured above on the left) was sitting on a very busy corner. He was born in the neighborhood and has lived here for 48 years. He expressed frustration as he spoke about the government. He stated that when the government was surveying the location, they summarized it into three words: “Dirty, Messy, and Bad”. According to him, living in China can be pleasurable because of the national policies. Life has greatly improved compared to the previous living conditions because of Mao Zadong. People here would not fight if the government removed these homes. Some have been waiting for the demolition to happen, they hope sooner than later. However, when asked where he would rather live he responded in a courtyard house because it’s peaceful. It is nice to live buffered from traffic and big city noise. But he also noted that if the government gave him money to leave he would take it.

Name: Man
Age: 48
Occupation: N/A
Family Size: N/A
Years Living in Xuanwu District: 48
Residence: Single story courtyard
Mr. Gao is an architect living in a high-rise apartment close to the General Xie Memorial Site. As a working architect in the city of Beijing, he believes that new multi-story housing complexes bring a higher standard of living to the city. He noted that the buildings in the General Xie Memorial were not to the standard of living he wanted for Beijing. He believed that the General Xie Memorial is only a small part of the traditional Chinese culture. If the people are compensated and move to a better place then Beijing will benefit. Mr. Gao is 51 years old. He was raised in a time period right after the death of Mao Zedong when high rise construction symbolized progress and moving forward without regards for the preservation of the past. This attitude still remains a part of the older generations living in and around the hutongs. Mr. Gao did mention that Chinese people like all people enjoy fun and recreation. To play and be outdoors is important to Mr. Gao and his family. He also noted that America has a lot of land to grow trees and flowers but here in Beijing the land belongs to the government so there is not enough space to grow trees.

Guo Jing thinks that it is really important to preserve historical buildings, because not only does it help foreigners see the history of China, but it also helps Chinese people know more about their country. It is more important to save the community than a building of our site, because the story of “China is in their minds and it can transferred from generation to generation”. Guo Jing doesn’t think that the people of the General Xie Memorial Site need anything to improve their lifestyle. She believes that there should be a balance between the “Modern China” and the “Traditional China”. Modern buildings represent development and progress, whereas the traditional represents our past and culture. Her proposal is to have separate districts between modern and traditional buildings, so that some places are developed and others are traditional.

Ying Zong is interested in preserving the General Xie Memorial Site because it is part of her country and has a long history. She believes preserving the culture of the community is more important than the structure. However, she understands that it is difficult to maintain the community since its in a desirable developing area in the city center. If the government tells the residents to leave they will not be able to say no. If the site was to be preserved she agrees that the people would need some help to have a better life. A better life is not about having a bigger space, but rather a cleaner street and public services. Development is very important to China but she believes that there needs to be more inclusion and preservation of historical and traditional buildings.
2.2.d Common Themes From the Interviews

The interviews provide some insight into the overall environment and atmosphere in the General Xie Memorial Site. Some of the common themes include:

**Connection to the Earth**
With many of the older residents, there was an affection towards growing plants, as well as being near the earth. The single story courtyard homes are closer to the ground than the high rise buildings, providing a deeper connection to the earth and more opportunities to grow plants, including vegetables.

**Fear of the Government**
Some residents clearly stated their fear for the government. This allowed for some limitations in our interviews, since some residents did not feel comfortable speaking freely.

**Anxiety**
Another theme was the anxiety felt by residents who were concerned with the impending development. Although most residents showed a desire to move to the high rise developments, there was still a sense of anxiety for change and the uncertainty of the future.

**The Elderly and Youth**
The majority of the site’s population is between the ages of 40-70 years old. Based on the community interviews, the majority of those interviewed were elderly. These participants commented on the overall aging of their neighborhoods and the loss of young people in the area. Elderly and retired people are attracted to the hutongs because they are peaceful and quiet, filled with plants and the sounds of chirping birds. The hutongs provide a connection to the earth, the community, and Chinese traditions.

These characteristics also attract families. The narrow streets allow for an outdoor play area for young children and a safe community that offers support. Children enjoy running, biking, skating around the hutongs, as well as living near their friends. One young girl we interviewed loved being able to walk to her friends houses and her school, preferring the open hutongs to the high-rise apartments nearby.

Young adults, however, are not attracted to the living conditions. Their main concern is the lack of parking and private bathrooms. Young people move away from the hutongs by living at college, getting married, or moving into an apartment.

**Figure 2.2.4. Squash plant vining around telephone pole**

**Figure 2.2.5. Elderly man**

Elderly and retired people are attracted to the hutongs because they are peaceful and quiet...
The project site is located within an area of many ethnic minorities. Although, 36 different ethnic minorities are registered to the Xuanwu District, the Hui community is the largest ethnic minority in the area. Nuijie in Xuanwu District is one of the largest ethnic enclaves in the city, with a population of 24,088, of whom 54.1% are Huis (Atwill, 2003). This area is a large Muslim residential and commercial hub, housing one of the largest and oldest Muslim mosques. Nujie Street is known for Hui restaurants, jewelry shops, art, and bookstores.

This area is a large Muslim residential and commercial hub, housing one of the largest and oldest Muslim mosques.

The Hui people are an Islamic practicing ethnic minority in China. The Hui people are descendants of Central Asian, Persians, and Arabs (Atwill, 2003). The Hui were encouraged to migrate to China during the Tang, Song, and Yuan dynasties. They have similar traditions as the Han people, however they do not eat pork since it is forbidden in Islam (Atwill, 2003).

The Beijing Municipal Government has started to redevelop and relocate the nearby residential area that is home to 7,500 families (Atwill, 2003). About 60% of the families that will be relocated are Muslim. Another redevelopment project will turn Nuijie Street into a Muslim-style commercial street. The current narrow streets and old traditional housing will be demolished to build new multi-story residential housing units, along with new schools and public facilities. The redevelopment project started in 1997 when the Government began upgrading infrastructure to improve water, electricity, heat and gas services to the area (Atwill, 2003).
There is constant movement in and out of the hutongs. People are moving out of the hutongs because their homes are being sold to developers and torn down. To some residents, moving away from the hutongs provides a sense of hope and excitement. Modern high-rise buildings are associated with a better way of life and progress. In the interviews, a better way of life is described as a larger home, a safer environment, and modern infrastructures.

The number of people moving away from the hutongs is minimal when compared to the influx of migrants arriving from outside provinces. The memorial site has lost a large population of native Beijing residents. These residents have been replaced with transients from outside the city. These residents rent the homes in the area, and have dramatically changed the community demographics of the area. Whereas once the hutongs were prided for community cohesion, transient migrants are strangers to the older, native residents.

Migrants face many hardships when they arrive in Beijing, including unequal treatment and the denial of their urban citizenship. Migrants are restricted and deprived of many benefits that Beijing residents are afforded. They are marginalized in both their working and living conditions, and tend to be forced into the fringes of urban life. The migrants encountered in our site analysis were living in the ruins and shells of dilapidated courtyard houses.
2.2.f Opportunities and Limitations

**Local**

The major opportunities at the local level are the histories and traditions of the community. Some of the residents we interviewed were born and raised in the memorial site, while others have lived there for over 60 years. Although these residents did not have much insight on the historical context of the site, their personal stories and generational ties to the community are important.

The nodes and landmarks of the community are important opportunities for the neighborhood. Some shops have been in business for many decades and support the local markets and consumers. Likewise, intersections have a natural flow that attract people to the corners for social and leisure activities. It will be important to work with the natural flow and concentration of people in order to maintain the neighborhood character.

Limitations of the site include the disregard for the history of the site and the attitudes of the residents. Based on the site interviews, the residents do not have much knowledge and concern over the history of the site and the significance of General Xie. The residents are less concerned about the historical preservation of the site, and more concerned about their living conditions. Therefore, historical preservation will need to be sensitive to the needs of the community members and will need to find a creative way to incorporate the community in the preservation process.

**District**

The opportunity of the district is its location within the largest Muslim commercial and residential area. The Niujie street and mosque provide a concentrated location of Muslim activities. The sites close proximity to this large Muslim area can be a potential opportunity. The site can provide a connection or collaboration with the Muslim community in order to remain important for the community character.

The main limitation on the district level is the recent annexation of the past district into a larger, more affluent district. The previous district was smaller and more applicable to the area of the memorial site, as well as having a dedicated committee for preserving the neighborhood. The new district is not as concerned with preservation, and there is a risk that the memorial area might be lost under new leadership.

**Regional**

A regional opportunity for the site is to incorporate the project with the larger trend towards sustainability and preservation. Therefore, historical preservation sites that provide a framework and an example for design ideas on how to integrate the project at a regional scale.

The sites close proximity to this large Muslim area can be a potential opportunity.

**It will be important to work with the natural flow and concentration of people ...**

Another limitation of the site is the constant movement in and out and the displacement of residents. Currently, the original residents are aging, moving, or dying. Younger generations are moving to modern apartments. Therefore, the neighborhood’s original demographic makeup is being replaced by transient migrants. The family and community dynamic of a tight knit neighborhood is lost amongst the faces of strangers. The large amount of new residents constrained by an elderly population may be a challenge when attempting to create a strongly rooted community.

Limitations include the patchwork and inconsistent preservation practices in the region. The areas already preserved are small and are still at risk for demolition. The historical significance of the site might be debatable at a regional scale if the stories of the people are lost.
Sample Questionnaire

Open-ended questions:

Name:
Age:
Occupation:
Religion:
Family:
1. How many years have you lived here?
2. Do you have any children?
3. Do you want to live/stay here? Why?
4. What does "old", "new" mean?
5. Do you prefer old/traditional or new/modern?
6. Do you know what the General Xie Memorial is?
7. Would you prefer living in high rise or courtyard style buildings?
8. Would you move if the government gave you money?
9. Would you move if they offered you a small amount of money?
10. How can the government improve the quality of life in the Hutongs?
11. Are there any traditions lost over time or generations?
12. Do you grow plants? Why?
13. What is your connection to land/trees?

Qualitative Survey Questions
14. How many names of your neighbors do you know?
A less than 5  B between 5-15  C more than 15
15. 2. Is there any other information such as the family structure, occupations you know about your neighbors?
A none  B a little  C detailed
16. 3. Do you feel safe, satisfied, and comfortable in your living Hutong street
A no  B yes but a little  C yes and strong
17. 4. Do you have a feeling of belonging to your living place?
A no  B yes but a little  C yes and strong
18. 6. Is there any public space for social communication and are there any social activities in your living area?
A no  B yes but rare  C yes very often
19. Have you taken part in?
A no  B yes but rare  C yes very often

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<th>Age</th>
<th>Occupation</th>
<th>Identification</th>
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Sample interview matrix

2.2.30
2.2.3 Sources

Chapter 2.1


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Chapter 2.2


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Chapter 2.1

Chapter 2.2

Photo Sources:

Chapter 2.1

Chapter 2.2
Beijing, the capital city of China is divided into six sectors by five rings that share a common center. (see Figure 2.3.a.6) Within the center of Beijing is the Forbidden city. The first ring of the five is the wall that surrounds the Forbidden city, while the remaining four rings manifest themselves as roads encircling the geographical center of China's capital.

Temples, traditional neighborhoods, and other cultural landmarks are located between the first and second rings. This second sector is the historic core of the capital. Beijing also functions as the center of the Chinese government, where administration buildings as well as historical sites are located.

The third sector of Beijing, between the second and third rings are currently under rapid development. Most areas that once served industrial purposes are now being redeveloped into business and commercial districts. Housing needs are also being addressed by the continued development of residential neighborhoods. Due to the fast modernization and an increase in demand for housing, many of the historic sites in the first sector are being redeveloped, making many of the preservation efforts fruitless.

The fourth sector was originally allocated as an inner greenbelt in 1982. Its purpose was to define the boundaries of the central core, providing open space as well as land suitable for agriculture. Despite plans for this ring to remain a greenbelt, failure to regulate its policies and funding have resulted in rapid urban development within this greenbelt. Over half of the allotted greenbelt land has been approved for residential development, leaving roughly 100 sq. kilometers of the original 300 sq. kilometers as open space.

Spreading outward between the fourth and fifth rings are ten districts meant to function as “inner suburban development areas”. Land use in these districts is primarily residential. There are problems with these districts, which include the absence of mixed-use developments, public transportation, employment for the residents of the communities, and a general lack of public amenities.

The Xuanwu hutongs are located southwest of the Forbidden City within the second sector, or Beijing's historic city core. As previously mentioned, this sector has been struggling with historic preservation. Preservation supporters are faced with the challenges of creating a solid argument to preserve the historic hutong community.

Outside the last ring is the sixth center, the furthest from the core. Located in this sector are satellite towns, which are suburban communities. The plan for these communities was for them to develop into areas that could sustain themselves. It had implemented the housing mixed-use programs and thus attempted to create jobs for those living in the sector. This plan fell through because a majority of urban development was centered on areas around the core. This made the idea of living in these outer districts less appealing.

The Xuanwu hutongs are located southwest of the Forbidden City within the second sector, or Beijing's historic city core. As previously mentioned, this sector has been struggling with historic preservation. Preservation supporters are faced with the challenges of creating a solid argument to preserve the historic hutong community.

Fig. 2.3.a.1: Forbidden City inner wall ring. This is the first ring of the capital, Beijing, and signifying the role of government and history at the center.

Fig. 2.3.a.2: Xuanwu hutong within the second ring, an example of the battle between preservation and modernization; the exact premise of site’s location.

Fig. 2.3.a.3: Zaha Hadid’s Soho being constructed within the third ring. It is one of the many modernizing developments within this sector.

Fig. 2.3.a.4: One of the many housing structures seen throughout China. These units are widely distributed, but especially blossoming along the outer rings of the capital.

Fig. 2.3.a.5: Beihai Park is greenery scattered around Beijing. It is within the fourth ring, and one of the historical parks that preserved within the green belt.
2.3.b Zoning

Map Key
- Commercial
- Residential
- Multistory High-Rise
- Government
- Public Restroom
- Mixed-use High Rise
- Mixed-use Residential
- Xie Memorial Structure
- Xie Memorial Site

Fig. 2.3.b.1: Land use map of the Xianwu hutong.
Residential

With the incorporation of new high-rise developments, the concept of high density developments versus low density developments is an important topic that has and will define the structure and image of Beijing. Both of the the high-rise and low-rise address different issues of living quality, with each having its own set of pros and cons. As a defining quality of a high rise, one could consider a high-rise as a structure with three or more stories. Anything less shall be considered a low-rise. To create a standard within this research, it will be assumed for the rest of this booklet that high-rise also denotes high density, and anything less than that is, for the most part, low density housing.

Low Density

To further address the need for a standard, low density residential areas will be classified as single story homes. These areas are identified as compact, three-bedroom living quarters which also include a small exterior kitchen area. These residential areas have small courtyards which are used as activity areas for the residents. The residents of these areas grow plants, care for their pets, and relax in their private courtyard areas. These low-density housing communities are closely knit and create a network of passageways that interconnect within the community. These single-story developments are known as siheyuans. Siheyuans are characterized by having a central courtyard surrounded by four buildings traditionally used as living quarters.

High Density

High density establishments have been introduced to China as a necessity to accommodate the increasing number of people with limited amounts of land. These establishments are usually constructed as high-rise private apartments complete with plumbing and private restrooms within the dwelling. These developments tower up multiple stories, eliminating security and privacy issues. The increase in privacy significantly diminishes the community aspect, evident in low density one story developments around Beijing. The only area near our site where high-rises are not built is in the historic preservation area directly surrounding the Fayuan Temple, whereas other areas are forested with the tall structures.

Mixed Use

Many newly built high-rises are mixed-use buildings. In China, the mixed-use development are much more diverse in program types than in the US; an example is the corner of Niujiesitiao Alley, northwestern corner of the project site. There lies a high-rise with commercial and educational purposes are closely knit together. The first and second stories are restaurants whereas the third through fifth stories house an elementary school. Although these encounters pose safety challenges and code development opportunities, they do make for strong community bonds and daily efficiency for residents who live and work here and who often manage their business from inside their homes.

Bathrooms

There is an absence of plumbing infrastructure and private restrooms in the Xuanwu Hutongs. Public toilet facilities are provided instead. In our focus area there are currently two public restrooms. One is located southwest of the site while the other facility is located on the south end of the site. These facilities (each providing traditional Chinese toilets) are seen by residents as a major inconvenience. The facilities themselves are poorly maintained and pose sanitation and health risks. The smell emitting from these restrooms is unpleasant and makes the use of these facilities undesirable.
Commercial

Low Density

Commercial spots that are considered low density are located on Guang'an Men Nei Street, and are located in neighborhoods close by the Xianwu hutong. The shops target the convenience for the locals. There are also small shops that in the hutong alleways. These shops vary in function. For example, there is a small restaurant, located on the southeast corner of the study area, which serves as a place for congregating during meal times. As another example, the hutong also includes a bike shop service on the western side of our study area. Through observation it seems informal, low-density stores to be the most successful businesses in the area.

High Density

Within Jiaozi hutong Street are three blocks of convenience markets and restaurants mainly serving the Muslim community. The proximity of this commercial area to a highly traveled intersection makes it a prime commercial location. Along the streets of this intersection are buildings operating both formal and informal businesses. Street vendors and stands routinely set up shop alongside formally established stores and restaurants. The local seems to service a larger demography of people, not just the local residents. Because of this, the commercial strip functions at a faster pace than businesses in low-density areas.

Fig. 2.3.b.8: Small convenience store in hutong
Fig. 2.3.b.9: Muslim restaurant along major street.
Fig. 2.3.b.10: High Density residential unit along across the street from Xianwu block.
Fig. 2.3.b.11: Commercial strip running along Jiaozi street.
Fig. 2.3.b.12: Recreational Park facing Fayaun Temple.
Fig. 2.3.b.13: Inside Fa Yuan Temple.
Fig. 2.3.b.14: Small Restaurant north of Xianwu block.
Fig. 2.3.b.15 (above): Land use map of a one block radius around Xianwu Hutong. Figures 2.3.b.10-14 are shown on map.
On the western side of the Xuanwu area there is a police station located on Zaolin Front Street. This police station is the only one within the study area that services the Xuanwu area. The police station is distinguished by a three-story building overlooking the one story hutongs to the east. This station is also within close proximity to two religious temples as well as a park.

With the introduction of the 2008 Beijing Olympics, the Chinese government was pressured to modernize public infrastructure in order to accommodate the large influx of people expected for the event. New safety regulations required the establishment of fire stations located conveniently around parts of Beijing. The closest fire department to the project site is located roughly 2 miles southeast of the Fayuan Temple.

Within the focus area there are three designated areas for educational facilities. A kindergarten school is located to the east of the Fayuan Temple. A school of gymnastics is located to the west of it. Another elementary school is located on the northwestern corner of our focus area. There are many children who make their way to these schools from the Xuanwu hutongs. Currently, educational facilities are placed in relatively close proximity to the site and pose no real issues at the moment.
Hospitals

There are eight hospitals located in the general vicinity. There are five hospitals located to the south of the site, two located to the northwest, and one located to the southeast of the district. Many of the individuals that were interviewed in the Xuanwu District claimed two of the hospitals, the Xuanwu Hospital and the Hospital of Hui Minority, were the hospitals that residents in the community relied on the most.

Given the large number of children and elderly in this area, having hospitals located only minutes away is crucial to the health of the people living in the Xuanwu District.

Spiritual

There are two main spiritual centers within the focus area. One of these is the Fayuan Temple and the other is a Mosque. Both of these areas are highly frequented by locals who are of the Buddhist or Hui Muslim faiths.

The fact that these two different faiths gather within close proximity to each other reinforces the area’s distinct minority establishment. The population is very diverse yet respective of different ethnic backgrounds.

Fayuan Temple

The Fayuan Temple is a significant spiritual center and landmark for those of the Buddhist faith. It is located on a north to south axis like many important developments in China and is one of the oldest and best known temples in Beijing. The significance of this Temple in relation to our site is its historical ties with the General Xie’s memorial site.

Mosque

Another spiritual center located close to the General Xie’s memorial site is the Mosque where many of the Hui Muslim Minorities frequent. It is located prominently on a corner and can easily be identified as a significant landmark.

Access to this site is important for the locals in the Xuanwu community. Removing them from their current community would prevent them from gaining easy access to the Mosque and the ability to practice their faith.

Recreation

Parks

Within the focus area there is only one park located directly in front of the South Gates of the Fayuan Temple. This park provides elderly individuals for a place to sit in the shade and relax. It also provides younger generations with open area to run and play freely. Exercise machines are integrated into the park’s design to aid members of the community in fitness and health. These parks are used often during the summer by locals who seek shelter in the shade of the tree canopies.

Bodies of Water

Around the project area there are two significant bodies of water. Beihai Park is approximately 3 miles away from the focus area. An extensive man-made lake makes up a significant portion of the park. The other body of water is to the South of the focus area and is called Xihu Lake. This lake is approximately 1 mile away and is used for recreational purposes.
2.3.c Uses of Public and Private Outdoor Space

The Chinese culture is traditionally accustomed to creating a balanced relationship between the built environment and portions of land it sets aside for outdoor space. These ideals have been implemented within Chinese cities, neighborhoods and homes for hundreds of years through the use of traditional Chinese architecture and the incorporation of Feng Shui guidelines and principles. At the macro level these concepts have led to such large-scale Imperial projects as the Forbidden City, the Temple of Heaven and the layout and orientation of the entire historical inner ring of Beijing. At the micro level these concepts are also visible within individual siheyuan style homes, with their focus around the inner courtyard and the communal outdoor environment that it creates.

The outdoor space in China, whether public or private, is utilized by the Chinese in the highest degree imaginable. These outdoor spaces allow for the Chinese to escape from the high-density living that people must deal with on a daily basis. The sheer density of cities in China causes people to seek out areas in which they can find temporary relief from the chaos of the city. For many Chinese, public outdoor spaces are the answer. These outdoor spaces have evolved into neighborhood and community gathering spots that allow for people to come together and socialize, dance, sing or participate in other common public activities. Even in large Imperial parks such as the Temple of Heaven or Beihai Park, the Chinese people utilize these spaces as if they were their local neighborhood parks. They fish, have picnics, read books, go boating and participate in many other activities that would seem impossible in such urban outdoor spaces. Additionally, the Chinese also traditionally utilized the private outdoor spaces of siheyuan residences for gathering with friends and family. The centralized space of the siheyuan courtyards allowed for an environment that fostered the heavy utilization of these spaces by Chinese families.

The following section aims to expand the understanding of how the Chinese culture views and designs outdoor space within its cities at both the macro and micro levels for both public and private uses.

2.3.c.i. Methodology

Information for this section was obtained through multiple methods and sources including but not limited to: on-site photo documentation, interviews with local residents, on-site sketching, on-site measurements of neighborhoods and residences, scholarly journal articles and city maps found online. Interviews were attained through the assistance of the research team's Chinese students that allowed for communication with and access to residents and their homes. In order to better understand how neighborhood spaces were utilized by residents, a sidewalk survey was conducted. Additionally, data and information covering the different uses of public and private outdoor space is split up into the macro and micro level for the following section. The breakdown was organized in order to provide the reader with a better understanding of the specific differences between public and private outdoor space pertaining specifically to the General Xie memorial site and its surrounding areas.

Macro level classifications will include:
- Imperial sites
- Spiritual sites
- Lakes and Canals
- Hardscapes and Markets
- Parks

Micro level classifications will include:
- Temple Complexes
- Parks and Streets
- Uses of Private Outdoor Space
  - Narrow to Open
  - Communal Courtyard
  - Drosscape

2.3.15
Interviews:

In order to have a better understanding of the Xuanwu hutong, interviews served as a method of gaining knowledge regarding the land use from the local citizens. A series of questions were asked to help garner information about their space and the physical environmental that surrounds them.

Our team consisted of five people, with two Chinese partners assisting the conduct of the interviews. There were a total of five interviews conducted. The interviews occurred on July 2nd, 2011 from 5-8pm. The names of the interviewees are concealed due to formalities of the Chinese culture. The questionnaire is located in the Appendix.

Map of community interviews:

Fig. 2.3.c.3 (top): Site map of where the interviews took place.

Fig. 2.3.c.4: Two bed rooms in this siheyuan, there are current three family in each room.

The first individual we interviewed was a male in his late 60s and early 70s. He has been living there for his entire life. He lives with his mother, father, and child. The interview took place in front of his home. He enjoys living here especially because he takes pleasure in the hutong environment. He appreciates how everything is very convenient and easy to access, such as the supermarket and public transportation. He does not support the demolition of the area. His reason is because he and his family attended a nearby temple every week and if the family were to leave, they would have a difficult time acclimating to a new environment. He has nothing against living in an apartment, but preferably would rather stay.

Fig. 2.3.c.5: Bruce interviewing son’s mother in their garden.

Fig. 2.3.c.6: Kitchen and storage space.

Name: Declined
Age: 70s
Occupation: Retired
Family: 4 people
A woman at the age of 70 years old was interviewed. We interviewed her at her home. She lives in a 3 bedroom siheyuan. An old wall in her house had been torn down due to past demolition. She has lived in that house for many years, but did not specify the exact time frame.

There are about five families that live in her house; this living quarter is considered small due the amount of people that live there. She does not support the decision of demolishing the whole area. She would like the area to be preserved and would like to live there for the rest of her life.

The second interview was very brief. It was held with a group of people. Many of the interviewees were impatient and did not want to talk. He is a male and has a business. He was interviewed at his store. He sells basic groceries and snack foods. He has been living there for about 40 years. There are about 3 people who live in his house. He enjoys living at Xuanwu hutong because it is convenient due to easy access to public transportation. He does not support the demolition, because it would have a detrimental effect on his business. If he were to have a choice of living in a hutong or high rise, he would prefer to live in a high rise apartment. He enjoys living at Xuanwu hutong because it is convenient due to easy access to public transportation. He does not support the demolition, because it would have a detrimental effect on his business. If he were to have a choice of living in a hutong or high rise, he would prefer to live in a high rise apartment.
The fifth interview was conducted at a home of a 45 year old female. She does not believe that the area should be preserved nor fixed. She said there isn't any meaning of preserving this area and it should all be redeveloped. Though she also added that there are places worth preserving such as The Lotus Hut, Hunan Association, Tan homes, Fayuan Temple, and Niu Street Mosque. She would prefer to live in a high rise complex, because using the toilet is a lot more convenient. She was asked why people still want to live in the hutong. She responded that the government is not giving compensation for the residents to leave. If they were to move out the people would be relocated to the outskirts of the city and it would be very inconvenient to travel about the city. Her opinion is that when the government wants to do something it will be done regardless the obstacles. She also stated that this site would eventually be demolished. It's just in a matter of time. During her free time she usually stays in her home and walks around the Hutongs. She does not enjoy going to the park because the park in front of the Fayuan Temple is crowded.

The fourth interview was a male resident whose last name is Tang. He is 64 years old and is retired. He has lived in the hutong his whole life. He feels that living in a hutong environment is not convenient. A large aspect of his discontent is the public restrooms. He has great concern regarding the public restroom in part for the elderly people who have to use them during the evening. Mr. Tang says the spaces are dark and very slippery. Mr. Tang invited us to his home and gave a tour of his home. He talked about his family history and how the hutong used to be like. He would prefer to live at a high rise complex because it is a lot more convenient and new. Although living in an apartment high rise is convenient, he says it does not give the same atmosphere as a hutong. He says that in the hutong, everyone knows their neighbor and communicates with each other, while living in a high rise is very secluded. Knowing that there are many homes that have been left in ruins and are dangerous for children to play around, he believes that these historic homes should be preserved. He makes note that there are few that would pay attention to the site. He told stories of the opera house that was once there. He said in the 50’s there were a lot of people who would come to watch the opera singers perform. He also told us that there was an artificial mountain that was in the back of his house, but it had been demolished. When he was a child he would play marble balls, topper and fan cars. During his free time he would walk to the park in front of Fayuan Shi temple as well as Longevity Park.

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South Inner Elevation

Sidewalk Survey

Analysis of land use is an observational feat; it is subjected to perceive the built forms and how people make use of those spaces. This survey is a photographic montage of the elevations throughout the site, or more specifically the vicinity of the General Xie memorial site. It is an examination of what an individual will encounter throughout the site as an individual walks along the south inner side of Fayuansi Hutong.

Fig. 2.3.c.18 (right): shows the active informal restaurants located at the start of the elevation sequence. The image is set across the alleyway, in front of the kitchen, that provides space for seating and a more broader open space.

Fig. 2.3.c.19 (above): starts from the intersection of Peiyu Hutong and Fayuansi Hutong. As an individual enters the site, looking towards the north, he or she sees a few informal restaurants immediately. It becomes one of the major highlights of this street, the initial bombardment of life; it is the commercial corner that serves the high-rise apartment complex to the left and to the Hutong community. Further on, it slowly transitions to purely residential buildings and exterior storage structures.

Fig. 2.3.c.20 (below): picks up from where the top image is cut. It further describes the narrow alleyways, the exterior sources of storage, the abundance of parked vehicles and bicycles, trash cans, and even greenery. What lacks in this half of the street is the liveliness of what the informal restaurants bring, or even what the major intersection brings.

Fig. 2.3.c.21 (above): is a diagram in aerial view that highlights the area that depicts the south inner elevation in dark red, or Fayuansi Hutong. It is also divided in half as show by the maroon rectangle.
Fig. 2.3.c.22 (above): is the West inner elevation that starts at the intersection of Fayuan Hutong and Xizhuan Hutong. It arrives at the roundabout and enters a series of storage containers and concealed bicycles.

Fig. 2.3.c.23 (right): diagrammatically depicts the view range of the West elevations. Yellow is reflective of the inner side while the brown is reflective of the outer side.

Fig. 2.3.c.24 (below): is the West outer elevation starting at the same intersection as mentioned. It reflects a dull area, an area primarily acting as a transition between Hutongs. However, a special feature occurs at the ending intersection, Xizhuan Hutong and Jiaozi Hutong. There, a very active informal corner brightens the area. Specifically, a grocery market is depicted below.

Fig. 2.3.c.25 (above): reiterates the “Sidewalk Survey.” The orange arrows depict the direction and path of the journey, while the highlighted red structures are the buildings in site. In the prior pages, an individual has proceeded past the south and west sides, in which the blue circle depicts the current destination.
Survey Continued...

Past the Fayuansi Hutong and past Xizhuan Hutong, the last major street surrounding the vicinity of the General Xie memorial site is Jiaozi Hutong. Beginning at the lively corner of Xizhuan Hutong and Jiaozi Hutong, it journeys to reach the major intersection once again, towards Peiyu Hutong.

Fig. 2.3.c.26 (right): depicts the liveliness of the starting corner. In the image, a pigeon aviary is above a Hutong that has been converted into a kitchen where outside dining can occur, as well as another Hutong that has converted into a grocery market to the far left.

Fig. 2.3.c.27 (above): starts from the intersection of Xizhuan Hutong and Jiaozi Hutong. It seems to be initially bombarded by construction, where a blue sheet metal masks demolished areas. Onward, we encounter a home with the walls demolished that creates a stage-like area for the locals.

Fig. 2.3.c.28 (below) picks up from where the top image is cut. It continues to express the onslaught of brick-by-brick facade, the privacy of what a Hutong is and the secrecy behind each doorway, or gateway. Even so, it abruptly ends nearing the major intersection where real estate as placed a multi-story structure, a housing complex.

Fig. 2.3.c.29 (above) is a diagram in aerial view that highlights the area that depicts the north inner elevation in dark red, or Jiaozi Hutong. It is also divided in half as show by the maroon rectangle.
Survey Continued...

The north outer elevation signifies the end of the design site in a few manners. Aside from the end towards the major intersection of Peiyu Hutong, this side of the street elevation depicts the separation of low-rise to high-rise structure. It also is a separation between the General Xie’s memorial site to the rest of expansive hutong neighborhoods to the north.

Fig. 2.3.c.30 (right): depicts the exiting corner of the walk’s perimeter. The red banner signifies the neighborhood watch and the high-rises in the distance reflects the looming urbanization.

Fig. 2.3.c.31 (above): starts from the intersection of Xizhuan Hutong and Jiaozhi Hutong. This particular streetscape depicts the front facade of the residential buildings. It shows the main entrances of each of the local’s homes, where vehicles and bicycles are parked right in front. Occasionally, clothes are seen hung, as well as other daily items of the locals.

Fig. 2.3.c.32 (below): picks up from where the top image is cut. It further exemplifies the abundance of vehicles parked, the onslaught of urbanization. The elevation further transitions to the low-rise structures of the Hutong into the high-rise apartment complexes that are cut in an individual’s height limitations.

Fig. 2.3.c.33 (above): is an diagram in aerial view that highlights the area that depicts the north outer elevation in dark red, or Jiaozhi Hutong. It is also divided in half as show by the maroon rectangle.

North Outer Elevation
Mountains are also revered in Chinese culture, often being depicted in many traditional Chinese gardens as intricate rock formations. The desire for these formations is due to the belief that they are manifestations of nature's vital qi energy. Many Chinese view mountains as a place to wander and purify the spirit in order to seek personal renewal. It is because of this desire to seek personal renewal that the Chinese incorporate depictions of mountains into the gardens at both the macro and micro level. At the macro level, large-scale gardens in Beijing incorporate rockery or specific boulders that are of historical importance. On a micro scale, those Chinese who are financially able will also include smaller scale rockeries within their siheyuan courtyards. Those Chinese who are unable to have private garden spaces, will often purchase landscape scenery art to place upon the walls of their homes depicting mountains in order to reflect and enjoy them.

Mountains are of an even greater importance to the people living in Beijing, To the North and West of Beijing lie the Yanshan Mountains and the Taihang Mountains. These mountains, while revered for their spiritual properties, also protect the North China Plain, where Beijing lies, from the northern winds that blow in from the Gobi Desert and Siberian tundra. Overall, the North China Plain is relatively low in elevation. Due to its low lying elevation, the landscape of Beijing is somewhat uniform but as one moves in a Northward and Westward direction from the city, the adjacent hills and mountain ranges create a basin that, when visible, create a dramatic and beautiful views of the landscape. It is this breathtaking landscape that creates the desire of the Chinese people to seek renewal and revitalization through mountains that is experienced at the large-scale gardens or local mountains of Beijing.

Water

Looking specifically at the water elements in Beijing, many of the existing bodies of water are a part of the former Imperial canal system (Fig. 2.3.c.36). These canals were constructed to transport the emperor throughout the city without having to utilize the public road system. While the Imperial canal system is hardly used presently, it has led to the element of water being a common theme incorporated within many parks throughout Beijing. This utilization of water has added to the man-made outdoor spaces by of the natural environment.

Mountains

Mountains are also revered in Chinese culture, often being depicted in many traditional Chinese gardens as intricate rock formations. The desire for these formations is due to the belief that they are manifestations of nature’s vital qi energy. Many Chinese view mountains as a place to wander and purify the spirit in order to seek personal renewal. It is because of this desire to seek personal renewal that the Chinese incorporate depictions of mountains into the gardens at both the macro and micro level. At the macro level, large-scale gardens in Beijing incorporate rockery or specific boulders that are of historical importance. On a micro scale, those Chinese who are financially able will also include smaller scale rockeries within their siheyuan courtyards. Those Chinese who are unable to have private garden spaces, will often purchase landscape scenery art to place upon the walls of their homes depicting mountains in order to reflect and enjoy them.

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The use of public space in Chinese culture is an integral part of daily life. Whether in Imperial courtyards or in local Buddhist temples, public space is used to an extremely high degree. These spaces almost become ritual necessities in the daily life of the Chinese people. China’s traditional dynastic form of rulership consisted of emperors owning and using the majority of these sites for personal and private use. Since the emperors and the elite were the only members of society able to experience these large, monumental outdoor spaces, these locations transformed into places of mystery and wonder for the rest of the population. Since these Imperial outdoor spaces have opened for use by the people of China, the original purposes of these spaces has adapted for high levels of use by people. Nevertheless, history has left its mark, having created unique cultural locations which can only be experienced within these historical and Imperial spaces.

Beijing is a city that is constantly growing and building. But despite the construction of new buildings and parks, historical locations of the ancient empire are often still at the heart of many cultural and social activities. Figure 2.3.c.38 to left shows an image of Beihai Park in Beijing where communal activities such as group singing, water calligraphy poem writing and In addition, there are numerous public spaces throughout the city that offer a range of social activities from buying local crafts at outdoor markets to dancing and singing within spiritual temples. Since there are so many types of outdoor spaces, each with their own unique characteristics, each has been classified into the following five separate typologies: Imperial, Spiritual, Lakes and Canals, Markets, Public Parks.

“Since the emperors and the elite were the only members of society able to experience these large, monumental outdoor spaces, these locations transformed into places of mystery and wonder for the rest of the population.”
Imperial
Government owned public plazas are located throughout many of the major cities in China. Their main purpose is to serve as a gathering place for the public during government events. The largest of these in China, and the second largest plaza in the world, lies at the heart of Beijing. Tiananmen Square has a great deal of cultural significance to the Chinese people, and to the rest of the world, known best for the student protests in 1989. The square is composed of 440,000 square meters of flat hard surface serving today as a large, well guarded public space for tourists to gather throughout the day. When walking through the plaza it exudes an immense sense of government control and grandeur that is very unique when compared to the rest of the typologies.

Spiritual
Spiritualism is extremely prevalent in China with Buddhist temples, Daoist temples and spiritual parks occupying major portions of public outdoor space. The original and current purpose of the spiritual parks is to provide the location to reach spiritual enlightenment and to perform multiple types of religious ceremonies. Today these spaces also serve as gathering, recreational, and art driven spaces for the Chinese people. The outdoor spaces within temples are exact mirrors of each other, with the temples being built on a North-South axis. As one progresses through the temples, the facades and details of these temples change, but the overall purpose of the temple and individual temples stays the same. Not only do these places hold religious prayers and ceremonies, but the location is also similar to Western public parks. People are able to have picnics, dance, sing, fly kites, write calligraphy, and bring their families to have a day away from the city. These temples have the most complex landscape features making them unique when compared to the rest of the typologies. This is due in part to the relationship between the Chinese religious culture and natural elements.

Lakes and Canals
The Feng Shui element of water has a deep cultural significance in China. Representations of water can be found throughout the historical city of Beijing. Perhaps the most dominant water in the city landscape is the ancient canal system built thousands of years ago to enable the emperor to travel through the city at a rate faster than by carriage. The canal system winds through many of the lakes and parks found throughout the city and now serves as a way in which tourists can see the city.

Some of the lakes found along the canal system are artificial and located in public parks. These lakes are used to a great extent by the local populace, but in a much different manner than parks used in Western societies. Perhaps the most noticeable difference is that the green grassy areas are not meant to be ran or played on, but designed to be enjoyed for the visual appeal it provides. Active physical games such as soccer, football, and baseball, which all require large grassy areas to play, are generally not popular in large parks within China. Instead, these parks are used to a great extent as quiet places to sleep, stroll, and escape the confines of high density living. Park users can be seen chatting, playing chess, napping, flying kites, and practicing Tai Chi, among many other activities. Observed spectator park games included: Xiangqi, also known as Chinese chess; badminton; and multiple types of card games, the most popular being Da Lao Er, Da Lao Si, a game very similar to the card shedding game called Big Two or Pusoy Dos, which is also very popular within the United States.

Public Parks
Public parks in China are used to a great extent by the outdoor populace, but in a much different manner than parks used in Western societies. Perhaps the most noticeable difference is that the green grassy areas are not meant to be ran or played on, but designed to be enjoyed for the visual appeal it provides. Active physical games such as soccer, football, and baseball, which all require large grassy areas to play, are generally not popular in large parks within China. Instead, these parks are used to a great extent as quiet places to sleep, stroll, and escape the confines of high density living. Park users can be seen chatting, playing chess, napping, flying kites, and practicing Tai Chi, among many other activities. Observed spectator park games included: Xiangqi, also known as Chinese chess; badminton; and multiple types of card games, the most popular being Da Lao Er, Da Lao Si, a game very similar to the card shedding game called Big Two or Pusoy Dos, which is also very popular within the United States.

Many of the popular and large parks in Beijing are ancient or Imperial places that have been opened to public access, most often for a fee. While there is a growing collection of Western style parks, these parks are not often surrounded by walls and have large turf areas, formal planting schemes, and various types of seating.
2.3.c.iv. Uses of Public Outdoor Spaces at Micro Scale

Our project site location is at the heart of the City of Beijing, a couple blocks southwest from Tiananmen Square. The site we analyzed had a variety of public and private spaces that were all unique to the specific area. Additionally, the site itself seemed to capture the essence of a formerly typical, local Chinese community in Beijing, or at least that's the neighborhood felt. Most of the public outdoor spaces in the project site neighborhood were observed as having similar features to those found at macro level public spaces, but at the micro scale there were some minor differences. These different characteristics and attributes most noticeably were due to local people from the surrounding homes utilizing these spaces. These outdoor spaces offered a more tranquil and quieter atmosphere than the macro level tourist driven outdoor spaces elsewhere in Beijing. The following attempts to expand upon these minute differences.
Temples

Within the General Xie memorial neighborhood and in the surrounding areas, a number of religious and spiritual centers exist. The most prominent of these is the ancient Fayuan Temple, which lies directly south of the project site and is one of the oldest Buddhist Temples in Beijing. The Fayuan Temple has a direct connection to the General Xie memorial project site, as historically General Xie spent his final days living within the temple. The interior spaces of the Fayuan Temple provide a secluded atmosphere, protected from the outside world by a dense tree canopy and is walled in by impressive historical temple structures.

The Fayuan temple has a very tranquil and quiet ambiance about it. Incense sticks slowly smoke in large urns throughout the site as monks quietly pace through well-kept gardens and the large stately trees of the temple gently rustle in the occasional breeze. The tranquility of the space is only broken by the daily prayer chants and gong chimes during traditional ceremonies. Most of the visitors are from the local neighborhood population, arriving to participate in the prayers, followed by quick retreats back to their homes or businesses. Some people seem to stay longer and cross the street in front of the temple to the adjacent Fayuan Park, to more freely meet and mingle with friends and neighbors.
As stated above, the Fayuan Park, which lies just across the street from the Fayuan Temple, provides a place of retreat for local residents where they can "let loose" more so than what is perhaps tolerated in the cordial system within the Fayuan Temple. The park's design resembles that of linear grid system with lines running perpendicular to one another. Trees, planters, contemporary hardscape, fenced in turf, and the park's benches all confine themselves to this linear grid system. When visited by our team the park seemed to be consistently bustling with people, akin to public parks found throughout Beijing, with people performing many of the same activities. People watching, communal conversations and interactions, roaming pets, and children playing were all observed during our brief visits to the park. One point though which this park differed to its larger Beijing counterparts was the fact that it had a much quieter, tranquil feel about it, perhaps partly due to the respect the park goers have for the adjacent Fayuan temple, which sits well within ear shot of a loud yell or shout emitted from the park.
In most historical city quarters the streets act not only as auto and pedestrian transportation arteries, but also as unofficial playgrounds for children, dining areas for restaurants and places for strolling and people watching. It was not until the advent of the personal automobile that streets began to serve cars rather than the pedestrians within them. However, within the traditional Chinese hutongs, especially those located within the extent of the project site, lively streets of the past can still be enjoyed at a leisurely slow pace, akin to those one might experience in a historical European city.

Hutongs within the project site area were not only being used for the purposes described above but also as yard space for many of the homeowners in the area. This made sights such as children receiving haircuts and families hanging clothes up to dry on makeshift clotheslines, common sights in the neighborhood. The reason that the streetscape is so heavily used is that infill development within the traditional siheyuan courtyards has forced many of these once private courtyard activities, out into the streets due to lack of outdoor space. Such density pressures have also led to the construction of unpermitted temporary storage sheds along community streets, thereby reducing the width of the already narrow street systems.
2.3.c.v. Uses of Private Outdoor Space at Micro Scale

At the neighborhood level, residents of the General Xie memorial site utilize private outdoor spaces at higher performing and in more heavily appropriated methods than outdoor spaces at the public scale. It could be seen from the multiple site visits and various viewings of private residences throughout the project site neighborhood that residents use their limited space as productively as they are able. While portions of the neighborhood exhibit shadows of the traditional siheyuan style housing, such as the private courtyards, infill buildings created by people constantly moving in and out of the neighborhood have altered these former private spaces. Though this has resulted in a reduction in physical open space, it has facilitated an increase in the uses for these areas, which include storage, cookings, clothes drying and gardening. Additionally, vacant lots littered with the rubble of former buildings (drosscapes) are also utilized as garden and recreational areas.
the father or head of the household. Though some of these trees show signs of disease or have already been felled, many are still present with the project site neighborhood. Currently, a siheyuan may not provide living space for up to eight or even twelve families, most often unrelated to each other, as many of the residents consider the project site neighborhood to be a temporary home. This has shrunk the communal courtyards and changed how they are used with the siheyuans that still exist. No longer a gathering place for families, the courtyards are now predominantly gardens or have been reduced to narrow paths by been structures.

Fig. 2.3.c.56: Siheyuan Courtyard Section

Communal Courtyard

Historically, the siheyuan courtyard played a prominent role in everyday Chinese life by providing a platform for family interaction that spanned generations, as grandparents, parents and children often lived in a single siheyuan complex. These communal courtyard spaces are usually accessed by entering the front door of the siheyuan, either from the North or South depending on the orientation of the siheyuan to the adjoining hutong. Once inside the front door, the entrance corridor leads directly into the communal courtyard space of the siheyuan. Though the design of these spaces was once largely dictated by the guidelines of Feng Shui, today they are influenced predominantly by resident's spatial and familial-infrastructural needs. The penultimate feature in each courtyard is a central tree, traditionally representing

Fig. 2.3.c.57: Siheyuan Courtyard Section

Fig. 2.3.c.58: Siheyuan Communal Courtyard

Fig. 2.3.c.59
Narrow Passages

Though there are intact communal courtyards throughout the General Xie memorial site, many of these have either been cut off from their related siheyuan structures, piled with building debris, or had makeshift structures built upon them, thereby reducing the space and impairing the functionality of these areas. This condition has subsequently developed into a new typology of narrow passages: tight pathways that lead to small open areas with door or gate access, surrounded by residential structures. The pathways are generally access points for buildings and are often lined with plants, storage, bikes, and rummage. Though these open areas are smaller in scale and have less access to light than the communal courtyards, this has not deterred residents from utilizing them. These debilitated spaces have been appropriated into recreational areas, kitchens, storage spaces, and gardens. Within one of these high-performing spaces, we witnessed beans growing on a series of makeshift trellises in a ground-level brick-lined planter, cucumbers growing out of buckets and pots, clothes drying on a clothesline, bottles and buckets full of irrigation water, birdcages hanging from building eaves, densely piled storage areas, and a clean kitchen prep table. Though these busy spaces are clearly used regularly, they are still largely littered with rummage and trash.
Drosscape

A number of rubble-filled vacant lots exist throughout the proposed General Xie memorial site and the surrounding neighborhood. These drosscapes exist due to various causes, including the old age of the buildings, lack of general building upkeep by residents and more recently, due to increasing development pressures being placed upon the area. According to local residents, government officials have been frequenting the neighborhood, looking for buildings that are to be deemed unsafe in their current state. Once a building has been deemed unsafe, the government facilitates the demolishing of the building. However, once demolished, the rubble of the former building remains on the site where the building once stood. Though these drosscapes litter the neighborhood, these spaces are still utilized by the local residents, most often as informal vegetable gardens for residents whose homes abut the large rubble-filled lots. Furthermore, these lots are used for multiple other purposes including but not limited to dumping grounds for neighborhood trash, play areas for children and parking space for residents’ vehicles.

Fig. 2.3.c.67: Rubble Filled Lots Abutting a Siheyuan
Facilities Courtyard

Within the project site area exists a government maintenance yard where heavy machinery such as road rollers, backhoes, and bulldozers are stored and maintained for government construction projects. The yard sits directly between two large historical buildings which are believed to have been part of the General Xie memorial. This was concluded based on research and information obtained from both on-site interviews and information garnered from Chinese professors from the Northern Chinese University of Technology (NCUT).

Although not currently being utilized as open space, information gained from on-site interviews verified that this was once a commonly used public area and gathering point. It lies adjacent to the recently demolished General Xie memorial courtyard garden, which also served a similar purpose.

Fig. 2.3.c.69: Facilities Yard Layout
Fig. 2.3.c.70: Facilities Yard Layout
Fig. 2.3.c.71: Heavy Machinery Storage in Facilities Courtyard
Fig. 2.3.c.72: Facilities Yard Section Dimensions
Gardens

Time-honored Chinese arts like calligraphy, painting, poetry, and song traditionally are about the expression of the relationship between man and nature. Since in Chinese culture human life is seen as deeply entwined with the natural environment, gardens have become an essential component of personal expression. The garden is seen as a depiction of nature in a controlled and scaled form. Gardens have followed Feng Shui principals that dictated layouts and designs, including orientation, plant types, tree placement, color schemes, and other elements, like water features and rockery (rock bonsai). This is particularly evident in the siheyuan courtyards, which traditionally these traditional gardens. Trees were of notable importance, revered for their longevity and individual meanings among species, and were often placed near the center of the courtyards. Gardens are also essential components of Chinese temples and memorials, including the Xie Memorial, which featured a large central courtyard, with an expansive garden area and prominent rockeries at one point in time.
Today, gardens in the project site neighborhood are small at best, with only remnants of these traditions remaining within the best preserved courtyards. Some residents have created appropriated gardens within the rubble of felled buildings, though most consist of only a collection of pots, buckets and other vessels. Even small planters, built upon or dug out of the street at building corners are efficiently utilized as productive garden space. These scant corner patches are just inches wide, sometimes lined with bricks. Most of these gardens are planted primarily with vegetables, though some have ornamental flowering plants, vines, and bonsai. It seems that most residents grow vegetables and have become adept at maximizing these small footprints for optimum output. The most common strategy seen throughout the project site neighborhood is vertical gardening, with vining vegetables like beans, squash, and cucumbers, assisted up towards the sun by creative techniques training vines onto buildings, poles, strings, wires, and cables.

Fig. 2.3.c.75: Hutong Gardens

Fig. 2.3.c.76
2.3.c. vi. Outdoor Space Comparison and Conclusions

Each of the eight types of open space typologies found within the project area were analyzed based on their intended purpose and current use. All of the typologies have unique attributes which depend on use, size, views, and the amount of sunlight each space receives. The defining element of all of these spaces is the degree to which the limited space within the General Xie memorial site has been capitalized, appropriated, altered, appended and retrofitted by residents to best meet their needs. Though this has spurred a pervasive ramshackle aesthetic throughout the area, it also imbues the General Xie memorial site with a lively vibrancy that quickly evokes a significant sense of place and is reflected by the people of the community.

Based on our findings we can see that life in the hutong does not seem easy, but the people here are inventive and resourceful and make the best of it with what they have. This is what makes these open spaces unique when compared with other types of open space found throughout the world. Although compact, convoluted, and seemingly disorganized, the hutong environment provides to its Chinese residents a great deal of freedom when it comes to designing and designating the use of communal public space.

"The defining element of all of these spaces is the degree to which the limited space within the General Xie memorial site has been capitalized, appropriated, altered, appended and retrofitted by residents to best meet their needs."

<table>
<thead>
<tr>
<th>Type</th>
<th>Temple</th>
<th>Park</th>
<th>Streets</th>
<th>Communal Courtyard</th>
<th>Name</th>
<th>Orroscopic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Views</td>
<td>Trees</td>
<td>Sky</td>
<td>Apartments</td>
<td>Trees</td>
<td>Sky</td>
<td>Apartments</td>
</tr>
<tr>
<td>Sunlight</td>
<td>Med</td>
<td>High</td>
<td></td>
<td>Med</td>
<td></td>
<td>Med</td>
</tr>
<tr>
<td>Size</td>
<td>L</td>
<td>M</td>
<td></td>
<td>M</td>
<td></td>
<td>L</td>
</tr>
</tbody>
</table>
2.3.d Opportunities and Limitations

The current low density housing in the project site has become a major issue. These siheyuan or courtyards have become inadequate and have left the residents with many infrastructural problems. There are a great deal of demolished homes in the area, which further makes the area hazardous to live. But many residents still continue to stay due to the convenience of being located in the inner city and living in a hutong environment. Preserving the traditional siheyuan is desirable for some, but are largely inefficient in matters of use of space. Based on the interviews most of the residents agree that the high-rise residential complexes are best for their needs.

There are many opportunities for commercial businesses to develop around this hutong. Currently there are many businesses along the main streets and some informal business within the hutong. These businesses have been there for many decades and are still very strong. There are many opportunities for other business owners to expand and open more shops. This would boost the economic development in the area in a very realistic manner.

Limitations for commercial businesses are inadequate. There are an abundance of demolished or deteriorated homes in the area. For more businesses to prosper, storefronts would need to be reestablished.

Preserving the original history of General Xie's memorial site will not only set it apart from other locations but can also set an example of other hutongs that are being demolished. The site can serve potentially as commercial and residential hub.

Preserving the history of the site will create limitations for future development and expansion. If the areas were to be preserved, new restriction and regulations would also be placed for new development. If the regulations are not addressed properly it could cause serious economic and habitation issues.

Macro level outdoor spaces in China present an opportunity for the Chinese people to escape from the high-rise apartments that many live in. The high level of use that these outdoor spaces receive is unheard of in the United States and taking advantage of expanding upon or building new macro level spaces would be beneficial to any urban area within China.

Due to the high population density of urban living in China, the possibility of creating large scale outdoor spaces within cities is limited. Many current macro level outdoor spaces are a direct result of China's past Imperial rulers and nowadays, would most likely be financially unfeasible.

The high performance of outdoor space within the General Xie memorial site and the project site neighborhood is a testament to the Chinese people’s enjoyment of being in being outdoors and engaging in their communities. This opportunity to build upon community ties and the high level of use all spaces receive in the project site could be the foundation for future development.

Many current outdoor spaces exist in the neighborhood only due to the demolition of former buildings. Redevelopment in the neighborhood would likely replace these spaces and thus remove their current use as outdoor space for residents of the community.

<table>
<thead>
<tr>
<th>Residential:</th>
<th>Commercial:</th>
<th>Preservation:</th>
<th>Macro Level Outdoor Space:</th>
<th>Micro Level Outdoor Space:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig. 2.3.d.1: Residential unit on the second level.</td>
<td>Fig. 2.3.d.2: House number 21.</td>
<td>Fig. 2.3.d.3: Second level of General Xie’s memorial site.</td>
<td>Fig. 2.3.d.4: Beihai Park in Beijing</td>
<td>Fig. 2.3.d.5: Small Neighborhood Garden</td>
</tr>
</tbody>
</table>

Macro level outdoor spaces in China present an opportunity for the Chinese people to escape from the high-rise apartments that many live in. The high level of use that these outdoor spaces receive is unheard of in the United States and taking advantage of expanding upon or building new macro level spaces would be beneficial to any urban area within China.

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Many current outdoor spaces exist in the neighborhood only due to the demolition of former buildings. Redevelopment in the neighborhood would likely replace these spaces and thus remove their current use as outdoor space for residents of the community.
2.3.e Appendix

Sample questionnaire

Open-ended questions:

Name:
Age:
Occupation:
Family:

1. How long have you lived here?
2. How many people are currently living in your household?
3. Do you like the Hutong neighborhood?
4. Would you rather move out to high rise apartments or live where you are now?
5. What places do you go to relax and exercise?

2.3.f References


2.4 Building Stock

2.4.a Methodology

2.4.b Building Classification

2.4.c Materials and Technologies of Construction

2.4.d Interior Living

2.4.e References
2.4 Building Stock

Contained within the project site neighborhood is a mixture of both historical and modern structures that still adhere to the traditional siheyuan focused neighborhood layout. Much has changed though in these old neighborhoods, most of all their significantly increased density levels.

Many siheyuan households found within the project site, while initially designed to house one extended family, now contain anywhere from six to twelve families. These population pressures have led to infill development within many of the original siheyuan courtyard spaces. These once quite communal areas, used for personal reflection and daily household tasks, have now all but been lost to a system of narrow and winding alleyways that gives little privacy to the local residents. This transformation is not an isolated incident but is occurring throughout many hutong districts in Beijing’s inner ring. (Zhang Jie, 2002)

In addition to the multiple structure types found within the area, the condition of these buildings varies as well. Some homes were observed to be showing little to no signs of wear and tear, implying that its owners have kept up with necessary improvements and renovations. However too many were observed as having fallen into a state of decay and disrepair, not safe enough for human habitation. It was discovered that many of the structures in the worst condition were victims of a previous development’s initial demolition phase back in the mid 2000’s. Luckily for the project site hutong’s, demolition was halted due to the voices of community supporters whose efforts were spearheaded by Professor Zhang Bo of the North China University of Technology. Their efforts not only have temporarily saved this historical hutong district and the many intact siheyuans within it, but more importantly, the remains of an ancient, 600 year old ancestral temple, dedicated to the late General Xie, was also rescued in the process.

To date the government has not yet made any definite decisions on the fate of this hutong community and the General Xie memorial site. Because of this local residents live in a state of limbo, unsure if they will be allowed to stay in their homes, or if they will be told to pack up their things and move out to new government provided housing elsewhere.

“ Luckily for the project site hutong’s, demolition was halted due to the efforts of community supporters whose efforts were spearheaded by Professor Zhang Bo of the North China University of Technology. ”

2.4.1 2.4.2
2.4.3 Methodology

In order to broaden the overall understanding of the project site neighborhood, a method to record and classify all structures within the project site became necessary. Utilizing a building classification schedule, buildings were categorized by location, condition, and age. It is hoped that this schedule can be used to empower future developers and planners with the knowledge necessary to create responsible design proposals based upon the areas existing building conditions.

The first step in the creation of this categorization was drafting the building classification schedule shown in Tables 2.4.a, 2.4.b and 2.4.d. These schedules were based on the current historical classification schemes devised and used by the Chinese government.

Once the building classification schedule was complete, an interdisciplinary research team of four students, two urban planners and two landscape architects, performed the building stock site assessment. One of the landscape architects was a Chinese student that proved instrumental during the assessment due to her ability to translate and communicate with the local residents. This enabled the team to gain the permission necessary to enter into the siheyuan courtyard homes and to conduct brief interviews with the local residents. This interview process was essential in understanding the history of the area and the conditions of the buildings within.

“General Xie memorial site. In all, the team was able to enter into every single courtyard in the project site neighborhood with the exception of one. The image above shows the maps used during the classification process. Each map recorded a separate building characteristic with the exception of one. The image above shows the maps used during the classification process. Each map recorded a separate building characteristic with the exception of one.”

Classifications are split up into three separate categories seen in Tables 2.4.a, 2.4.b and 2.4.c. The results of these classifications were then combined and plotted in Figure 2.4.e.

The assessment revealed that a number of historical siheyuans still exist in the project site neighborhood are in good condition and worth preserving. Some however were found to be badly dilapidated and in need of demolition. These sites, included with the many vacant lots observed on site, make the area ideal for selective redevelopment. Other areas that were identified as being ideal for redevelopment included: new buildings that did not fit the local ambiance, sites that contained vacant land and buildings that were deteriorating and hazardous to the local residents.

2.4.b Building Classification

As stated earlier, the final building classification schedule was developed based upon a classification scheme used by the Beijing Municipal Housing Management Bureau (See Table 2.4.c). This classification scheme was implemented by the Beijing Municipal Housing Management Bureau in two studies performed from 1983-1990 on similar hutong districts within Beijing’s inner ring (Junhua, 2002).

The student research team expanded and built upon this classification schedule by splitting it up into three separate categories seen in Tables 2.4.a, 2.4.b and 2.4.c. The results of these classifications were then combined and plotted in Figure 2.4.d.

The assessment revealed that a number of historical siheyuans still exist in the project site neighborhood are in good condition and worth preserving. Some however were found to be badly dilapidated and in need of demolition. These sites, included with the many vacant lots observed on site, make the area ideal for selective redevelopment. Other areas that were identified as being ideal for redevelopment included: new buildings that did not fit the local ambiance, sites that contained vacant land and buildings that were deteriorating and hazardous to the local residents.

Table 2.4.1 Beijing Municipal Housing Management Bureau Building Classification Schedule

<table>
<thead>
<tr>
<th>Classification</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Modern Construction</td>
<td></td>
</tr>
<tr>
<td>II Old Construction but in good condition</td>
<td></td>
</tr>
<tr>
<td>III Good structural condition but poor roofing, windows, doors, non-bearing walls, etc.</td>
<td></td>
</tr>
<tr>
<td>IV Structurally unsound</td>
<td></td>
</tr>
<tr>
<td>V Hazardous</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 2.4.a.1: Building Classification Mapping

Fig. 2.4.b.1
Table 2.4.2.a: Project Site Building Classification Schedule - Building Type

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical Building</td>
<td>- Building materials and architecture match that of the General Xia Memorial Site</td>
</tr>
<tr>
<td>Imitation Historical Building</td>
<td>- Building architecture mirrors that of classrooms of other historical buildings</td>
</tr>
<tr>
<td>Modern Building/Add-On</td>
<td>- Structural damage may not match surrounding historical architecture</td>
</tr>
<tr>
<td>Vacant Land</td>
<td>- Land containing either a demolished structure, trash pile, or vegetable garden</td>
</tr>
<tr>
<td>Data Unknown</td>
<td>- Buildings located in inaccessible courtyard areas</td>
</tr>
</tbody>
</table>

Table 2.4.2.b: Project Site Building Classification Schedule - Building Condition

<table>
<thead>
<tr>
<th>Building Condition</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Condition</td>
<td>- Well-kept exterior: no broken windows, no holes</td>
</tr>
<tr>
<td></td>
<td>- Structurally sound: no broken wooden beams, beams well taken care of</td>
</tr>
<tr>
<td></td>
<td>- Complete roof: few tiles missing, no cave-ins</td>
</tr>
<tr>
<td>Salvagable</td>
<td>- Minor exterior damage: five broken windows, small holes in structure</td>
</tr>
<tr>
<td></td>
<td>- Minor structural damage: beams mildly bending, replacing structural beams</td>
</tr>
<tr>
<td></td>
<td>- Damaged roof: many missing tiles, large cave-ins</td>
</tr>
<tr>
<td>Deteriorated &amp; Unsalvagable</td>
<td>- Major Exterior Damage: Partially demolished/dilapidated exterior</td>
</tr>
<tr>
<td></td>
<td>- Major Structural Damage: broken and/or missing structural beams</td>
</tr>
<tr>
<td></td>
<td>- Missing roof system: roof completely damaged and/or gone entirely</td>
</tr>
</tbody>
</table>

Table 2.4.2.c: Project Site Building Classification Schedule - Building Cluster

<table>
<thead>
<tr>
<th>Building Cluster</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Xian Memorial Site</td>
<td>- Assisted with the input provided by Prof. Zhang Bo from North China University of Technology</td>
</tr>
<tr>
<td></td>
<td>- Based upon field observations from student field trip</td>
</tr>
<tr>
<td></td>
<td>- Corresponded with interviews obtained from local residents adjacent to the Memorial site</td>
</tr>
<tr>
<td>Siheyuan Housing Complex</td>
<td>- Obvious Siheyuan housing clusters complete with a North, East, West, and south face</td>
</tr>
<tr>
<td></td>
<td>- Centered around a communal courtyard area</td>
</tr>
</tbody>
</table>

Fig. 2.4.b.2: Building Classification Schedule Map
2.4.c Materials and Technologies of Construction

In concurrence with the building stock assessment in the project site neighborhood, the research team also observed and documented what building materials and construction techniques were used to build the traditional siheyuan style homes. Upon further research, the team learned that many building practices involved with the construction of siheyuans was more than just build an effective structure, but was also tied directly to the cultural significance of the materials themselves. An important aspect of these traditional siheyuans is the fact that many of these homes have potentially been around since the General Xie memorial was constructed, roughly six hundred years ago.

The first siheyuan style homes constructed in China were built using materials that were locally accessible and modifiable with the the simple hand tools available during that time. These homes were composed of a compacted mixture of gravel, clay and limestone that was used for the foundation, floor and walls. Stuffed in between the clay walls was a straw and mortar mixture, used to reduce the amount of the clay mixture material needed and to increase the structures insulation capabilities. Notched wooden pine logs, that slid into and held one another together without the use of nails, were used as the structural support beams. Wood was preferred to stone because forests were plentiful. Lastly roofs were composed of a woven thatch base; covered with a mud and clay mixture; topped with ornamental, glazed and concave roof tiles.
Siheyuan Homes Observed On-Site

Siheyuan homes observed in the project site neighborhood were built with similar materials and techniques as those of ancient times. However, there were some improvements made to these structures that deserve attention.

Most notably, the limestone and clay mixture that served as both the foundation, floor, and walls of traditional siheyuans was replaced by a concrete foundation and floor, and brick walls. Straw insulation was swapped out for wool which lasted longer and acts as a better insulator. Wood beams and joists were kept, not because of their structural importance but rather due to their cultural significance. The wooden pine joist system still signifies wisdom, strength and the prospect of a long and fruitful life to the Chinese culture (ChinatownConnection.com). However, with the new building materials, wooden joists suddenly became the most vulnerable building material in typical siheyuan style homes subject to wear and tear caused by the weather. To preserve the wood, exposed sections of wood in and on buildings is often painted using ornamental lacquer paint. Finally, the roofing system of the structures was identical to that of the ancient siheyuan roof structure described prior.

“The wooden pine joist system still signifies wisdom, strength and the prospect of a long and fruitful life to the Chinese culture.”

Housing Orientation and Airflows

Another Chinese building technique that has remained constant over the past thousand years is the incorporation of natural airflows into the design of the siheyuan homes. These designs typically favored placing window openings on the north and south side of the siheyuan homes to allow for the common north-south breeze to naturally flow through the households. The A-frame roof type assisted with this process by facilitating the collection of hot air in the ceiling, away from the lower inhabited sections of the home.

However, unlike traditional siheyuans, designs of new high-rise apartment buildings rarely take advantage of these natural airflows and hence tend to trap stale air within these enclosed high-rise apartment spaces. Since there is typically not a centralized heating or air conditioning unit for these buildings, this has caused the need for individual apartment units to have their own exterior air-conditioning unit. Each of these air conditioner units discharges hot air outside of these apartments that when accounted for collectively causes temperatures in the surrounding hutong neighborhoods to rise substantially.

Roof Design

As previously mentioned, siheyuan houses traditionally utilized ornamental concave glazed tile patterns for their roof designs. These tile roofs are typically set in a clay/mortar base on top of a bed of reeds to help anchor it to the structures A-framed roofs. The combination of the sturdiness and durability of the ornamental tiles and slope of the A-framed roof has been providing China with the perfect design to facilitate the flow of water off of siheyuan structures during the annual monsoon seasons for hundreds, perhaps thousands of years.
While exploring the project site neighborhood, the research team was able and allowed to gain entry into two residential dwellings shown below and on subsequent pages. Each residential dwelling was a good example of the two prevalent types of residences found throughout the project site neighborhood. Data collected on these residences included exterior and interior dimensions and photographic documentation. The first residence we were allowed to collect data on was an example of a traditional siheyuan residence still in its original form. The second residence that the research team collected data on was an example of the project site neighborhood’s modified siheyuan houses, with the home having very little resemblance to the original siheyuan homes.

Each of the homes visited was modest by Western standards, composed of a space no larger than a three meter by five meter area. In addition, neither residence had a built in plumbing system. Residents were equipped only with a small sink for cooking, with water being fed from a PVC pipe brought in from a constructed water collection system on the roof of the home. Wastewater from the unit’s single sink was set up to drain directly into the streets, a system constructed by the family living there. Both homes had enough space to fit a bed, small dining table, and TV stand. The homes were therefore understandably cluttered due to the lack of space.

**Siheyuan Housing Interior**

Within the neighborhood of the Xie Memorial site living conditions vary greatly but a common theme seen throughout the project site was the amount of single families occupying a single room within a larger siheyuan housing complex. Those residents that the research team spoke with who lived in these typical one room living situations were often long time residents of the area having families that had lived in the neighborhood for multiple generations. The built frame shown above represents the residence of a gentleman whose family had lived in the neighborhood for multiple generations. His home occupied the east room within a historical siheyuan housing complex.

“Each of the homes visited was modest by Western standards, composed of a space no larger than a three meter by five meter area.”

---

**Fig. 2.4.d.1**

**Fig. 2.4.d.2:** Inside East Portion of Siheyuan Home

**Fig. 2.4.d.3:** Exterior Dimensions of East House of Siheyuan Home

**Fig. 2.4.d.4:** Interior Dimensions of East House of Siheyuan Home
Modified Siheyuan Housing Interior

As stated previously, the living conditions within the Xie Memorial site neighborhood vary greatly from home to home. Because of this situation, it is very rare to find a complete siheyuan housing complex owned and occupied by a single family. Most often existing siheyuan homes have either been modified in some way or the courtyard spaces of these homes has been filled in by informal structures. The research team was able to gain access to a residence that was substantially larger than that of her adjacent neighbors due to home modifications and additions. This home exemplified an anomaly in a neighborhood with extremely small and crowded living spaces. In this situation the size of the home was representative of the homeowner’s income level rather than their longevity in the neighborhood. The built frame above shows the interior of the family’s residence that had lived in the neighborhood for a few generations and had been able to combine two divided rooms together over the years. Additionally, the modified siheyuan home had a solar water heater on the roof that allowed the family to have a small shower room attached to the exterior of one of the two rooms. The research team felt that it was safe to say that this particular family was very well to do within the context of the extent of the Xie Memorial neighborhood.
2.4.e References


Table 2.4.2a. Project site building classification schedule building type. Retrieved from the Beijing Municipal Housing Management Bureau, Department of City Planning, 2010, on August 10, 2011 from http://www.bjghw.gov.cn/.

Table 2.4.2b. Project site building classification schedule building schedule. Retrieved from the Beijing Municipal Housing Management Bureau, Department of City Planning, 2010, on August 10, 2011 from http://www.bjghw.gov.cn/.


2.5 Community Infrastructure

2.5.a Utilities

2.5.b Ecological Infrastructure

2.5.c Transportation Infrastructure

2.5.d References
2.5.a Utilities

Buildings within the project site are supplemented by a variety of infrastructures ranging from public toilet facilities to residents’ self-installed air conditioning units. Our observations of the area during our “Sidewalk Survey” (See 2.3.20) allowed us to assess utilities in the area and entertain ideas of possible opportunities and limitations.

Fig. 2.5.a.1 (immediate right): Power lines snaking around an electricity pole located on the project site.

Fig 2.5.a.2 (top right): Public Toilet Facility

Fig 2.5.a.3 (center-right): Air conditioning unit adhered to the side of a residence.

Fig 2.5.a.4 (below): Elevation of buildings on-site showing an emphasis on infrastructural components.

2.5.a.1 Public Toilets

Modern high-rise residential developments springing up around Beijing boast amenities such as private restrooms and indoor plumbing. The hutongs located on the redevelopment site, however, are not up to the same plumbing standards as the high-rises surrounding them. Stand-alone Public Toilet facilities remain the only restrooms accessible to residents in the community. When asked about how residents felt about not having access to their own private restrooms, residents voiced that they would rather live somewhere equipped with modern, private toilets.

Issues with these public toilet facilities include poor maintenance, inadequate sanitation, lack of privacy, and absence of facilities located close enough to certain residences in the community.

Opportunities relevant to the existence of these facilities include but are not limited to modernizing, ensuring adequate maintenance of, and building more public toilet facilities within close proximity of residences. Providing private toilets (as the residents wish for) within every residence, however, will have to happen over a gradual period of time.

Fig. 2.5.a.5 (top left): There are currently two public restroom facilities located on-site.

Fig. 2.5.a.6 (left): One of two public toilet facilities on-site.
2.5.a.ii Gas

During our survey of the site we encountered evidence of gasoline being used regularly as a source of energy. While we were unable to find gas pipes or meters, we could see residents firing up stoves for cooking meals both inside and outside of their establishments.

We also encountered remnants of empty propane tanks and fuel containers scattered around the neighborhood. It was apparent that gasoline was the fuel of choice for many of the residents, even with the many power lines hanging above the community.

Fig. 2.5.a.7 (right): Residents peel vegetables in preparation for cooking on a gas stove top.
Fig. 2.5.a.8 (below): Empty fuel containers lying along the side of fence.
Fig. 2.5.a.9 (bottom right): Propane tanks.

2.5.a.iii Electric

Electricity in the redevelopment area is connected back to and provided by the State Power Grid. Exposed power lines run from pole to pole above the streets of the community, sometimes crossing precariously through tree canopies or tangled masses of other power lines.

Residents use electricity to power major appliances, predominantly air conditioning units attached to the faces of buildings (See Fig. 2.5.c). Nearly every residence is equipped with these air conditioning units. The power lines on-site are expected to accommodate the surging increase of electricity being used to cool spaces in the summer months. Because our visit took place in August we were unable to decipher methods of cooling indoor spaces, yet we made an educated guess that indoor heating is possible using electric heaters or gas furnaces.

Fig. 2.5.a.10 (left): A montage of electric utilities in the redevelopment area; an overwhelming number and variety of electric utilities ornament the hutong streets.
All residents in the area require direct access to a source of water. Since individual residences are not equipped with indoor plumbing, residents resort to collecting water from a water spicket located in the courtyard of each hutong establishment (Fig. 2.5.k). Once water is collected, residents travel with their containers back to their homes and workplaces. Water collected from courtyard spickets assist in tasks such as washing clothes, watering potted plants, and rinsing away debris.

The courtyard spickets are not the main source of residents’ drinking water, however. An assessment of the area during our visit to the neighborhood concluded that water coming out of these spickets was not suitable for drinking, as surrounding areas suffer from poor sanitation. Residents instead purchase clean drinking water in various quantities from water vendors (Fig. 2.5.l) or travel to places that distribute clean drinking water (Fig. 2.5.m).

The absence of indoor plumbing in the redevelopment area means that residents do not have access to sewage drains in their own homes. Although some homes are equipped with sinks and tubs, residents must scoop out water manually once they are finished using these water basins. Small drains located in each courtyard cannot handle large amounts of waste (Fig. 2.5.o). Therefore, waste-water is routinely brought outside and disposed of into the nearest public storm drain (Fig. 2.5.p).

Our research team did encounter issues with the existing drains in the redevelopment area. Some of the public sewage drains were clogged with debris (rendering them useless), whereas other drains were located nowhere near water run-off from surrounding areas. There were many puddles of stagnant water on-site serving as breeding grounds for disease-carrying insects such as mosquitoes.

As a response to the inconvenience of public toilets, some residents even resort to disposing their own human waste from buckets into the street drains. The absence of indoor plumbing and drainage greatly decreases the quality of life in this community.
2.5.a.vi Trash

The redevelopment area in its current state is littered with trash and major debris. Areas particularly in states of severe deterioration have become makeshift landfills.

Smaller debris litters the streets and can also be found in planters or other containers not specifically designated for garbage disposal.

Recycling plastics, on the other hand, is well-received in the community. Many people take advantage of the small monetary compensation that they receive from depositing recyclables at recycling centers.

Fig. 2.5.a.17 (top right): Image showing debris of a makeshift landfill in a courtyard of the deteriorating General Xie Memorial.

2.5.a.vii Storage

Over the years, additional space for personal items has increased as the population of the neighborhood has grown. To address this problem, residents in the Xie Memorial neighborhood have constructed informal storage structures alongside Siheyuan houses and directly in the Hutong streets. Many of these structures have deteriorated and look to be no longer in use. Personal items are stored within courtyards and houses, while vehicles (such as bikes and cars) are stored within alleys and directly on the Hutong streets. With many items just left out in alleys and on the streets by residents, unused storage structures have in turn become receptacles for the neighborhood’s trash.

Fig. 2.5.a.18-20 (left): A variety of storage conditions.

Fig. 2.5.a.21 (below): Storage units (highlighted in color) located directly outside of residences.
Environmental Hazards

Services in the neighborhood, to the extent that residents are unable to have their own garbage removed from their residences.

The general lack of infrastructure maintenance has facilitated the current overcrowding situation that exists within the neighborhood. Due to the high cost of renting newer high-rise apartments, many low income Chinese are forced into the hutong neighborhoods. This situation has also attracted a transient population of both legal and illegal migrants from other provinces in China. Many reasons exist for why migrants are attracted to the hutong neighborhoods, but generally the lack of oversight by the government has allowed many migrants to construct informal and unoffical housing within what little open space remains throughout the neighborhood.

Sewage

Sewage systems play critical roles in basic community infrastructure by facilitating the removal of large amounts of human waste and urban runoff that is generated on a daily basis. Without sewage systems in place, communities are left to the potential health risks that arise from having stagnate water and raw sewage present. Within the project site neighborhood, there currently exist no direct sewage hookups to the residences. On many occasions, the research team came across buckets filled with excrement, purportedly to be dumped at a later date. To mitigate this problem, the Chinese government has built communal restrooms throughout the area to provide residents with semi-formal restrooms in central locations. Specifically, the neighborhood population surrounding and living within the General Xie memorial site is served by a total of two communal restrooms, both located on Fayuansi Street. These locations serve as the only community bathrooms accessible in the immediate neighborhood. In addition, these restrooms are no more than concrete block buildings with holes in the ground, lacking proper sanitary wipes and sinks to wash hands. Through discussions with local residents, it was determined that these community restrooms are not regularly maintained thereby exacerbating potential health hazards that could occur if sewage buildup went unmaintained.

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Similar to sewage hook-ups, residential connections to the Beijing water system in the project site neighborhood is almost non-existent. Residents instead rely on other means for obtaining water for cooking, drinking and bathing. Most, if not all, are forced to constantly buy water daily from local markets for safe personal consumption. On some occasions, formal and informal water catchment systems were seen on roofs of residences, with lines running into the homes. Some of the more formal catchment systems were solar heated, which most likely helps to mitigate the health hazards associated with using collected water. Many residents utilized other methods for cleaning collected water. Throughout the neighborhood, standalone gas tanks were seen in or near residences. These tanks were used to heat water as well as for cooking related purposes. While not convenient, gas provides an inexpensive way for residents to mitigate potential health risks posed by using collected water for daily use.
Drainage

Drainage systems, in connection with sewage systems, also play an important role in community infrastructure. Not only do these systems remove excess flows of water from an area in an efficient manner, but they also mitigate the potential vector issues that generally occur when water is stagnant. In order to understand the status of the project site's current drainage systems, the research team conducted visual, on-site observations and photographic documentation of these systems. Through these methods, it became apparent that the drainage systems in the project site neighborhood were extremely poor to say the least; even proper street drains were almost non-existent. Examples of these conditions include: residents having to manually empty liquids into drains far from their residences, residents constructing their own drainage onto the nearest street adjacent to their residences and former drainage being physically broken or in a general state of disrepair. Additionally, the few commercial businesses in the neighborhood utilize the same drainage methods as residents for getting rid of their liquid wastes.

A side affect of the poor drainage situation in the neighborhood could be seen in the multiple pools of stagnant water throughout the project site (Refer to Section 2.5.a.vi). These stagnant pools provide perfect habitat situations for vector related issues to occur. During the research teams site visits, the impact of these stagnant pools was experienced first hand through multiple mosquito confrontations. To better understand this phenomenon a slope survey was conducted to provide the overall drainage patterns on site. The project site is surrounded by streets on all sides, with Peiyu Street being the northern border, Xizhuan Street lying to the east, Fayuansi Street to the south and Jiaozi Street to the west. Through this survey it was found that drainage in the project site generally moves from North-Northeast to a Southwest-West direction. The slope of Xizhuan Street facilitates the flow of water West-Southwest onto Peiyu Street towards Jiaozi Street. Xizhuan Street also facilitates the flow of water south towards Fayuansi Street, where the street splits with drainage continuing on Southward as well as moving West on Fayuansi Street towards Jiaozi Street. Due to the direction of drainage, residents currently living in the project site seem to be affected by water flows more than that of the surrounding neighborhoods. Not only is this a hazard to the health and safety of residents but also could be a plausible answer for the poor structural status of many residences as well as the current vector issues that exist in the neighborhood. In addition, the slope drainage will need to be considered for future potential building and/or redevelopment scenarios occurring within the area.

Garbage

Proper disposal of residents' garbage from the General Xie memorial site and in general the project site neighborhood is another existing environmental health hazard that is a part of residents daily lives. No formal garbage collection or disposal system exists within the neighborhood to remove the continuous buildup of trash and waste. Informal dumping grounds can be seen throughout the project site, especially in areas where the rubble of partially demolished buildings exists. Additionally, some residents place their trash bags directly onto the street fronts of their residences to be removed manually at a later time. Many of these bags are often torn and picked through, likely by roaming stray animals living in the neighborhood, adding to the trash buildup on the hutong streets and back alleyways of the neighborhood.

Due to the extensive amount of garbage that exists within the project site neighborhood, vector issues with rodents is evident and of serious concern. During the research teams project site visits, the presence of rodents was evident by the obvious visible droppings and chewed through trash seen in front of and around many siheyuans. The potential for disease transmission by rodents is concerning and vector measures should be implemented to control this potential problem. While stray cats living in the neighborhood could assist in mitigating this problem, the evidence of rodents alone is cause for higher concern.
In general, air quality within the Country of China as a whole should be of great public concern. Air pollution from the use of fossil fuels in the transportation, agriculture, residential and industrial sectors has resulted in urban and rural air quality that is among the worst in the world (Zhang et al., 2010). Currently, China has four cities in the World’s Top Ten Worst Air Quality survey; Beijing (1), Chongqing (7), Guangzhou (8) and Hong Kong (9) (dailyfinance.com). Furthermore, 70% of the energy the country consumes is created through the combustion of coal, which when burned, emits high levels of sulphur dioxide and particulate matter into the air (Zhang et al., 2010). Additionally, major Chinese cities such as Beijing are adding on average 1000 new vehicles to the road each day (Zhang et al., 2010). These symptoms have led to a continued decrease in the overall air quality of urban city centers and the exposure of more Chinese to greater levels of industrial air pollutants. This is causing significant health problems to China’s general population ranging from various cancers to asthma. While the government has begun to implement measures to improve the quality of the country’s air, such as restricting automobile owners to only driving on certain days of the week, current air conditions have created a situation where acid rain and sulphurous smog have become more common in both urban and rural settings (Zhang et al., 2010).

Looking at the General Xie memorial site and the surrounding neighborhood, it can be seen that the area is subject to the same air quality issues as the rest of Beijing. While it seems that the neighborhood is more oriented towards the use of alternate modes of transportation, its geographic location near Zhushikou Street, a major Beijing thoroughfare, no doubt increases the level of air pollutants at the General Xie memorial site.

“The ecology of the General Xie memorial site suffers from the same handicaps as most inner-city areas in China. The processes of urbanization have degraded or effectively sealed earth and soil in asphalt and concrete. The resulting effects are that all residential water runoff and storm flows are immediately and automatically directed into storm drains, if they are even directed at all. This situation has not created opportunities to take advantage of groundwater recharge or retention possibilities. Compounding this problem is the poor condition of road infrastructure. Roads in the hutongs are crumbling away, having been broken apart by plant roots and potholes caused by seasonal freeze/thaw cycles. These asphalt roads also contribute to the urban heat island effect and are pervasive enough that they all but eliminate open/greenspaces within the project site neighborhood. This has a negative impact on wildlife habitat and air quality control, essentially environmental services, which rely on a strong ecology, supported by biodiversity, for the establishment of habitat for water recharge and the cleaning of air through carbon dioxide sequestration and particulate filtering.

In response to this condition, residents in the project site neighborhood have taken to gardening in small pots and planters and employing vertical gardening strategies. The pots and planters predominantly hold trees and ornamental plants, while small corners of asphalt, some barely one square meter, are used for vertical gardening of vining vegetables. As concerns over adaptability increase in the face of climate change, a re-imagining of public infrastructure design and a commitment to maintenance and upkeep are essential for the future viability of the project site neighborhood and other hutong neighborhoods.
The General Xie memorial site and the surrounding neighborhood are affected by many environmental climatic conditions that occur naturally as well as through man-made induction. By analyzing these factors, a deeper understanding of the complexity and circumstances under which the specific area functions and operates gives greater context to the project site and to the surrounding neighborhood areas.

Geographically, Beijing is a city that experiences extreme variations in climactic conditions. From the hot, humid days of summer to the cold, snowy days of winter, residents experience the constantly changing seasons from year to year. These seasonal changes manifest themselves in multiple ways but the major three conditions the research team chose to identify are sun, wind and water. Each of these three aspects of climactic conditions changes the way in which residents in Beijing and more specifically, the project site neighborhood experience their city from day to day, patterns through the city as well as facilitating the flow of air throughout the city and the project site neighborhood. Lastly, water is of particular importance due to its importance in providing people and plants with a needed water supply during the monsoonal summer season. Rain also facilitates the cleaning of the air, which is an overall benefit to all residents living in Beijing. Utilizing information garnered on sun, wind and water patterns in Beijing and from the project site neighborhood will provide future developments that could occur with the information necessary to build structures that adhere to the processes of these naturally occurring systems more effectively.

More specifically, the angle of the sun itself changes with the coming and going of the seasons. This in turn causes the temperatures of the siheyuan houses in the project site neighborhood to adapt to the climate. Furthermore, wind plays an important role in facilitating weather conditions in Beijing.

Sun
Sunlight and sun angles are important to comfortable seasonal living conditions in the Chinese siheyuan houses. The buildings in the neighborhood are generally positioned in a manner that is consistent with the traditional Chinese building methods, placing siheyuan houses on the north-south axis, with the smaller structures on the east-west axis (Refer to Section 2.1.c). This positioning of buildings allows for maximum benefit of sun angles during specific seasons, specifically in both the summer and the winter. During the heat of summer, the high angle of the sun is diffused by the layout of the siheyuan’s, keeping the space cool on a micro level. In the winter, the sun angle drops lower in the sky towards the equator, providing generally less light overall. The orientation of the siheyuan buildings also allows for maximum retention of heat during the winter with the north building accessing the greatest amount of the sun’s rays and generally staying the warmest of the four buildings.

Looking at the larger neighborhood context, adjacent high-rise apartment buildings have played two very different roles in impacting the redevelopment zone. On the one hand, adjacent high-rise apartments have also in some cases completely blocked the sun from striking certain portions of the neighborhood. This causes some of the traditional siheyuan houses to lose a portion of their effectiveness in regulating the seasonal warming and cooling that does occur. While only some siheyuan’s in the neighborhood still retain their inherent environmental diffusing programming, future developments in the redevelopment zone should incorporate these programming methods for diffusing seasonal temperature fluctuations.

“During the heat of summer, the high angle of the sun is diffused by the layout of the siheyuan’s...”
Understanding how winds impact the General Xie memorial site and the surrounding neighborhood is also vital to the context of the project. Different wind patterns in Beijing are prevalent throughout the year and mainly come from the north, products of both the Gobi Desert and Siberia. During the fall and winter, cold, dry air from Siberia ascends from the north, while during the spring and summer the wind patterns change and hot, dry winds come from the northwest and west. The intersection of the nearby mountain ranges of Taihang to the west and Yanshan to the north protects Beijing from the brunt of the winds coming from the Gobi and Siberia; one of the factors of why Beijing was built where it exists today.

On a micro scale, wind plays an important role in bringing air flow and heat relief to the General Xie memorial site and the local neighborhood. The memorial site and the neighborhood are situated on the traditional Feng Shui north-south lying axis and this alignment provides the greatest protection from the northern winds, with the larger north house of the siheyuan’s blocking a significant portion of the overall wind flow. Additionally, the open nature of the siheyuan courtyards allow for natural ventilation through the buildings that offers cooling effects as well as health benefits from the flow of air (Refer to Section 2.1.c). In the larger neighborhood context of the General Xie memorial site and the surrounding neighborhood, adjacent high-rise apartment complexes facilitate the increase of wind conditions in the area, as wind hitting high-rise buildings are either forced up and over the buildings or down and around the sides of the buildings. While high-rise buildings can mitigate the affects of wind, low lying buildings that are adjacent to openings on the side of high-rise buildings can be subject to increased flows of air during large wind occurrences.

The impact of water on the General Xie Memorial site and the redevelopment zone are of significance to the context of the project. On a macro scale, the City of Beijing receives an annual average of 586 mm or 23.03 in. of precipitation a year (Wei, 2005). Since the Country of China is impacted by the seasonal dry, monsoon type climate, 85% of the water that falls annually occurs during June, July, August and September, when the large monsoon weather patterns occur (Zhang, 2010). Alternatively, the months of October through April are relatively dry, with small amounts of precipitation still occurring during this period of time.

On a micro scale, the Xie Memorial site and the rest of the redevelopment zone are also subject to the same patterns of rainfall that the larger region experiences. Since a majority of the water in Beijing falls in such a short amount of time, residents generally utilize water catchment systems on roofs in order to be able to use the water at a later time for cooking and cleaning. While this may mitigate small amounts of the overall rainfall, ultimately the majority of water runoff reaches the street level and causes residents problems as has previously been discussed.
2.5.b.ii. Plant Ecology

With an emphasis on culturally significant and reliably performing plants, biodiversity within the Chinese landscape seems limited, even though China is historically the source for many ornamental plants that are well-known today throughout the world. Examples of these well-known ornamental plants include camellias, gardenias, jasmines and primroses to name a few. Through many centuries, plants and trees have received culturally significant meanings by the Chinese people. While these meanings seem to be of little importance to the current generation, older Chinese and many landscape architecture educators still hold these plant and tree meanings to still be culturally significant and of great importance to Chinese culture as a whole.

Through on site observations and photographic documentation, the research team was able to identify many of the plant and tree species growing throughout the project site neighborhood. The current plant palette that exists is comprised mainly of ornamental flowering species, vegetables and a mixture of fruit producing and non-fruit producing tree varietals. Summer vegetables observed by the research team are mainly comprised of various types of beans, pumpkins, cucumbers, eggplant, summer squashes, peppers, coriander and green onions. While there are many fruit trees with cultural significance to the Chinese, such as pomegranate and persimmon, few to none are found throughout the project site. Trees that do exist are largely planted from a palette of about two-dozen common species, most with prominent cultural significance. (Refer to Figure 2.5.b.12).

Growing conditions vary for most of the plants and trees located in the project site neighborhood, but generally conditions are less than ideal for plantings. Often observed were vegetables being grown in small dirt patches no bigger than two square meters. Additionally, vegetables were also seen growing in old paint buckets, wash tubs and on top of subject to poor growing conditions in the large garbage heaps. Trees were also subject to poor growing conditions in the neighborhood, with trees actually being built into the informal residences or buildings abutting or sometimes leaning up against the side of the trees. While most plant and tree species looked to be healthy throughout the project site, further studies on soil composition are needed to better understand the health and conditions of the soils.

Fig. 2.5.b.9

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Fig. 2.5.b.9

In general, trees are admired and highly prized by the Chinese. The extent of this admiration of tree’s cannot be emphasized enough, as entire freeways in China are reconfigured around old or historically significant trees in order to preserve them. It was because of this admiration and importance placed on trees by the Chinese that it was decided a tree inventory was needed for the project site neighborhood. This tree inventory was accomplished through on-site observation of species throughout the project site by two undergraduate landscape architecture students; one American and one Chinese. Trees were identified where possible, though some species with similar features proved hard to identify. Primary tree species include:

- Black Locust (Robinia pseudoacacia)
- Hybrid Black Poplar (Populus x canadensis)
- Chinese White Poplar (Populus tomentosa)
- Tree of Heaven (Ailanthus altissima)
- Chinese Pagoda Tree (Styphnolobium japonicum)

Fig. 2.5.b.10

2.5.b.iii. Tree Inventory

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- Chinese Pagoda Tree (Styphnolobium japonicum)
Fig. 2.5.b.11: Project Site Neighborhood Tree Inventory Map

Fig. 2.5.b.12: Significant Tree Species in the Project Site Neighborhood

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Locust</td>
<td>Robinia pseudoacacia</td>
<td></td>
</tr>
<tr>
<td>Chinese Mahogany</td>
<td>Ilex glabra</td>
<td></td>
</tr>
<tr>
<td>Hybrid Black Poplar</td>
<td>Populus x canadensis</td>
<td>Sadness</td>
</tr>
<tr>
<td>Chinese White Poplar</td>
<td>Populus tomentosa Carr</td>
<td>Sadness</td>
</tr>
<tr>
<td>Tree of Heaven</td>
<td>Albizia julibrissin</td>
<td>Father, Father (Mature), Spoiled child (Flump)</td>
</tr>
<tr>
<td>Petang Willow</td>
<td>Salix babylonica</td>
<td>Farewell</td>
</tr>
<tr>
<td>Siberian Elm</td>
<td>Ulmus pumila</td>
<td>Strength of will and Intuition</td>
</tr>
<tr>
<td>Cypress</td>
<td>Cupressus sp.</td>
<td>FAMILIAR</td>
</tr>
<tr>
<td>Chinese Magnolia Tree</td>
<td>Syzygium jambos</td>
<td>Beauty, Wealth</td>
</tr>
</tbody>
</table>
2.5.b.iv. Animal Species

Based on the research teams on-site observations, and as this is an old, well-established urban area, there were few native animal and insect species observed within the redevelopment zone. Animals around the General Xie memorial site were found to be predominantly feral pet cats and dogs, caged and local birds and local insects. For the most part, dogs seem to be pets and companions, while cats are primarily strays; though residents seem to care for and look after them regardless. Bird cages are often seen hung from house eaves as well as placed inside of residences for the enjoyment of the birds chimping and singing. In addition, the buzzing sounds of cicadas in the neighborhood trees can be frequently heard.

Of particular importance to the large amount of pet animal species in the neighborhood is the changing cultural acceptance of the Chinese towards owning dogs and cats. As China has continued to adapt more Western ways of living, dogs and cats seem to have become a part of this changing lifestyle movement. Traditionally, dog is enjoyed by the Chinese people as a cultural dish during winter months. But this has changed quite significantly, as was seen by the research team throughout the project site neighborhood. Along with these changes there come problems relating to pet ownership or lack thereof. Animal feces was observed quite frequently in the streets and in courtyards of siheyuans, with residents choosing to or not caring about cleaning up after the animals waste. Additionally, due to the lack of neutering, the large amount of cats in the redevelopment zone could pose future problems for residents and their pet birds.

2.5c Transportation Infrastructure

As the capital of China, Beijing is considered the central hub of the country’s transportation system. The intent of this chapter is to present a better understanding on the trend of the city’s transportation and the perception of local residents towards these changing trends. The analyses done here are important for a more successful design project that addresses all aspect of Beijing’s sophisticated and complicated transportation system.

2.5c.i Transportation History

Public Transportation

Public transportation in Beijing began during the 1920s when trolley was first introduced to the city. The Beijing government first established the trolley company in 1921 and by 1924 the first trolley opened for public use. By 1943, Beijing had 144 trolleys operating in 7 routes. The first bus system in Beijing was first launched in 1935 when the Beijing Municipal Government purchased 30 buses and opened its first route in August of that year. Since then, the number has steadily increased, see figure 2.5.c.1. As the boundary of Beijing started to expand during the mid 20th century, the network of bus routes also continued to increase and began to reach out for the suburban areas. Express and night buses also started to emerge, while long distance buses (i.e. to other provinces) started to expand. Towards the end of the century, Beijing experienced a huge influx of migrants to the city because of its increasing economic growth. During this time, Beijing saw rapid development of their transportation due to government’s increased public infrastructure investments. By the end of 1995, the number of buses in operation was close to 4,000 and the number of trolley buses reached 525. By 2000, the total number of buses in Beijing jumped to 15,445 – quadrupling the number in a span of just five years.

Up until the mid 1990s the public bus ridership and bus counts seemed to be tracking each other, see figure 2.5.c.1 and figure 2.5.c.2. In 1949, Beijing had a population totaling 4 million residents, the bus ridership was about 29 million – that’s equivalent to about 7.5 rides per person. That number increased to 66.5 rides per person per year in 1960. As Beijing’s economy strengthen and even more public transportation methods were added during the mid-1980s to early parts of 1990s, the ridership rates went from 175 to 285...
rides per person per year. But from 1995 to 2000, in spite of the substantial increase in buses, the bus ridership did not have the same percentage increase, partly because of new subway lines that were built towards the end of the 1990s. ("Beijing"; "History of Beijing Public Transport"; "Population estimates for Beijing").

The 1980s marked the time Beijing entered a new phase of public transportation as the first subway line began its full operation in 1981 (Wang et al). The planning for a subway system in Beijing started in 1953, formulated by the city’s planning committee with the help of experts from Soviet Union. At that time, the subway was viewed as a civil defense strategy. Construction began on July 1, 1965 in spite of controversies about parts of Beijing’s historic inner city wall that needed to be demolished to make room for the subway. In October of 1969, the initial subway line was completed with a total of 16 stations. This line had some technical problems and it went under trial operations until the late 1970s. It was not until September 15, 1981 when it was finally opened for full public use with 19 stations. Then in September 1984 a second line was opened. At the end of 1987, the two lines were reconfigured to form what is now known as line 1 that runs east to west and line 2 that runs circularly within the city’s central area. During the late 1990s, line 1 went on another expansion and new subway lines were constructed. When the city won its bid in 2001 to host the 2008 Summer Olympics, the city also began to build more subway lines. From 2002-2008, the city invested about $8 billion for subway projects. In 2011, Beijing has a total of 9 subway lines, including Batong line which is the extension of line 1 and the airport subway line. On top of that, the city has 3 separate subway lines that are now under construction which will extend some of the existing lines to the suburb areas. The Beijing government has launched their extensive plans for their subway systems; figure 2.5.c.5 shows a diagram of Beijing’s current subway lines and future subway lines to be constructed. If the government goes through with its plans, between now, 2011, and 2015, Beijing will almost double the number of its existing subway lines – from 9 to 16. Overall, since its opening in 1980s, Beijing’s subway ridership has consistently been increasing. The popularity of subways among the Beijing residents is due to its convenience: no traffic involves, transfer from one line to another is fairly easy and the fares are cheap. There are couple periods when Beijing’s subway ridership dipped below the previous year: between 1990-1991 when the subway fare went from 10 cents to 20 cents and between 1995 Beijing has a total of 9 subway lines, including Batong line which is the extension of line 1 and the airport subway line. On top of that, the city has 3 separate subway lines that are now under construction which will extend some of the existing lines to the suburb areas. The Beijing government has launched their extensive plans for their subway systems; figure 2.5.c.5 shows a diagram of Beijing’s current subway lines and future subway lines to be constructed. If the government goes through with its plans, between now, 2011, and 2015, Beijing will almost double the number of its existing subway lines – from 9 to 16. Overall, since its opening in 1980s, Beijing’s subway ridership has consistently been increasing. The popularity of subways among the Beijing residents is due to its convenience: no traffic involves, transfer from one line to another is fairly easy and the fares are cheap. There are couple periods when Beijing’s subway ridership dipped below the previous year: between 1990-1991 when the subway fare went from 10 cents to 20 cents and between 1995
and 2000 when the fare increased from 50 cents to 2 yuan to 3 yuan, see figure 2.5.c.4 ("Beijing Subway History"; "Beijing Subway Map 2010 to 2015). Beijing residents do seem to immediately react negatively when subway line fares are increased but their reactions are only temporary since they tend to increase their ridership right after. This behavior only signifies that Beijing residents will continue to utilize their subway system as one of their primary mode of transportations as long as the subways are in operation. While the streets become more convoluted with privately-owned and commercially-owned cars resulting on more traffic jams, the subway becomes a preferred choice as one of the primary mode of transportations. Not only has public transportation been used as the primary mode of moving from home to work within Beijing, it has also been used for personal trips (e.g. vacation). Generally, the percentage of public transportation use for personal trips is slim but this percentage has been increasing over the past few years, see figure 2.5.c.6. As the number of public transportation increases and buying and registering personal cars become more stringent (see Car Ownership and Gas Emission sections of this chapter), residents will only continue to increase their use of public transportation.

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Fig 2.5.c.5: Beijing’s subway lines

Fig 2.5.c.6: Percentage of public transportation use as personal trips in Beijing

Fig 2.5.c.7: A crowded tunnel to a subway line
While Beijing has many forms of public transportation, the emergence of private transportation has increased greatly throughout the years. As China aims to become a super power, the presence of personal vehicles has grown tremendously. Beijing’s types of private transportation include:

Bicycling
The bicycle was first introduced to China in 1860 by a European official, named Binchun, who had just visited Paris, France. Until the end of the 19th century, the only people who used bicycles in China were foreigners. It was not until the 20th century that expensive imported bicycles were sold to the Chinese. The high prices restricted the opportunity of riding imported bicycle to only the wealthy. During the 1920s, the high prices restricted the opportunity of riding imported bicycle to only the wealthy. During the 1920s, the high prices restricted the opportunity of riding imported bicycle to only the wealthy. During the 1920s, the high prices restricted the opportunity of riding imported bicycle to only the wealthy. During the 1920s, the high prices restricted the opportunity of riding imported bicycle to only the wealthy. During the 1920s, the high prices restricted the opportunity of riding imported bicycle to only the wealthy. 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Automobile Accidents
Road safety is an important issue in China especially since motorization has accompanied the country’s economic boom. The rapid development and increasing vehicular growth in China have resulted in a substantial increase in automobile accidents. Traffic accidents in China reached its peak in 2002, see figure 2.5.c.10, when it experienced 773,137 accidents and 109,381 death casualties (Wang et al). In 2008, a total of 265,204 road traffic accidents were reported in China in which 304,919 injured and a direct property loss of 1.01 billion Yuan. Compared to the previous year, 2009 showed that road accidents were down by 19% and the number of deaths went down by 10% (“China’s Road Traffic”, 2009).

Even though the number of fatalities has declined significantly since 2002, safety remains a critical issue in the country. Without enough attention from the central government and major new initiatives, road safety will continue to be a major issue for the country.

Transportation to and from major landmarks is extremely important for tourism and makes for a great test of the public transit system. Fig 2.5.c.11 displays some of the major landmarks within Beijing and the corresponding rail line that connects each landmark to the proposed site. These landmarks were chosen as places of tourism or major hubs for big groups of people. This study shows how the proposed site for the memorial can become easily connected as a new major landmark among the existing.

This leads to a great opportunity in this area as it can bring additional revenue and more interest to the historic district at the memorial.

Parking Conditions
The lack of parking space is a citywide problem in Beijing. Beijing’s parking infrastructure is unable to keep pace with the growing car population and with nowhere to park motorists often have no choice but to park illegally on bicycle lanes, on curbs and even on pedestrian walkways. The city does not have much room for parking spaces above ground either and analysts believe any solution will require significant investments for underground or multi-storey parking facilities (Siow, 2011).

Beijing had parking spaces for 650,000 cars in 2003 when the city only had 1.57 million vehicles. It has since been expanded and can now accommodate up to 1.3 million vehicles; however, the number of cars has reached nearly 5 million by December 2010 (Chinadaily, 2011). In addition to limiting the number of new car license plates that can be issued annually (see Gas Emission section of this chapter), the government also raised parking prices in an attempt to ease the parking conditions.

2.5.31 2.5.32
problem. Parking fees were last increased on April 2011 and study has shown that it has produced some positive outcomes – Beijing Transportation Research Center recorded a 1.5% decrease in the use of private vehicles and a 3.5% increase in public transport ridership between April-July of 2011. The other problem is that most of the buildings in Beijing were built in the 1990s that have no underground parking lots and the ones that are built recently have very few well-designed and efficient parking facilities. Still residents would prefer parking their cars in places where there is no parking fee. Eventually, as the Beijing government starts to build parking facilities, the traffic wardens become the key in ensuring that parking regulations are followed (Wei, 2011).

In regards to the project site, unfortunately immediately around the project site, no public parking structure is available. Most parking structures are located west of the site along the Jiaozhi Hutong and two other locations east of the site – all within walking distance, see figure 2.5.c.13. Even though the street along Jiaozhi Hutong and Shuru Hutong can be used for parking, the spaces are not enough to accommodate the number of cars that go to the site. As there is no formal on-site regulations on parking, parking enforcement on the site is determined by the local residents who make their own marks by painting signs on the walls of their properties and utilities to indicate where people cannot park their cars. Another strategy that is being used is placing bricks on the side of the street to make it impossible for cars to park, see figure 2.5.c.12. Residents’ main attitude towards parking is pretty much simple: their car/bike/motorcycle will park wherever they fit to park.
2.5.35

2.5.36

Online research was conducted in tandem with on-site research to better understand the technical terms of the street system in China.

On-site research: 
Part of our on-site research included measuring the width of streets. Because of the variety of street widths in China, one could not easily take a standard size for the street. In order for the team to get best possible measurement one person was chosen to measure the different street types by counting steps. Furthermore, the number of cars present across the width of any one street were recorded in order to validate these measures taken by the steps.

Observational research:
A portrait of the research that was done on-site was observational research. This allowed the group to experience the various transportation systems offered throughout the city including: taxi service, the subway, the ring-roads, and most importantly the site. The team employed other observational techniques that included:

Descriptive observations used for: street usage, transportation pathways, and safety.

Continuous monitoring used for:
- time lapse, density of transportation by types, and traffic density study.

Studying of physical traces used for:
- material change and parking conditions of the site.

While the research proved to be substantial and informative, because the site was new to our team members there were obstacles that prevented the acquisition of exact data. Online research was hindered due to the fact that the People's Republic of China is Communist and they limit accessibility of internet website. The interviews themselves were a success because the research proved to be substantial and informative, because the site was new to our team members there were obstacles that prevented the acquisition of exact data. Online research was hindered due to the fact that the People's Republic of China is Communist and they limit accessibility of internet website. The interviews themselves were a success because of the variety of street widths in China, one could not easily take a standard size for the street. In order for the team to get best possible measurement one person was chosen to measure the different street types by counting steps. Furthermore, the number of cars present across the width of any one street were recorded in order to validate these measures taken by the steps.

Keen observation was needed to study how residents use each of the different types of streets of the project site and to understand the materiality of the roads, as well as issues related to safety. Cross-sectional studies – both the principal thoroughfares surrounding the site and the local: hutong street type of the site – were conducted to spatially understand its relationship to the surrounding structures.

To understand the activities that happen on these local: hutongs, a time-lapse experiment was conducted. In this exercise, a camera was set at one location on a tripod. Looking at the same view throughout the experiment and without altering the camera settings, then a picture shot was taken every 3 minutes to capture the activities that happened within the given camera frame. The exercise was done on a Monday from 4:45 pm to 7:24 pm. The results were then tabulated to show the number of pedestrians, bikes, motorcycles and cars counted for each 3 minute.

To understand the experience that pedestrians take as they travel from the nearest subway station to the project site, the project team walked through the same path that the team believed typical residents would take. To record the experience, starting from the subway station, a photo is taken every 35 steps by the team member responsible for the photos. Each of his steps is equal to 26 inches or .66 meters. Each photo shot captured a moment, thing or place that best described that given moment – whether it’s the smell of the cigarette or the noise of air condition.

To better comprehend the locals a study was done of the local population by counting the number of individuals and transportation methods at the site at one particular time. This data was then divided into three main types: pedestrian, bicycling, and automobile. This allowed for an in-depth analysis of how the number of pedestrians broke down into the three age groups: the young, the adult, and the elderly and then broken down further into male and female. For the bicycling the data was broken down into bicycles that were solo versus the ones that were not. This same principle was applied to the vehicles.

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2.5c.iii Interviews

A few residents in the area were interviewed to gain basic understanding on their perspectives on Beijing’s transportation system and most importantly, their observations on the modes of transportation in the area. A series of 9 standardized, open-ended questions concerning transportation were asked. Two members of the team and with the help of Chinese students that were working with team, interviews were conducted in Chinese and were recorded using a voice recorder. The answers were then translated to English for easier comparisons. All the interviewees were asked the same questions in order to facilitate for faster interviews that can be more easily analyzed and compared.

The interviews were designed in order to get information from an “insider”. Because the group’s unfamiliarity with the site and its characteristics it was important to get a better understanding of the types of transportation methods locals use and also get their perspectives on transportation. Interviews were conducted in pairs consisting of one group member and one of Chinese student partners who would translate the questions into Chinese and then translate the answers into English.

Here are the questions that were asked:
1. How do you get to work?
2. How long is your commute? What time do you leave for work and what time do you return home?
3. Do you have a car? Where do you park?
4. How many modes of transportation do you use daily?
5. Is it convenient to “own” a car in Beijing? Is it convenient to “use” a car in Beijing?
6. How do you feel about traffic in Beijing? How does the city deal with traffic in Beijing?
7. In what ways is the subway system effective? In what ways it is ineffective? Are subway stations conveniently located for you?
8. In what ways is the bus system efficient? In what ways it is inefficient? Which bus lines do you use? Do you have any suggestions to make the bus system better?
9. Is it convenient to bike in Beijing? How far would you travel by bike? By walking? By car?

The first person we interviewed was a middle aged Beijing native who is a retiree. She usually cycles to her mother’s house or goes to the nearby park in her free time. She stated that her husband cycles to work and her son takes the subway to work on the weekdays. According to her, most Beijing natives in the neighborhood do not own a car and the cars at the site belong to residents who migrated from other parts of the country to work in Beijing. She thinks the subway is convenient but she does not use it very often because it is too hectic for old people. She prefers to use the bus even though it is often crowded and sometimes traffic jams affect it. She added that bicycling is the most convenient mode of transportation in the city. When asked about the changes in the area she answered that the number of cars keeps increasing every year and the streets around her home are getting more crowded.
We interviewed a male teenager who is a student living in a nearby apartment. He leaves home at 5 a.m. during the week and walks to his school which is about fifteen minutes away. He also uses the bus, subway, and taxi to hang out with his friends. He prefers to use subway because it does not get affected by traffic jams. He also added that he would usually cycle to destinations that were less than ten minutes away. As a Beijing native he has noticed a lot of transformation in the transportation system, he mentioned that the number of cars has increased drastically and the subway system is much more efficient than before. When asked about the convenience of having a car, he said that it is not very convenient because of the current traffic conditions but would still like to own one when he is older.

This working class man has been living in the hutong neighborhood his entire life. He uses an electric bicycle to get to work which is about a 10 minutes ride from his house. He claimed that he seldom walks but rides his bicycle to go anywhere around the area. If he has to travel far distance, he prefers to use the subway because the bus has a long waiting time. Even though he works as a mechanic, he believes that driving in the city is not very convenient, mostly because of the traffic jams.
Nurse
Age: 33
Occupation: Nurse
Residence: Hutong
Name: Declined

We interviewed a young working class woman who had just returned from her work. She usually leaves for work at 7:30 a.m. and gets back home at 6:00 p.m. Her length of commute to work is about an hour and a half, one hour by bus and another half an hour by subway. She finds the subway lines to be very convenient but the bus system needs to be improved because it is too crowded and she spends a long time in the bus to get to her destinations. According to her she has only been living in Beijing for three years but she notices the traffic jams have worsened a lot even though the public transportation has been improved.

Retired Worker 1
Age: 71
Occupation: Retired
Residence: Hutong
Name: Declined

This elderly man spends most of his retired life around the area. He walks to the park across Fayuan Temple twice every day, at 8:00 a.m. and 3:00 p.m. He takes 10 minutes to walk from his home to the park and spends about two hours in the park for each visit. He feels that the subway is too crowded and is not practical for a person his age, claiming that he had only used the subway twice throughout his whole life. He prefers to use the bus because it is cheaper and more comfortable than the subway. He also does not feel the need to own a car in the city since he only spends most of his days around the neighborhood. He still thinks that walking and cycling are the best way to get around the area.
Retired Worker
Age: 75
Occupation: Retired
Residence: Hutong
Name: Declined

This elderly woman is another retiree that we interviewed. Similar to the other retired interviewees she enjoys walking to the nearby park everyday or walking around the neighborhood as a form of exercise. She added that when she was younger she used to ride her bicycle for 40 minutes every day to get to work. When asked about the convenience of owning a car, she responded, “I know traffic jams are a problem in Beijing, but I think a car can provide a lot of convenience for me. Not in terms of time travel but in terms of comfort.”

Interview Findings
All of the interviews give valuable insights of how people use transportation within and around the hutong neighborhood. One of the repeating concepts from the interviews is that the older residents seem to regard the bus and bicycle as the most convenient modes of transportation while the younger residents prefer to use subways. All of the people we interviewed do not own a car, however most of them show the willingness to own one if their economic conditions permit.
In China, streets and roads are much more than a place of passage. Rarely are these considered to be a space, but rather they are seen as places that are occupied for short amounts of times as someone or something passes through them. In Beijing, especially at the site of the memorial and other historic neighborhoods, the street is a gathering space that serves multiple purposes.

In China there are many classifications for street types. For the purposes of this study the streets have been renamed to:

**Freeway:** Huán Lù (Fig 2.5.c.25)

Huán Lù are major vehicular thoroughfares that consist of multiple lanes - in some cases they contain more than 8 lanes. Some freeways can be as high as 300 feet. Crossing the pedestrian crosswalk can be a spine-tingling ordeal because of its width and the parameters upon which Chinese traffic operates with bike lanes, two way traffic, and driving habits.

**Collector:** Shengdao (Fig 2.5.c.26)

Shengdao are vehicular passageways that are narrow when compared to the freeway. Characteristics for the Collector: Shengdao include a four lane-two way passage way with two lanes dedicated to moving traffic and two lines dedicated to parked vehicles. These passageways tend to be around 90 feet in width. Crossing the pedestrian crosswalk is also quite the ordeal as the crosswalks in these smaller passageways don’t have visual signals dedicated to the pedestrian.

The Local: Hutong (figure 2.5.c.27)

Hutong is the narrowest type and is the most ancient transportation typology. These streets are typically around 14 feet wide but vary due to the fact that they have evolved haphazardly since ancient times. Moving through the local hutong is quite different than moving through other arteries. Their narrow quality and scale allow for a more pedestrian-oriented experience. These paths are wide enough to hold a car; however, since the local hutong is an older urban typology they are limited.

The local hutong paths around the site are places full of life that are used for: eating, social gatherings, spaces for storage, grounds for gardening, place for drying clothes, niches for shop owners and businessmen, a playground, and pathways for means of transportation. The dynamic nature of these old, historic paths has lead to an ultimate elasticity to communities within the area. Communities can change their interests and mold their surroundings to form the community that they want. By appropriating space in the street, people are able to mark and change the entire facade, feel, and look of a neighborhood. Depending upon the activities of the residents, the feel of the neighborhood can be completely altered. This becomes especially interesting when planning for a neighborhood since entire populations of people can be altered so quickly.

**2.5c.iv Road Characteristics**

**Street Types**

**Freeway:** Huán Lù (Fig 2.5.c.25)

**Collector:** Shengdao (Fig 2.5.c.26)

**Local:** Hutong (figure 2.5.c.27)

Major streets in Beijing, such as the Freeway: Huán Lù lack the human scale that is associated with the smaller, more intimate Local: Hutong streets. These large intersections become hazardous locations for pedestrians and bicyclists who share the intersection. These wide roads never become spaces of congregation and are often associated with negative typologies such as pollution, noise, crime, danger and their primary service is moving units of transportation only. This section shows that intersection and the huge difference in scale between the residents and the actual building, sidewalk, and street.
Streets in China have very subtle boundaries. The Collector: Shengdao typology is an example of the many uses it can provide. The section below allows for the unobstructed view of a typical street in Beijing. Cars are typically parked anywhere they can find parking, even on public sidewalks. The areas where they are parked is usually right in front of stores, hindering the sidewalk opportunities.

Fig 2.5.c.26: Analysis of Shengdao

Streets near the site are very narrow. This typology is known as Local: Hutong. This typology adds to the homey feeling associated with the community. The sense of safety talked about in this chapter can be demonstrated by the level of proximity that the human shares with the Local: Hutong. Because roads are based on human scale rather than of the car, they lead to more successful urban spaces. People don’t feel unwelcomed in the streets because they fit to their own size and serve their needs.

Fig 2.5.c.27: Analysis of hutong
Major street types such as the Huán Lù and Shengdao, as well as the hutong streets can be easily distinguished not only from its size and location, but also from the types of materials found within each type. These three street types have obvious differences as seen in figures 2.5.c.28 and 2.5.c.29. Huán Lù and Shengdao serve as a roadway for public transportation, private vehicles, and are more accessible to the general public, more pleasant aesthetically, and better maintained.

The hutong streets, on the other hand, are used primarily by the people who live in the area and are less maintained. They have direct access to homes and are more deteriorated compared to freeways and collector types. The hutong streets do not have designated sidewalks for pedestrians but are often regarded as the most important public space for the community, where people can relax only doorsteps away from their homes. As a result, the hutong streets are often filled with residents’ personal items that occupied the side of the streets.

Hutong streets use materials that are less durable and also lack the proper maintenance and improvement that occur routinely on Huán Lù and Shengdao.

The differences between Huán Lù and the Shengdao have with the hutong streets do not only exist in their upkeep and presentation, but also in terms of their safety. Huán Lù and Shengdao are complemented with facilities such as signage, lighting, and lane divider that help create safer environments. However, the high density and high variety of users often created a chaotic and dangerous traffic condition as traffic rules are often neglected. Designated bike lanes are still available on these types of streets around the site however they are often shared with car park facilities, therefore limiting the space for riders.

Hutong streets are less occupied by private vehicles and are not regulated as much as major roads. These streets tend to feel safer because they are used mainly by pedestrians and also because of some of the features of the streets. Hutong streets are quieter and narrower compared to Huán Lù and Shendao and can slow down the flow of traffic with turns and rounded corners. Since the streets within the site are shared as communal gathering space, it is imperative that the streets be safe to the local residents to ensure their continued usage. Additionally, any minor defects on street surface can cause a cyclist or motorcyclist to topple and they can also become a health hazard during rainy season. Implementing tools that promote safety such as signage and lighting are very crucial for the proposed project.
A street is generally seen as a place that is occupied only for short amounts of time as someone passes through it. However, streets in China are much more than just a place of passage. At the site, the streets are utilized as gathering space that serves multiple purposes. The figure to the right illustrates some of these observations. The local residents are using the streets as space for eating, playing, social gatherings, storage, gardening, business, and of course a pathway and passage for means of transportation. The dynamic nature of these old, historic neighborhoods leads to an ultimate elasticity to communities within the area. Community activities are often practiced along the streets, creating a characteristic that is unique to the neighborhood. By appropriating space in the street, people are able to mark and change the entire facade, feel, and look of a neighborhood. Depending upon the activities of the residents, the feel of the neighborhood can be completely altered. This becomes especially interesting when planning for a neighborhood since entire populations of people can be altered so quickly. With the streets being informally used as the extension of their homes, it is very possible that this community would continue to use the streets, demonstrating their sense of belonging to the community.

Fig 2.5.c.32: Activities that happen in hutong streets

Fig 2.5.c.33: Pathways located within hutong streets
2.5c.v Mass Transit Lines and Hubs

Transportation in Beijing is simple and effective; however, it lacks the volume of transit for the number of people in the city. Subway lines are overcrowded and streets are in full bumper to bumper traffic for most of the day. Many of the local residents do not even feel that owning a car is particularly advantageous and that it is actually better to get around by bicycle. The study of the bus and underground rail systems to the right show us that the system is very widespread and covers the entire city. By showing the distances of traveling twelve minutes by walking, and twelve minutes by bicycling, it gives the sense of scale to the site that allows for a fairly simple walk or very easy bike ride from the nearest subway station to the proposed site. Just north of the site is a major intersection of two major subway routes, implying that there is a lot of traffic in close proximity to the site’s district.

The bus routes nearest to the site that are most effective at moving people are routes 23, 34, and 343. These are all less than a 1km walk (approximately twelve minutes) away from the site. This makes transit to and from the proposed site quite accessible without needing much further infrastructure. The major street just north of the site is also a great spot for taxi services to take passengers directly to where they need to go.

Fig 2.5.c.34 Existing public transportation routes around the proposed project site

2.5c.vi Traffic Studies

A time-lapse study was conducted in order to capture the amount of traffic through a section of the hutong street type. This study was conducted by setting a camera on a timer and taking a picture of the same spot over a period of roughly two hours and thirty minutes, with a picture being taken every three minutes.

The time lapse took place near a popular gathering space within the hutong gives insight to the way vehicles, bicycles and pedestrians work in the space.

Fig 2.5.c.35 Time-lapse images
The results of the time lapse, fig. 2.5.c.35, show that the back alley is quite commonly traversed path, mostly for travelers who do not live in the area but use it to travel from one place to another. Although the camera is taken only once every three minutes and the probability of having a car in the frame is much lower than that of a pedestrian, these results tell us that there is quite a heavy passage of both vehicle, and pedestrians. Volume of passage dropped dramatically around the hour of 6pm but picked up shortly after. This, after all, was taken on a Monday. Perhaps this hour is the time commuters are coming home or are just refreshing before going back out after a long day of work.

Table 2.5.c.38: Breakdown of time-lapse result

<table>
<thead>
<tr>
<th>Time</th>
<th>Ped</th>
<th>Bike</th>
<th>Motor</th>
<th>Car</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Day 2</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Day 3</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Day 4</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

The main form of transportation within the site is walking. Small streets accommodate foot traffic, although the percentage of vehicles is extremely alarming for the size and breadth of the site. However, it is representational of China today. Because the car is becoming ever more present in Chinese culture, the amount of bicycles, pedestrians, and subway and bus riders are decreasing. Chinese residents are still finding ways to try and fit their cars into the hutongs which are not designed to accommodate such cumbersome elements.
This aerial time lapse of the placement of various transportation units exemplifies the volume and density of units within specific areas of the temple site. Much of the activity of movements happen toward the very western most area of the site and the area most eastern. These areas serve as passage locations for people going from one neighborhood to the next but who do not necessarily live in the area.

Since the roads from the west to the east go from larger to smaller and from public to more private, it is assumed that less traffic will pass through these areas. The data across this spread shows that vehicles do not pass through the site from west to east, but rather from north to south. These north/south axial roads link this neighborhood to other neighborhoods and many people who live there like to pass through the historic site on their way home from work (according to the interviews of the residence).

Continuing with this study, it was found most of the west/east transportation occur on the southern most passageway in front of the memorial entrance. Three intersections of importance were found through this study - the corner at the southeast, northeast, and southwest. These areas are particularly active in terms of pedestrian, bike, car, and other transportation methods not mentioned. This shows potential for key locations of future development.
Although a study of motion can tell many things about the site, the absence of motion can also be extremely revealing. By studying where people tend to gather in the streets we can begin to infer why those spaces are particularly useful and why those streets become the social spaces of the neighborhood. The time lapse across this spread shows the study of subjects not in motion - those who were either stationary or doing something other than passing through a space and had some sort of activity associated with them.

As predicted, common gathering places are those that have food served or have some sort of communal aspect to them such as a restaurant or shop. One of the most common areas found were in the northeast corner, and the southwest corner of the site. The fact that these two street gathering spaces happen to be opposite ends seems to suggest movement within the site. This would entice pedestrians to move from one node to another. This would render the in between streets as more of passages.

Because streets are normally seen as passage spaces, this study takes into account the social aspect of the streets and their multiple uses. Streets in this case are used more for communal gathering space and less for passage, as there are many more subjects who are lingering around and participating in some activity than those who are simply passing through. In order to revitalize this area, it is extremely important to take into account existing conditions and current areas of use within the site’s streets and pathways.
The Pedestrian Experience

There are many long stretches of roads around the site that do not offer many activities other than just as a connection. This condition may discourage people to access the site since it is not located near popular destinations. The sequence at left demonstrates the experience from the subway to the site, with each image shot in an increment of 50 steps.

The site is located in a residential district and the entrance to the site at the far northeastern corner is where most of the pedestrians within the site enters. Most of the local residents use this entrance because it is away from the main road and also because it is shady during the day and well lit at night, creating a pleasant community feeling upon entering the hutong area. If more variety of businesses and activities are available around the site, there is a greater opportunity to develop the site and making it a popular new destination in the city.

2.5c.vii Opportunities & Limitations

Opportunities

- The project site presents a unique opportunity for integration of people-oriented programs that cater to both motorized and non-motorized traffic. These types of integrations are critical in creating livable environments.
- The site has good connections to other historical sites in Beijing allowing for an appropriate, well-designed project to boost the economy of the area. These historical sites include the Fayuan Temple to the south, Tiananmen Square and Forbidden City to the northeast and Temple of Heaven to the east.
- A potential project for the site can enhance the transportation quality of the neighborhood. The new project can repair the transportation infrastructures of the area making walking and cycling more enjoyable routines.
- The new development can also have the option of making the hutong neighborhood a more pedestrian and bicycle-friendly, potentially not allowing for any motorized vehicle to use the surrounding hutong streets.
- If new parking regulations are needed to implement, this new development can set the new model in implementing such regulations.
- Once this new development become more popular to Beijing residents outside this neighborhood, as well as to any visitors of the city, additional public transportation (e.g. buses) will needed to be routed through the area to help ease the public access to the site.

Limitations

- The high density apartments in close proximity to the site may significantly affect future users in terms of privacy, noise, and perception of safety.
- The narrow widths of the streets surrounding the project site can present some accessibility problems. Besides being problematic during the construction of the project, the presence of local residents along the hutong streets and the proximity of their homes to the streets would also potentially limit the ability to improve and enhance these streets.
- The current uses of the streets around the site and their compatibility with the proposed project in terms of private and public space would also pose as a limitation of the site.
- Since the streets surrounding the site are much smaller compared to the newer arteries in the city, roads that are frequently used by local pedestrians, cyclists, and slow-moving cars would become too dangerous if they are opened up to be made more accessible from busier roads.
- Parking can also become an issue later on especially if the project is commercially-driven. Additionally, residents may resist any new parking regulations that needed to be implemented even if these regulations are aimed to create a more organized maneuvering on the neighborhood.
Phase 2: Urban Proposals

The preceding site analysis was used as a base to brainstorm on potential uses that could be strategic interventions to develop the Hutong area around the Fayuan Temple in the historic core of Beijing. In this section, key projects are displayed that represent an array of ideas that were developed through brainstorming sessions among student-faculty discussions. The intent of these proposals is to raise awareness of the issues at hand that are occurring in the threatened communities.

In these projects, participants raise a mood of possibility and hope in a place that has lost so much of its historic urban fabric to rapid urban development. Multidisciplinary teams immersed themselves into an intensive and invigorating process of great visions, compromise, and deep ethical reflections in the design of the built environment.
3.1 The Shadow of the Flower: Empowering and Re-investing in the Youth
Shadow of the Flower
Center for Youth Empowerment and Artistic Expression

3.1.2 3.1.3

FI
RS
ST
FLOOR
CM
ME
RC
AL
SS
ST
MME

Perfoming Center & Gallery Spaces
Workshops and Stores
Brick Hardscape
Paved Walkways
Softscape
Water Features
NewTreas
ExistingTrees

Legend

Figure 3.1a.1  Project Site Overview

Aerial View
Adapted Courtyard Scheme

Program Elements
Night Rendering

Master Plan

PATH
SECOND FLOOR STUDIOS
THIRD FLOOR RESIDENTIAL
PARK FLOOR COMMERCIAL

3.1.2 3.1.3

Figure 3.1a.1  Project Site Overview

Aerial View
Adapted Courtyard Scheme

Program Elements
Night Rendering

Master Plan

PATH
SECOND FLOOR STUDIOS
THIRD FLOOR RESIDENTIAL
PARK FLOOR COMMERCIAL
The Shadow of the Flower

The Shadow of the Flower is a foundation aimed at empowering and reinvesting in the youth of the Xuanwu District. The shadow of the flower conjures a variety of images that help with the vision of this project. The flower represents the potential of each child’s expression, exploration, and discovery of their identity through artistic expressions, learned skills, or community building. Our focus is on the shadow, but the intention of the foundation is to encourage the flowering and growth of a diverse and tolerant community through youth empowerment.

Challenges and Opportunities Facing Chinese Communities

This project responds to four challenges facing Chinese communities:

1. Multi-ethnic communities
   The project site is located within a multi-ethnic community. Currently, about 90% of China’s population is Han while the rest of the population is composed of 55 ethnic minorities from different provinces.

2. Depression of the youth
   In general, the youth in China deal with a variety of stress in their everyday life. Without an appropriate outlet in which to express their fears and anxiety, children can experience extreme depression. The focus of the project is to create a safe environment for local youth to openly discuss their fears, challenges, and issues, while providing an artistic outlet for them to freely express themselves through traditional and contemporary art.

3. An aging population
   The current condition of the site consists of deteriorating building stock and an aging population. The area is surrounded by high-rise developments, stressed by the rapid destruction of many hutong neighborhoods. Due to the quick transformation of the area and the modernization of China, young people are moving away and seeking a more contemporary lifestyle. This project is an intervention that supports a younger neighborhood and greater community building efforts. By creating a safe place for youth to participate and belong, this project will create a social and artistic hub that will support a variety of programs and extended communities.

4. Internet restrictions
   China’s government has hindered free expression through Internet controls and restrictions. Artists such as Han Han and Ai Wei Wei have become national and global sensations as they respond to the censorship through art and media. Both artists have used online blogs and websites to share and spread their ideas and inspire a younger generation to mobilize and react. Han Han says, “I’m not asking or requesting much – I just hope that all the people in arts, all the literati, painters, and directors can work in an unregulated and uncensored environment” (cnn.com). Media is the main tool used by such artists and can be an opportunity for our project to reach out to the youth through such global media outlets.

Of these 55 ethnic minorities, 36 are represented in the Xuanwu District (www.bjxw.gov.cn). Chinese ethnic minorities have been victims of discrimination and forced assimilation for centuries. Despite the purposeful and open discrimination towards minorities, the discrimination these communities face is rarely discussed.
This project is posed on four opportunities discovered in the site analysis:

1. Political insecurity and fear of modernity
The project responds to the political insecurity and fear of modernity that was observed in the site interviews. Select interviews revealed a fear of the government as well as anxiety of impending change. This project sets out to create a safe environment and programs that facilitate open dialogue and a community forum.

2. Community within the hutongs
The evolution of community through public spaces is ingrained in the history of the hutongs. The natural evolution and location of existing social hubs will serve as potential social areas in the new development. This will allow for greater continuity, familiarity, and easy integration into the new framework.

3. Migration of the youth
The migration of youth away from the hutongs provides an opportunity to attract and reinvest. Many community members from the site are aware of the disappearance of young people in the neighborhoods and the overall aging of the community. Without a community or sense of place for young people to take root, hutong communities will simply die off.

4. Loss of traditional art forms
The loss of traditional art forms and cultural practices is a phenomenon affecting all of China. Since the Open Door Policy, China has allowed for a rapid modernization and westernization of both the built and social environments. Support is needed in order to balance rapid modernization with the conservation of traditions and cultural practices. The youth are prime targets since this generation is heavily influenced by modernization trends. By teaching the youth traditional principles, new adaptations and expressions can be created to help stabilize potential cultural losses.
What problems are the youth facing?

Chinese students have begun to face pressure and challenges associated with career choices and educational options. Pressures to succeed at school and work have caused higher rates of anxiety among students (Moore, 2005). Furthermore, current students have begun to place more importance on individualistic goals and materialism. As a result there has been a loss of traditional values regarding sociability, cooperation, and responsibility (Moore, 2005).

The rise of the Western lifestyle has also brought common Western social ills. According to UNICEF about 30 million teens under the age of seventeen in China suffer from psychological problems. (Moore, 2005). One study conducted at a middle school from psychological problems (He, 2006).

30 million teens under the age of seventeen in China suffer from psychological problems.

... segregate, oppress, and forcefully integrate the Hui people...

This differentiation based on religion and traditions has caused tension between both groups. The Han people use their power as the dominant group in China to segregate, oppress, and forcefully integrate the Hui people into their mainstream culture (Atwell, 2003). Since the Hui remain a fraction of the population they do not have any political power nor do they have control over any resources in the states and provinces. The Han people have launched different strategic plans against the Hui people. One of the strategies is to peacefully co-exist (Cooke, 2008).

What problems are ethnic minorities facing?

This approach is very difficult for the Hui people since they feel pressure to integrate into the Han community while at the same time there is pressure to preserve their Islamic identity and culture. This pressure has produced two reactions from the Hui people. One of the reactions is to succumb to the pressure and assimilate since the Hui people depend on the political order and governmental systems run by Han people (Cooke, 2008). The other reaction is to unite in order to combat the pressure of assimilation and strive to preserve their Islamic-Chinese identity (Cooke, 2008).

Since the Hui people are just a small fraction of the population they fear that their identity will be eradicated and assimilated through forceful Han assimilation tactics and discrimination. At one point there were about 50 million Hui people but as of 2004 only about 10 million Hui people remain in China (Atwell, 2003). Therefore, within the project’s mission of safety lies a common thread of diversity and tolerance. The project will create opportunities for a variety of ethnic minorities, including the Hui people, to communicate across different backgrounds and ethnicities. The empowerment and expression of the minority youth will create a dynamic and specific venue for Beijing.

In response to the Chinese authoritative Government, we may encounter difficulty in keeping our doors open if the government views our organization as a threat. In order to prevent the closing of our program, we will involve the international Muslim community and international artist that can raise awareness and prevent the closing of our organization. The Shadow of the Flower will actively seek funding from local to international non-profit organizations like Ullens Center for Contemporary Arts in Beijing. In addition, we will apply for Government funding since our project provides educational and fitness services and the Chinese Government encourages the development of these programs for students. We will also recruit college students and parents to provide tutoring and mentoring services and collect a majority of our funding through rented commercial shops and sales in our in-house stores.
Opportunities Surrounding the Site

The project is a unique development that will integrate and highlight its current location. The Xie Memorial will become a central theme and structure for the site. The artistic and political legacy of Xie will be a constant reminder of the artistic freedoms of the past as well as the present and future potentials. The Memorial itself will be transformed into a performance space, displaying a variety of work produced by the youth in the area. It will become an area of celebration, reminiscent of the historical opera presence of the Xuanwu District. It will also be transformed into a social hub, becoming the focal part of a public pedestrian corridor.

The artistic and political legacy of Xie will be a constant reminder of the artistic freedoms of the past...

Figure 3.1a.5 Social Context Diagram

The project will also have ties and connections within its regional context. The neighboring Fayuan Temple, a protected and historically preserved site, is not only a Buddhist temple, but also is the site of a Chinese Buddhist Academy and an exhibition center for Buddhist cultural relics. It attracts Buddhist scholars and students from all over the region. Programs and celebrations occur there regularly which can integrate with the programs proposed by this project. By working closely with the Fayuan Temple, interdisciplinary programs can occur and a more accessible relationship between the neighborhood and temple can occur.

The large Muslim population will also encourage and develop the program elements of the project. The Nui Jie Mosque, Beijing’s largest and oldest mosque, is the spiritual center for 200,000 Muslims. The area is also a large Muslim commercial and residential area. Due to this large influence, educational opportunities and cultural events can be an influential part of the programming.

Program Goals

Providing a venue for cross-ethnic discussions and interactions in order to increase the diversity and tolerance within the neighborhood.

Fostering personal and social development of youth in order to advance civic society and create better community members that embody Chinese values.

Saving the culture, relationships, and values of traditional China through art related apprenticeships with the youth.

Supporting a program to modernize and create contemporary art forms through new technologies.

Creating a safe place for youth to feel comfortable to experience, explore, and create.
Apprenticeship Program

Confucianism emphasized a student-teacher relationship or the Master and Disciple relationship. This relationship was a tight bond, acting in a similar way as the child-parent relationship. The student-teacher relationship was one of deep learning and embodied obedience and respect. The apprenticeship program will follow the similar Confucian principles and model to allow for an intense student-teacher relationship. Through the apprenticeship program older youth and adults will teach traditional art forms as well as provide a framework for more modern and contemporary forms. This program will be offered as an afterschool program and intensive summer camp for secondary education aged children from 12-18 years of age. The program will feature four areas in which to practice and learn art.

Print Art

The print element will provide studios and shops in which to create, share, and sell printed newspapers or pamphlets. This center will provide the tools and knowledge in how to express information in the form of news and print media. New technologies, computer programs, and basic Internet skills will provide for modern and marketable skills. This center will support the infrastructure to teach, create, as well as share and sell any print media created. Bookstores, Internet cafes, and reading rooms will provide the framework for selling and sharing any products.

Performance Art

The performance element will bridge the historic opera elements with more contemporary forms of dance, theater, and singing. Studios and instrument rooms will allow for traditional classes as well as experimentation and new expressions. Drum circles, jam sessions, contemporary dancing and glee clubs will allow for modern interpretations of traditional arts.

Visual Art

The visual element will provide traditional art skills as well as create an outlet for modern expressions through murals, graffiti, fashion, photography, and painting. Children will be educated in the basic art skills while also have the freedom to create their own artistic expressions.

Culinary Art

The culinary element will be closely tied to the garden. Providing the youth with a connection to the earth, opportunities will arise to engage in a discourse of healthy and local eating. Food will be harvested from the gardens in order to support a culinary program that combines both traditional and modern cuisines.
Counseling and Support

As a way of supporting the mission of safety and empowerment, counseling and tutoring services will be provided to the youth members. The counseling will allow for a safe environment that promotes open dialogue and guidance for students that need assistance or advice. Tutoring will help support and strengthen educational components. Due to the variety of educational backgrounds and attainment in the area, students will have opportunities to gain basic learning skills.

Diversity and Tolerance-

The main vision of safety will be translated into different programs to open communication and integrate ethnicities in order to create open dialogue and a better understanding. Cultural events, educational courses, and activities will be part of the program in order to highlight the various ethnic minorities, their history, and personal backgrounds.

Figure 3.1.b.2 Program Brainstorming Diagram

Communal Dormitories

On site residences, or dormitories, will allow for youth to reside within the project. The purpose of these residences is to provide an extended stay to any member that may need the extra assistance or a safe place. The residences will be communal, where restrooms and kitchens will be part of the common area. Therefore, the dormitories will create a smaller community or family whereby residences will participate in communal cleaning and cooking activities in order to maintain the areas.

Figure 3.1.b.2 Program Brainstorming Diagram
3.1c Design Principles

Goals and Objectives

The goal of the site plan is to create a safe environment that is predicated on the response and needs of the youth.

Flexible: As the youth move through the place, facades, art walls, and the general structure of the space will change in order to meet the current users and programs.

Functional: The structures and the landscape are palettes to be created, expressed, and performed by the youth. The opportunity to create and form the structures will allow for a strong ownership and a greater sense of place.

Connection to outdoor space: Doorways and windows will allow for a constant connection to the outside space.

Playful: Through landscape and structural elements, the site allows for interpretive expression for both interior and exterior spaces. The spaces are meant to inspire the youth to creatively express themselves.

Safe: The mix of public and private spaces creates special moments where youth can find privacy and safety. Elevation and landscape allow for a sense of place and areas that support counseling, open dialogue, and free expressions.

Sustainable: Sustainability allows for a modern and high performing site that can produce beneficial effects for the surrounding neighborhoods. By fostering sustainability within the building structure, educational opportunities can happen by which to teach the youth ways in which to be environmentally friendly.

Technologically advanced: Technology will allow students an opportunity to learn global and modern skills. Technology will provide students a new outlet in which to express themselves and create modern expressions of traditional art forms.
The goal of the site plan is to create a safe environment that is predicated on the response and needs of the youth. Our project focuses on giving the youth a voice in designing their surroundings. Currently, the youth have been denied a voice in their urban surroundings; instead their surroundings are planned for them. Cities and structures have been built in regard to the human scale and not necessarily to the children scale. Furthermore, more importance has been placed on preventing injury and safety rather than stimulating and allowing for creative expression.

Segregating the youth prevents them from modeling and learning from adult behavior.

Traditional Confucius student-teacher relationships began to disappear during the Cultural Revolution since there was a rise in western style schools and communal living. Similar to American culture, children began to be segregated to specific areas of learning and interacting. Children only socialize in areas designated by parents or teachers and they usually interact with peers that they do not choose. Segregating the youth prevents them from modeling and learning from adult behavior.

The rise of urbanization has also brought more traffic, pollution and crime. As a result, children are often forced to stay inside their homes for safety precautions. Even within their homes children are not allowed to freely play since priority is given to adult peace and quiet. Restricting children behavior and interactions has caused a rise in obesity and depression among the youth.

Our projects site is designed in a way that enables flexibility and adaptability of buildings and open space. It also incorporates the "traditional" city model in which there are no specific areas for children but rather the entire site will be used for the children to interact and learn from adult behavior. In addition, the site will also provide a safe environment by controlling automobile traffic and visitors but also have spaces for creativity and socializing. The design of the site will allow for the youth to interact and socialize in safe environment without feeling that they are being constantly supervised. The sense of freedom and independence will allow them to socialize with friends that they choose and interact without concern about the noise level and their safety.
Design Approach

Indoor/Outdoor

The built environment will allow for fluidity and continuity between the indoor and outdoor spaces. Chinese culture is ingrained in a close connection with nature. There has always been an importance on the ability to see, interact, and relate to nature through gardens. Chinese tradition has been using Feng Shui as a method to achieve balance and harmony between man and nature. The creation of private gardens emerged when state officials and scholars began moving to the cities but also wanted to be in touch with nature. Beside private gardens, courtyard homes were also built since they allowed residents to peacefully enjoy a private small garden in their home. Individuals who could not afford a private garden or a courtyard home would purchase paintings depicting natural landscapes in order to maintain the connection to nature. The structures in this project will build upon this historical and cultural legacy by allowing for a continuous connection to the outdoor spaces.

Not only will the structures be able to open up to the outside spaces, they will also be able to connect or close off from each other. This design typology will create dynamic spaces that can meet immediate needs for privacy and solitude or integration and socialization. Sliding doors allow for a variety of spatial arrangements, flexible to accommodate seasonal or functional needs. The continuation of materials and the Universal Floor will aid in supporting this design typology.

...a palette to be created, expressed, and performed by the youth.
Passive Cooling and Heating

The ancient Chinese believed that humanity should exist coherently with the nature. In siheyuan houses, the connection with nature is expressed through the centrally located courtyard. It maintains the well-being of the inhabitants by bringing in natural light and providing ventilation to the building.

Daylighting

Courtyards create open space and opportunities to connect with the outdoors. Higher buildings will be located on the Northern portions of the site. This will remain consistent with the traditional siheyuan courtyard typology whereby the Northern building was the highest. South-facing rooms located under eaves around a central courtyard allows for ample ventilation, natural light and shade, and a patch of green space within the city.

3.1.22 3.1.23

Sustainability

Siheyuan are the product of 3000 years of cultural wisdom and the evolution of building practices based on Feng Shui and a harmonized relationship with nature. From the materials to the building orientations, siheyuan and hutongs have developed a natural set of sustainability principles that are the building blocks of our new developments. While maximizing historical sustainability, the project also blends modern technological advancements to respond to current trends and challenges.

High Performance Technology

The programs and structures will support sustainability and high performance. Infrastructure will be created in order to maintain productivity, while also allowing for renewable materials and less waste. One approach to create a sustainable structure is to invest in high performing technologies. Efficient and clean technologies will not only attract youth, but will also cut down on waste. The graffiti wall, for example, will be an innovative and interactive digital wall with no waste and outgassing.

Figure 3.1c.4 Digital Graffiti Wall.
Wayfinding will allow ways in which to orient both public and private users. Since the main user is young, creative ways will be explored in order to create a sense of place, location and orientation. Elevations, pathway markers, landscape, and program landmarks will provide physical nodes by which the user can stay on the larger pedestrian pathways. Smaller pathways will mark the entrance into more private and internal areas.

The Beacons and Wayfinding

The beacon and historical jewel will be a running theme in our urban design. Each design element will have a beacon, or landmark, which orients and locates the user. The landmark will also have a historical element, building off of the existing historical courtyard structures. Therefore, the historical buildings will be jewels in the more modern landscape, providing moments to reflect and connect with the past.

The Pathway

The major East-West pathway in the site will help connect our four program elements within the site, as well as help connect the site with the surrounding area. This pathway will allow the residents and visitors to explore the site and find their way throughout the different apprenticeship programs. The pathway will be designated by brick and concrete and lined with trees. The facades of the buildings lining the pathways will display the artwork, performances, and inner workings of the studios in order to illuminate and connect the inside and outside spaces.

...inner workings of the studios in order to illuminate and connect the inside and outside spaces.
Social Hubs

Existing social hubs were observed in the site analysis. These hubs were located at the four corners and included neighborhood marts and smaller eating areas. They were located in areas of larger street capacities and more overhead tree canopy. The project will take advantage of these naturally occurring areas and will adapt the uses to meet the needs of the youth population and programmatic elements. Bookstores, Internet cafes, restaurants, and arcades are examples of potential uses.

A new, large social hub will be created to incorporate the General Xie Memorial. This area will be connected and accessible by two main pedestrian roads. This will be a site for performances to display all the work created by the youth as well as a site for community events.

The Fayuan Temple will be a new, smaller hub due to the programmatic element and overlap with our project. A pedestrian road will allow for direct access to link the project.
Guiding Principles of Historical Preservation

The project proposes a variety of historical preservation strategies.

1. The first strategy is the historical preservation and reconstruction of the General Xie Memorial. The Xie Memorial was once the location of a performance amphitheater, as well as a meditation garden and community gathering space. Currently the Memorial is dilapidated and used for industrial purposes. Much of the historical significance of the building has been lost either through improper care or vandalism. Therefore, the building will be restored and rebuilt in order to bring the structure back to its former glory. The building structure will be salvaged and incorporated in order to preserve the integrity of the project.

2. The second approach is through the preservation of the historical buildings identified in the site analysis. These buildings will be an integral part of the programming, creating landmarks and “historical jewels.” The preserved buildings will create areas whereby the modern and tradition architecture interact and relate.

3. The third approach will allow for a modern adaptation of the hutongs and courtyard housing elements. Although some structures will be demolished in order to make room for the functionality of the site, structures, pathways, and materials will be incorporated into the modern texture.

...bring the structure back to its former glory.

...new buildings will instill the heritage of the past...

The facades of some buildings will become a part of the new buildings, old structural walls will become a part of gallery spaces, and building materials can be used in architectural and structural elements throughout the site.
3.1d Architectural and Landscape Proposal

The site plan will be an adaptation of the current site, building upon the elements of hutongs, courtyards, single story housing, and the North-South axis.

Hutongs and Allies

Public and private pathways will be based off the tight spaces of the hutongs. New and old structures will be connected in a way that supports small arterial pathways that stimulate communal interactions.

Courtyard Housing

The structures will be based on a checkerboard pattern. Each structure will be comprised of 12 squares in a space that can be moved and manipulated through a series of sliding doors. The spaces can be closed off or opened up according to the immediate purpose and function.

Outdoor courtyards will be integrated into the checkerboard format. Sliding doors will open up to the courtyards, which are on the same plain and are comprised of the same materials as the indoor areas. There will be no visible boundary between the inside and outside.

Figure 3.1.d.1 Material Diagram

Materials

The materials used will be either recycled from any on-site demolition or locally sourced. Brick and wood will remain on all preserved buildings, as well as being incorporated in the facades and hardscapes. Double and triple-glazed glass will be incorporated in the second and third stories in order to open up the floors to the courtyards and paths below. The thick glass will prevent heat from leaving the rooms during the winter.

Double and triple-glazed glass will be incorporated in the second and third stories in order to open up the floors to the courtyards and paths below.

Materials

Double Glazed Glass with Traditional Framing
Triple Glazed Glass
Brick with Traditional Color
Sheet Metal
Concrete with Color Additive
Recycled Wood
Grass
Focal Points and Destinations

Each program element will have an established landmark in order to create destination and focal points along the East-West pedestrian corridor. As one continues on the path, program landmarks act as entrances and thresholds into a new art district, marking the end to one kind of place or activity and beginning of another.

When walking along the East-West pedestrian corridor, users will be able to see to the next landmark, or program element. This will help aid with wayfinding and spatial relationships. Users will understand the distances in the site through the use of the pathways and landmark elements.

Edges

The edges of the site will allow for a connection to the neighborhood, as well as create a distinctive location for our specific programming and youth population. The western edge will open up with landscaping and culminate into a path, inviting the public into the space and creating a change in materials to mark a new space. The internal North-South pedestrian corridor will create a social edge that invites interactions between the private and public. The eastern edge will create an open space that straddles existing social hubs. This will create additional seating areas and recreational space for the youth and public to interact.
3.1e Land Use/ Urban Design Concepts

Goals of the Land Use and Urban Design Concepts

Physical Environment Goals
To create a safe environment for the community’s youth through private spaces and architectural elements
To create a modern and technologically advanced environment that allows students to excel and have opportunities to learn new global skills.
To create a playful, interpretive and malleable environment that allows the youth access to create their space.

Community Development Goals
Outreach: We will be networking with local schools, universities, religious institutions and organizations to recruit young adults that can benefit from our services. In addition, we will use fundraising events and art shows to inform the public of our mission and accomplishments.

Resident Relocation Program: Since the new site will displace current residents we will provide them with relocation assistance.

First, we plan on engaging the community and negotiating a fair compensation from the Government for the relocation of the current residents. We will provide assistance in finding suitable housing for the residents to move into.
Small businesses that are displaced during the construction will be offered a negotiated fair compensation and an opportunity to reopen their business once the project site has been completed.

Economic Development Goals
To create an environment that promotes economic growth
To promote artisan skills and craft through the apprenticeship program. Products created can be a source of revenue for the students and program.
To enhance existing commercial zones and create new commercial districts in order to increase opportunities for revenue.

Figure 3.1e.1 Map of Surrounding Area (www.baidu.com)
Land Use Plan and Policy

### Land Use

Our site is divided into three land use categories: Open Space, Mixed Use and Historical Preservation. We categorized courtyards, gardens, parks, plazas, and pathways as Open Space areas. Since our buildings are multiple stories and have multiple functions like studios, dorms, galleries, theaters we categorized them as Mixed Use. Since most of the historical buildings we preserved were one story and close to the site perimeter we determined that they would be used solely for commercial use, such as shops, restaurants, and stores.

### Density

The majority of the site is designated as low density due to the large proportion of open space and one-story buildings. However, the new structures are two to three-stories, allowing for areas of higher density as determined by the building’s usage.

...the historical buildings we preserved ... would be used solely for commercial use, such as shops, restaurants, and stores.

### Land Use Policies

- Encourage preservation of existing commercial uses and social hubs, and develop new commercial infill along the major pedestrian corridors.
- Enhance the quality of life of community members, specifically targeting the youth and minority populations.
- Maintain the existing character of the neighborhood through preservation of specific historic buildings and through architectural elements and structures.
- Provide for new development within the context of existing and future neighborhood characteristics and uses.
- Decrease the population density of the site in order to create a successful and sustainable program that supports community building and connections. The program site will service approximately 600 young adults to keep a medium density in order to create a diverse yet tight community.
- Increase building density in specific pedestrian cores in order to open up larger courtyard and open spaces.
- Preserve the integrity of the preservation areas near the Fayuan Temple by maintaining a low-density commercial district.

### Density and Surrounding Areas

While designing our site layout and taking into account density, we analyzed the land use surrounding our site. We noticed that to the East of the site there was high-rise buildings and new construction. To the North and East of the site there was low-density residential areas that were not historically preserved and were not protected from demolition and high density developments. South of the site was the Fayuan Temple and protected hutongs. In order to have a create a site within the existing neighborhood framework, we planned to have the higher density in the North and West sides of the site and keep the low densities in the Southern regions next to the protected residential hutongs.
### Interactive Playground

The conceptual design of the playground is to create a playful, interactive, and interpretive landscape of play and discovery for the youth. The outdoor space will act as a canvas in which the youth can create and mold according to the immediate needs and uses. This space creates open spaces, undulating mounds, and a variety of textures in order to support a wide range of free play activities.

The interactive playground is a large portion of this site. The justification to create an open space is due to a variety of reasons. First, as Beijing continues to densify, there is a loss of open space and an emphasis on vertical integration. As a result, communities suffer from a lack of grounded play areas. The absence of nature is seen to lead to physical, mental and social problems (Milburn, 2010). By increasing open space, studies have shown a decrease in the amount of aggression incidents, an increase in imaginative and creative social interactions (Milburn, 2010).

### General Principles

**Integrate the playground into the program elements by opening the space up for artistic expressions and performances.**

**Create opportunities for children to modify their space to give them a sense of control and ownership.**

**Encourage children to immerse themselves in the wonder of nature both small and large (Milburn, 2010).**

**Create spaces where they can plant things and watch the life cycle.**

**Allow kids to get up high or down low.**

### Features

**Hardscape mounds** allow for a hard surface for skateboarding, bike riding, sitting.

**Landscape mounds** to allow for running, sitting, sledding.

**Stairs and railings** to allow for parkour, skating, rollerblading, swinging, climbing.

**Tree Canopies, shade and corners** to allow for privacy, reading, meditating.

### Skate Park Elements

Although not formally separated into a skate park, the ramps and steps allow for an interpretive and less structured area for skateboarders and rollerbladers to enjoy the outdoor space. This space can transform throughout the seasons. For example, snow play can take place on the slopes and steps during the winter months.

### Amphitheater and Performance Space

The amphitheater will be integrated into the overall design and layout of the open space. The edges between the performance space and the open space will be blurred in order to encourage multiuse of the space. The landscape elements from the open space will continue to create the seating and slope of the amphitheater.

### Pathways and Courtyards

Trees will occur more frequently along pathways, creating improved open spaces throughout the corridors of the site. The trees will create a shady canopy along the pathways.

Courtyards will create both public (first floor) and private (second and third floor) moments in which to connect the indoors with outdoor open spaces.

### Figure 3.1.f.1 Green Space Diagram

![Green Space Diagram](image1)

### Figure 3.1.f.2 Tree Space Diagram

![Tree Space Diagram](image2)
Main Performance Stage
As part of the Xie Memorial, the outdoor stage culminates into an outdoor, hardscape amphitheater.

Ramps and Seats
Ramps will allow for outdoor activities such as skateboarding and rollerblading, as well as provide for extra seating areas.

Secondary Stage
Smaller stage positioned near the entrance to connect to neighborhood and provide for flexibility in performances. Open hardscape will allow for interpretive play.

Moveable Tables/Chairs
Seating areas that allow the user to manipulate landscape and literally spill into the neighboring hutongs.

Quiet Space
Guarded by trees and situated in a corner. Allows for a quiet and secluded space for users to retreat or to gather in smaller groups.

Interactive Digital Wall
Wall to project movies or display art. Flexible to accommodate function and activity.

Stairs and Elevation
Stairs and height allow for seating and interpretive free play.

Water Feature
Interactive water feature to attract the public to the corner and support the existing social hub.

Tree Palette
- Fall Colors
  - French Wutong Ginkgo
  - Magnolia Maple

- Spring and Summer Flowers
  - Magnolia Cherry Blossoms
  - Poplars Willow
  - Privet Clove
  - Crape Myrtle

- Evergreens
  - Pine (Cedar and Black Pine)
  - Cypress

- Other
  - Fayuansi Hutong
  - Peiyu Hutong
  - Jieozi Hutong
  - Xizhuan Hutong

Figure 3.1.f.3 Open Space Diagram, Section and Axonometric
Circulation and Transportation Policies
To provide a safe environment and accessible pathways
To create legible and understandable pathways through landmarks and designated pedestrian walkways
To create integration of public and private through pedestrian walkways
To regulate and discourage the use of cars and motorized bicycles and encourage the use of pedestrian walkways

Transportation Elements
The site will be only accessible for pedestrians and bicycles. No automobiles or motorized bicycles will be allowed within the area. This will help ensure the safe and calming environment the project’s vision describes. Through both physical barriers and a change in elevation, the site will be closed off to the outside street traffic.

The site will create a new pedestrian pathway connecting the site to the Fayuan Temple and the northern neighborhoods.

The circulation of the site will be a based on a series of public and private spaces. The public areas will create a circular path around the main hutongs of the site. Small shops and businesses will line this street in order to attract public visitors. Larger shops and restaurants will be located on the four corners in order to minimize heavy traffic in the smaller roads and take advantage of existing social hubs. This will act as the main pedestrian core and will intersect the culinary arts program. This pathway will be lined with restaurants and other programming influenced by the culinary arts.

Figure 3.1.g.1 Circulation Diagram.
Figure 3.1.g.2 Traffic Diagram.
A secondary East-West pedestrian pathway will meander the site, culminating in the Xie Memorial community performance space and amphitheater. As the pathway cuts through the site, it will lead to each program’s main structural element. This will allow pedestrians an opportunity to orient themselves and acknowledge the entrance into a new program. Pedestrians will need to access the program’s main courtyard in order to continue to the path.

Within the private areas, smaller allies and bridges will connect studios and dormitories, providing venues for interdisciplinary connections and outdoor social events.

Minutes to Travel

In order to understand the size of the site through a pedestrian we analyzed the time it would take to travel the site from West to East and also from North to South. Minutes to travel were determined by a ~ minute mile. It would take less than four minutes to cross the site from West to East and less than a minute to cross the site North to South.

Our pathway hierarchy is based on the function and determined use. The perimeter Hutong Street varies between 18’ to 40’, the size allows for all types of transportation methods from cars to pedestrians. The site interior only has pedestrian pathways. The pedestrian pathway from North to South is 30’ and is the widest since it will be used by visitors to eat and shop. The pathway that crosses the site West to East is 24’ wide is main pathway throughout the site. There also a small 12’ pedestrian pathway throughout the site that connects buildings and courtyards.

It would take less than four minutes to cross the site from West to East and less than a minute to cross the site North to South.
3.1h Housing and Commercial Systems

Housing Policies
Maintain hutong cultural elements by encouraging communal dormitories and close living conditions.

Create mixed-use housing structures in order to maximize density of specific areas.

Commercial Policies
Encourage commercial growth by creating new restaurants and shops that display and sell the work of produced by the apprenticeship program.

Support the existing shops and restaurants and include them in the new development plans.

Create a circulation plan that encourages pedestrian access to and from the commercial areas.

Figure 3.1.h.1 Courtyard Diagram.

Figure 3.1.h.2 Building Typology Diagram.

Housing Policies
Create mixed-use housing structures in order to maximize density of specific areas.

Commercial Policies
Create a circulation plan that encourages pedestrian access to and from the commercial areas.

Courtyard Typology
The buildings are one-story to three-story buildings. The first floors will be used for commercial space since it allows for visitors to walk through the site and shop and eat at the stores and restaurants. The second floors will be designated as classroom and studio space. The second floor offers more privacy to hold classrooms or for students to work on projects. The third floors will be used for residential dorms since they offer the greatest sense of privacy. The second and third floors will also connect with other buildings through bridges.
3.1.48 3.1.49

Through our project design and vision we are striving to preserve Chinese tradition while empowering future generations. Our site analysis revealed the value of hutongs and their ability to create a sense of community and belonging. Although the hutongs and courtyard housing have been integral elements of old Beijing, China has begun to modernize and develop rapidly. As a result hutongs have been demolished and in their place monolithic residential towers have been built.

In our case, we felt our site could be more socially and culturally conscientious by not building more high density residential towers. Instead we focused on the transformation of social and cultural norms caused by rapid urbanization.

Through our design we were able to preserve key historical structures which kept a sense of the old and traditional Beijing, but we also blended and incorporated new structures while re-using building material from the older buildings to preserve the courtyard and hutong design. Furthermore, we designed our site in a way that enhanced social interactions by providing open space such as parks, gardens, plazas and courtyards. Besides providing communal aspects, our design also encouraged creativity and an environment of safety and freedom.

Our project went beyond architecture and planning and sought out a deeper meaning and role in Xuanwu district. Our site does not only preserve historical structures and provide comprehensive planning, but it also addresses social issues that are not obvious since they are not openly discussed in Chinese culture. Our vision is to address fears and challenges the youth experience from racial discrimination to parental pressure to succeed and help the youth express their emotions and views through traditional and contemporary arts and trades. Our site opens the door to empowerment and a better life for future generations.

Our vision is to address fears and challenges the youth experience from racial discrimination to parental pressure to succeed and help the youth express their emotions and views through traditional and contemporary arts and trades.

Figure 3.1.1: Future of Youth, Girl from the Hutong
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Images

3.1.e.1: www.baidu.com
3.2 The Sound of the Lotus Trio: A Generational Collective
3.2.a Societal Repercussions

China’s One-Child Policy

China’s One-Child Policy has created a unique set of challenges for the world’s most populated country. Issues such as population aging and gender imbalance have affected traditional social interactions between family members.

Family planning was first implemented in China by its government in 1979. The policy’s intent was to aid the country in accelerating its accumulation of wealth and reducing the total amount of resources consumed by the population. The One-Child Policy helped the nation economically by making room for more employment opportunities, improving the overall health of the Chinese population, and by easing the strain on valuable resources. However, several repercussions developed. The policy lacked insight regarding a specific group of people: the ever-growing elderly population. The continuum of the elderly population is steadily growing while the younger generation grows at a much slower, limited pace.

In present-day China it is often necessary for both parents to work in order to maintain a steady flow of income. Spending time with their children and being an active part of their lives becomes a luxury that few can afford; traditional values eventually become lost in the absence of contact.

Many elderly people feel isolated from the rest of their family. Having only one child poses a problem once their only child leaves the nest. Elderly people suffer from loneliness and have difficulty caring for themselves. What these families need is a place where the neglected - the children and the elderly - can feel like nurtured and important individuals of society.

Fig. 3.2.a.1 (right) represents the rapidly growing elderly population in China. The needs of the elderly generation multiply as the generations that gave birth continue to grow but at a slower, more limited pace.

Fig. 3.2.a.2 (left) illustrates a typical Chinese family tree - two sets of grandparents, the union of their offspring, and the only resulting grandchild. The One-Child Policy limits the care that aging parents would have traditionally received from their children in times before the policy was implemented.

Fig. 3.2.a.2

2011 current elderly population: 143 million
2051 estimated elderly population: 437 million
3 out of 10 chinese will be over 60 years old
3.2.b Vision

Our mission is to bridge the gap between the youngest and eldest generations. We can make this connection happen by designing a community centered around the theme of nurturing life and commemorating death.

Inspired by the beauty and ingenuity of the Lotus flower, our project is titled “The Sound of the Lotus Trio”.

The Lotus is a culturally symbolic flower. We chose three colors of Lotus (according to their symbolic meanings) that would help set the tone for the entire project. The Red Lotus represents love and compassion. The Blue Lotus represents wisdom and knowledge. The White Lotus represents purity of mind and form. The physical Lotus is comprised of three components: the roots, the stem, and the blossom - a trio. We plan to create a metaphorical Lotus. The roots become the traditions and values of the original Xuanwu hutong community. The stem supplements the transfer of values. The blossom of the Lotus - the beauty and ultimate focus of the project - becomes the intermingling of generations within the community.

Mission Statement:

bridging the gap between the eldest and youngest generations

Making the Connection:

nurturing life, commemorating death
3.2.d Design Concept
The Sound of the Lotus Trio

Our design concept embodies several different layers. The first layer is the concept of the Lotus that was previously explained in our Vision. We then proceeded to transform the Lotus concept into actual spaces, leading us to the idea of creating a sequence of spaces that celebrate the journey of life.

Each space is designed to emit a certain atmosphere.

The first space of the sequence is envisioned as a vibrant and lively place. This first space represents new life.

The second space in the sequence is envisioned as a place where the transfer of values is most evident.

The last space of the sequence is a nod to General Xie as well as the passing of loved ones in the Xuanwu community. It is envisioned as a contemplative and peaceful space; it is a memorial within a memorial. It signifies graceful aging and the promise that one is honored even in death.

Fig. 3.2.d.1-3 (left) represent elements present in our design proposal - the beauty of the Lotus, the liveliness and vibrance of Koi, and moments of the elderly generation’s lives captured at the memorial.

Fig. 3.2.d.4 (right) dissects the three key spaces being developed in order to communicate the importance of sequence, type of atmosphere, and focus of each space, which reveals the grand scheme.
3.2. e Site Specifics
The Xuanwu Hutong Community

In order to carry out our design proposal, the site first needs to undergo some alterations. In its current situation, 36% of the buildings are historical buildings, 30.90% imitation historical buildings, 20.10% modern buildings or add-ons, 7.20% vacant land, and 6.70% unknown.* The intervention will account for 67% of the site being preserved and 33% to be demolished and reworked, which were chosen based on their workable conditions and their significance to the community.

Within the 33% of buildings demolished, 47 buildings will be demolished and 71 families will be displaced. In those 71 families, approximately 232 people will be displaced. To improve the lives and homes of the locals, a new typology will be designed within the generational collective to provide housing. This will provide a sense of contrast between the old and new, the open and closed, and the intimate and condensed.

*Quantified according to Table 2.4.a.1, Project Site Building Classification Schedule Building Type

Fig. 3.2.e.1-3 (right) graphically illustrates the numbers of families, people, and existing buildings affected on the site for purposes of our design proposal.

Fig. 3.2.e.4 (above): Site Demolition Map
Master Plan

Fig. 3.2.e.5 (right) depicts the design proposal’s master plan; it is the programmatic breakdown of the three elements as depicted in figure 3.2.d.4.
Emphasis on Life. This occurs in the first space of the sequence, which we have labeled the “Koi Encounter” connected to the commercial block. It serves as the blossom and offers vibrant and lively spaces that imitate the buzz of new life.

The Commercial Front is the main center of commerce. It is the farmers market on certain days; it is the crafts shop on other days; and it is the restaurant where gatherings and culture can be shared. The hub gives the opportunity to sell traditional hui products and foods and allows the physical transfer of old cultural products to the new and disassociated modern Chinese population.

The building takes the shape of a multi-story donut with alleyways that wind through it, leading one to the entrance of an interior courtyard. The outer circumference facing the major street abutting the hutong will be a storefront for local merchants and restaurants. The interior of the courtyard will be used as a community gathering space, for outreach activities, and on occasion, a farmer’s market. The upper levels of the Commercial Front serve as housing for the displaced families from the hutong.

The Koi Encounter is a place of action. It is the physical and spiritual connection of the Fayuan Temple, the General Xie memorial site, and the community as a whole. The place is a crisscross of platforms where movement and action can happen. It is a place to learn of life, to see and experience the microcosm of the natural world within the spans of the carp-breeding waters.

The bridges lead into platforms of varying sizes, each providing opportunities for different activities and experiences. The design’s objective is to create bridges and platforms that give the illusion that they are floating. Fish can swim throughout the pond and be experienced by the viewer. The pond affords for yearly fish procreation, with supplemental events to provide an understanding and education of the life cycles of the fish and in turn a lesson of respect for life. The pond can be fished by the locals and children, within proper season. The pond provides fish for the commercial section of the site.

Fig. 3.2.f.1: “The Blossom”

Fig. 3.2.f.2: Commercial Block

Fig. 3.2.f.3: Koi Encounter

Fig. 3.2.f.4 (above): Our vision for the Koi Encounter.

Fig. 3.2.f.5 (left): Potential activities that may take place in the Koi Encounter.
Emphasis on Growth. This occurs in spaces belonging to the “Generational Collective”. It is the stem; it is the nurturing and educational center where the transfer of values is most evident.

Generational Collective
The Generational Collective is cumulative of a childcare center, a new housing typology, and elderly housing. It is where the locals begin and end their day. It is ultimately where the people stimulate the growth of life education.

The collective has a storefront on the alleyway side of the new housing typology. It signifies that not only do the locals come home and sleep here but that they wake up in the morning to work. The process of working and walking through the site provides a variety of opportunities to exchange traditions, new and old. The day care center and elderly housing are located nearby, encouraging a healthy relationship between the two.

Proposed Housing Typology
The housing typology that we are suggesting is a combination of three elements: the hutong courtyard, the verticality of modern high-rises, and the natural elements of garden landscapes (diagram shown at right). It is an idea formed by taking aspects of the hutong that we wanted to keep, responding to population growth and the verticality of present-day China, and creating a new typology that is situated in a natural setting. The design remains highly conceptual, yet schematic designs are provided (section of the collective shown to the right).
Commemoration of Death. This occurs at the memorial garden. It is the roots; it is the peaceful and contemplative space where the living memory of deceased ones can be respected.

Memorial Garden
The memorial garden is the heart of the site. It is the torch that is passed on, and the symbol of the hutong. It is the ever-present ideal of strength and commitment, of death and rebirth. It is the symbolic hearth, the place of gathering, and the place where one can meditate and remember.

Within this memorial is a small reflecting pool, a cumulative and collection of both hutong and fayuan. It allows meditation and impromptu learning. The overlooking two-story structure, the highlight of the memorial, is accessible through passing over this meditative pond. The memorial is history that one can actually experience rather than just observe. The disassociation of the people to the site is broken down in its openness to visitors. Lining the small stream that runs across the site from the koi garden to the end of the block are memorial placeholders. Within the placeholders are empty pots, where once every 12 years, a tree can be planted in. These trees are the mark that each generation can have on the site. This allows a moment of gathering and of communion.

The garden of adaptation encompasses the memorial garden to signify something beyond the memory. It is the first thing that is seen from the perspective of the hutong residents to the east of the block. The garden is open space, with trees and vegetation growing in movable and adaptable pots. This affords for the place to be utilized as another gathering space. It is the place for hands on education.

To the east of this garden is a studio open to both students when facilities are open for children, as well as the residents, who may have events or classes in this space. To the north of the garden is a theatre, for which performances and outreach can happen. It is a space for group dances. It is a place where community can gather not only under one flag, but a flag of multiple concessions.
3.2.2 Conclusion

The Xuanwu hutongs, as seen initially, are overwhelmed in its deteriorated state. The building walls are crumbled and broken down, telling of the living conditions there. Beneath the dirt and grime, these hutongs remain a place rich in history. The life and the active circulation presents a beautiful presence of life that pulsates strongly throughout the community. General Xie’s memorial site has been humbled by years of wear and neglect, yet still stands dignified and present.

Difficulties have arisen due to conflicts between the demands of the developers and local residents. Designing something that offers a fresh and new perspective on the hutongs was a challenge. Yet, the existing community was resourceful; they are the Lotus that thrives in muddy waters.

By creating these new, innovative spaces, a better lifestyle can be brought forth. The uniqueness of this design proposal stems from the healthy interactions between the eldest and youngest generations. It is something to be saved in the Xuanwu community, a legitimate push for preserving the life of the hutongs.
3.2.21

Journals


Images


3.3. The Neighborhood of Enclosed Harmony: A Sustainable Community

3.3.a. Project Vision

3.3.b. Design Principals

3.3.c. Design Guidelines

3.3.d. Proposed Transportation Infrastructure

3.3.e. Proposed Program and Architectural Designs

3.3.f. Conclusions
3.3.a. Project Vision

In a heavily built urban environment, there exists a place that reconnects people with heaven and earth through the evolutionary expressions of nature. This urban experience places people at the center of an ever-changing seasonal locale, while simultaneously fostering a high level of personal interaction through individually discovered experiences. With built forms exuding mountain-like characteristics and variations in ephemeral pools mirroring the motions of the earth, subtle transformations occur in the mind as one experiences the everyday hustle and bustle of the city through a redefinition of urban living.

The project envisioned for the General Xie Memorial site and its surrounding neighborhood areas involves a blending of the built and natural environments through the creation of an urban wetlands system to serve as a framework for defining the built spaces throughout the redevelopment zone. This plan enables the project to simultaneously increase the population density of the project area while creating a functioning wetlands system that will have the dual benefits of filtering grey water runoff, increasing the sites overall property values, and most importantly, reconnecting the Chinese people with nature.

![Diagram of the neighborhood of enclosed harmony](image)

Fig. 3.3.a.1: Project Vision Concepts and Logo

Fig. 3.3.a.2: The Neighborhood of Enclosed Harmony
3.3.4. Design Principals

Design principles implemented within our project were developed to satisfy a number of problems identified within the redevelopment zone, as well as to foster the growth of a number of ideals we feel successful social settings exude. These design principles are identified below:

- Create a landscape and built environment that complement one another.
- Create a transportation system that allows for the efficient movement of goods and people throughout the site.
- Save and integrate existing historical buildings and temples in order to provide residents with a sense of place and a connection to China’s rich history.
- Create multiple and unique themed physical spaces where chance encounters and purposeful gatherings can occur.
- Assign themes to different areas to provide variation and complexity to the built environment.
- Satisfy the demand for increased population density within the city by increasing its overall density.

- Construct a grid of artistic landmark installations to provide functional and decorative spaces for the general enjoyment of residents.
- Design a transportation system focused around pedestrian and bicycle traffic, without vehicle access, to allow for more compact development.
- Provide a central commercial gathering space to allow for a dynamic environment to encourage local activity and draw in outside residents.
- Address the importance of community and social interaction between people that live on site and those visiting in order to strengthen the historical, cultural, and communal aspects of the Chinese people.

3.3.4.1 Challenges / Analysis of Phase-I Findings

The following section aims to summarize the most important challenges currently facing China that were identified within the Phase 1 project site analysis. Both macro and micro level problems are analyzed including many difficult challenges ranging from population pressures and loss of the historical structures to environmental pollution and loss of natural environment. Subsequently, each challenge is addressed by referencing techniques incorporated into the project’s overall design process.

Population Pressures / Loss of Historical Structures
One of the greatest macro level problems that China has been facing over the past hundred years is overpopulation. The government has dealt with this problem by initiating the controversial, “One Child Policy,” perhaps one of the most ambitious population limitation measures ever imposed upon a society in the world. Although this program has slowed China’s birthrate, the country is now facing a different type of population problem caused by its once majority rural population transforming into an urban population. This dramatic ongoing shift is being caused by the mass migration of rural farmers moving into the cities, lured by the prospect of higher paying jobs and an improved standard of living. In order to accommodate these large population increases the government has embarked on a massive building spree of large scale, high-rise developments, constructed at breakneck speed.

These projects are immense, often requiring the demolition of multiple city blocks. Land targeted for these redevelopment projects is typically within city cores, where the traditional hutong streets and siheyuan housing types exist. Historical hutong districts are specifically targeted due to the overwhelmingly population of low-income residents living within them and their inability to effectively counter developments backed by the central government. This has led to the loss of perhaps thousands of historical structures throughout China that should have been more carefully protected and guarded for the benefit of future generations.

Poor Building Design / Construction
As China continues with its construction of large scale high-rise building projects they more often than not sacrifice cost and quality in favor of speed. To save time on the design and construction phases of projects structures and individual units tend to be uniform in size and shape. This results in a cluster of identical skyscrapers, often constructed with a concrete-re-bar framework, to cut costs due to the high price of steel. These projects are somewhat akin to the Public Housing high-rises built throughout the United States during the Post WWII era, the most well known being...
Poor Living Conditions in Hutongs

Although gentrification is an ongoing problem that often comes along with redevelopment projects within inner city cores, simply leaving the hutongs that they replace in their original condition is not the solution either. The reason being that many of these hutong districts suffer from inadequate living conditions with problems causing health, safety, and sanitation hazards. According to interviews conducted by Team 1 during the projects initial phase, it was found that many residents were not sure if they could afford to move. This is because the new, government provided, housing was actually eager for redevelopment to commence so that they could move into the new, government provided, housing projects. Reasearch included access to indoor plumbing facilities and other Western styled amenities that traditional hutongs do not have. In addition to this there is a general lack of desire to keep the current community intact, giving credence to the fact that redevelopment within the target area needs to occur.

Environmental Pollution / Loss of Natural Environment

As the population within China’s cities swell, developers look to expand not only upwards but also outward, towards the cities periphery. However, simply expanding upon China’s existing cities is not the only method by which China is dealing with its massively urbanizing population. It is also expanding upon and in some cases constructing entirely new cities in hinterland areas. These new cities are typically focused around a series of large-scale economic growth, the China to the poorly educated migratory population and to fuel its export driven economy.

Due to this primary focus on sustained high levels of economic growth, the Chinese government has allowed the environment to fall by the wayside. Degradation, pollution and the destruction of many of the country’s natural environments such as its rivers, estuaries, marshes, wetlands, and the bio-diversity that is sustained within them, is becoming commonplace. Additional pressures are placed on the natural environment by the ever-increasing demand of electricity, provided by China’s heavy investment in coal powered power plants. This is unfortunate because many planners and architects know, as many of these same design mistakes.

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3.3.b.ii. Solutions to Phase I Challenges

The identification of challenges within the Phase 1 portion of the project allowed for the development of problem specific solutions to be included within the projects landscape and building programs. These solutions are explained in detail below.

Population Pressures / Loss of Historical Structures

Our project proposals address the need for an increase in the sites overall population density while at the same time taking into account the obligation for preserving and restoring historical buildings throughout the area. China’s urban population continues to grow and increasing the density within existing cities will be necessary in order to accommodate projected growth. By incorporating a variety of building typologies with higher densities throughout the project site will help to meet this current and ongoing process. Additionally, recognizing the historical and cultural importance of hutongs and siheyuan housing, identifying, preserving, and rehabilitating currently intact and salvageable structures in the project area is necessary for the enjoyment of future generations. By expanding the original building stock site assessment to cover the entire envisioned area of the project master plan, would allow the proper identification of these buildings to occur. Existing non-historical structures, and historical structures that are well beyond repair, would be removed in order to better align the redevelopment project with its intended goals.

Inner City Gentrification

The gentrification issues facing the project site will be addressed through the incorporation of multiple types of housing options for varying income groups. Different options for high, medium, and low-income earners will be made available, with one idea being that rents collected from higher paying occupants will be used to help subsidize costs for the affordable, low income housing units. Ideally these units would also be subsidized to a degree by the government in order to make them feasible and practical in the long term.

In addition, the redevelopment phase of the project will be partially designed with input taken directly from community members of the existing hutong areas. These members will also be encouraged to move into the future development once construction is complete. By building upon these community relations, residents from the original community that choose to return and move into the new housing structures will feel a deeper sense of connection to the area, and will hopefully upkeep, maintain, and re-invest in their new communities. Furthermore, business owners will also be encouraged to return to the area, aided by a variety of programs such as business training, and subsidized move in/rental costs, to allow them to keep their established customer base.

Fig. 3.3.b.5: Neighborhood of Enclosed Harmony Seasonal Collage Part 1
Poor Living Conditions in Hutongs

The new housing that will replace the older Hutong districts will be complete with modern utilities, plumbing, etc., thereby raising the standard of living for those that return to the site, and alleviating many of the sanitation problems and health risks associated with the previous site. In addition, those Sehuyuan’s that are saved and salvaged will be completely restored and renovated with modern facilities and amenities to allow for the Chinese family of the 21st century to move in with comfort.

Poor Building Construction / Maintenance

Poor building construction methods and maintenance was addressed by the design team through selecting building materials that were both long lasting and durable (See building typologies). At the same time the designers recognized the common problem of how to alter a structure to accommodate a different use, such as transforming a store front into a personal residence. Therefore each structure was designed with interchangeable units that can be swapped out independently of one another to allow for alterations in use. The objective here was to reduce the future costs in time and money associated with unit alterations and rehabilitation's.

Environmental Pollution / Loss of Natural Environment

The project aims to address China’s ever-increasing pollution problems and loss of natural environments by constructing a functional wetland system into the project plan. This will have the multiple effects of: providing ecological habitat to wildlife, specifically migratory waterfowl; serving as a functioning wetland to filter grey water produced on-site; and to enable rainwater to collect in retention basins and percolate directly into Beijing’s aquifers. (Citation on China’s falling water tables needed.)

Slow Down in China’s Economic Engine

Lastly, the housing bubble that the Chinese government will soon have to address means that large-scale housing projects will no longer be economically feasible in the new economic environment. Our project recognizes this fact, and intentionally does not include any high-rise structures within the project. In addition, proposed structures are multi-functional and can adapt to meet changing market demands. Mixing the building types, heights, floor plans, etc. all allow for this purpose. Lastly, incorporating viable wetlands into the project will give the site a sense of prominence, purpose, and longevity, enabling it to weather the future economic slowdown while still remaining a desirable place to live and visit.
3.3. Design Guidelines

The following section discusses the general design guidelines of the project by detailing the various elements that were brainstormed upon in the Project Vision. By setting guidelines for the overall project, the process of designing appropriate building typologies and high performing landscapes that fit the project sites setting were more readily directed. This process involved detailing explanations concerning the proposed project site boundaries and justifying the location of the redevelopment zone before moving on to identify elements that would influence the projects design; many of which were garnered from the neighborhood area around the project site itself.

3.3.c. Design Guidelines

3.3.12

Fig. 3.3.c.1: Proposed Walkable Space

3.3.c.i. Project Site Location Identification

The project site takes up roughly twelve acres of land in the Southwest corner of the historical inner ring of Beijing. The project site has not yet been demolished and redeveloped due to problems with the amount of compensation current residents will receive from the developers. The General Xie memorial site is located in the southern portion of the proposed redevelopment project site within the context of the surround hutong neighborhoods.

Project Site Boundary Restrictions

The proposed redeveloped project site was restricted in its scope and size due to the following reasons:

- Restrictions to the East: The site was not extended to the east because of high rise/high density Residential and Commercial Developments (See Figure 3.3.k).
- Restrictions to the South: The project was unable to be extended southward because of the historical district, defined by the government, that abuts the project site.
- Restrictions to the North: The project was limited to the North by the large street as noted earlier.
- Restrictions to the West: Finally, the project was limited to the west by a large cluster of high-rise apartment buildings.

Note: It was found, during one of the research teams field visits, that the exterior of this cluster of apartment buildings was in very poor condition. Some traits found included: A badly damaged elevator shaft (one out of two); large structural cracks in the interior concrete columns; defaced and graffiti filled interior hallways; broken lamps; and smashed windows. However, even with these poor conditions we found that the structures had a large number of residents still living in the apartments.

3.3.c.2. Project Site Location Identification

It was therefore determined that due to the high occupancy rate and the associated costs of relocation combined with the high cost of demolition, that redeveloping this area would not be as appealing to developers as the adjacent hutong districts. The reason being that the hutongs held fewer residents per sq meter of land, and would require fewer costs associated with demolition.
3.3.14

3.3.c.ii. Project Site Design Elements

Once the extent of the project was determined to meet both the site selection justifications and the defined boundary restrictions, the incorporation of design elements identified during project site visits, group discussions and from instructor lectures was explored and incorporated. The objective of the design elements was to provide the project with a set of broad overarching ideas and objectives to help direct the overall design process.

Connection to the Fayuan Temple / Fayuan Park

Located adjacent to the southern border of the proposed redevelopment site lies one of the oldest and most famous religious sites in Beijing, the Fayuan Temple. Incorporating this historical temple complex into the projects design theme was necessary due to the fact that it lies directly on a North-South axis, that in theory, cuts a swath directly through the site. Immediately south of the Fayuan Temple lies Fayuan Park, a new urban park that is used quite extensively by local residents. Starting at Fayuan Park and moving North, the North-South axis line leads directly through Fayuan Temple and into the wetlands park area of the project site. This provides a direct physical connection between the proposed project site, the Fayuan Temple complex and Fayuan Park.
Historic Preservation

One of the most important design guidelines built into the project is the focus around preserving as many historically salvageable buildings within the project site area as possible. This theme is in line with the official regulations set forth by the City of Beijing regarding the Protection of Famous Historical and Cultural Buildings within the city. Article 8 states, “All units and individuals have the obligation to protect the famous historical and cultural City of Beijing, and they have the right to offer suggestions on the formulation and implementation of the protection planning and to dissuade, expose and charge against any acts destroying the famous historical and cultural city of Beijing.” (eBeijing & The Legal Affairs Office of the People’s Government of Beijing Municipality)

In keeping with these guidelines, the project’s first design objective is to identify all historical buildings within the project area and to preserve, salvage and reconstruct as many of these historical buildings as possible. In the long run the project will benefit from saving these historically significant structures by not only giving residents a sense of pride in the fact that their rich history and culture is being preserved, but also to add a spark of interest to the project, giving it its own unique flavor and adding to its overall desirability as a place for living.

In addition, keeping the historical buildings in the area is crucial to the property values. Living next to or even within a historical building is very desirable to many people living within the Beijing area. Additionally, many people would probably be inclined to pay steeper rents and/or pay more for the ability to live in a historical building.

Program Proposals for Historical Buildings

Building
- Xie Memorial Building
- Xie Memorial Reconstructed Building
- Historical Building
- Wetland Mechanical Building

Zoning
- Historic Preservation Addition / Redevelopment Area
- Redevelopment / Wetland Area
- Historic Preservation Area
- Existing High Rise Area

Building Cluster
- Original Xie Memorial Site
- Project Transition Zone
- Identified Siheyuan Housing Complex
- Adaptable Community Gathering Space

Fig. 3.3.c.5: Historic Building Preservation

Fig. 3.3.c.6: Historic Building Proposals
Addressing Gentrification

Having recognized the problems associated with gentrification that typically occur when redevelopment projects are built in heavily urbanized areas, (See Section 3.3.b.1 Challenges) the design team chose to incorporate different building typologies within the project site. Each building design within the proposed project site was specifically designed to incorporate different sizes and types of housing units to accommodate different level income groups.

Housing Typology and Height Explanation

To determine the types of zoning and heights of structures within the redevelopment zone, a detailed analysis of the current land uses and structures adjacent to the project site was conducted. The object of this study was to factor in the uses and heights of adjacent structures in the proposed project plan to enable structures within its design to better match the features of those structures surrounding it. For example, in order to match the historical quarter South of the project site, the southern section of the proposed project site was designed to be composed of restored single story shiyuan houses and the historical General Xie memorial site. Similar design concepts were built into each section and side of the project to create a more harmonious development that would blend in with the surrounding built environment.

The zoning scheme that finally arose from these design methods depicts a plan with high concentrations of R1, one to two story primarily residential structures. In the southern end of the project and along the eastern border of the central park/wetlands corridor. As the project moves northward its density steadily increases, with R2 making up much of the central section of the project before finally reaching the site's maximum proposed density R3 at the northernmost section of the site, up against Luomashi St. (See Table 3.3.1)

While the research team recognized that even with providing low-income housing, often these housing units still cannot be attained by low-income earners. Potential scenarios were discussed to address this issue including having the residents who live in the more expensive units subsidize the low-income units or creating programs that would assist low-income residents with attaining government rent support. The figure seen above displays how a majority of the funds will be collected from renters living in higher paying rooms that are larger in size and located on the top floors of the buildings. For a more detailed break down of this see Section 3.3.f.1 Proposed Housing Typologies and Policies.

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Buildings to Landscape

Each building typology, whether it be high, medium and or low density, will connect with the land in its own unique way depending on its location. Therefore some buildings will be located completely on bodies of water, some half on land, and others completely landlocked. This approach will allow for the design of responsive architecture that capitalizes on the environment each site has to offer. Additionally, this approach will also create a sense of diversity and uniqueness to structures in the project site area, adding to the overall resident connection to the area, and building upon the sites desirability.

Raised Boardwalk Pathways

Another innovative feature of the project proposal is the system of elevated boardwalk pathways that provide circulation throughout the site. The boardwalks respond to the geography of the wetlands as they carve through the landscape in some places and rise above it in others. Like the zig-zag pathways of traditional Chinese gardens, this will allow site users to interact with the land in unpredictable ways as the paths curve at shifting scales, lead to multiple vantage points and present new vignettes at each interval.

Wetlands Design

The wetland concept taps into the tradition of the Imperial constructed lakes and canals of historic Beijing. Our concept is further established by the recent commitment that China has made in constructing wetlands in order to filter urban runoff and recharge groundwater basin. Unfortunately, there has been little follow through on the part of government officials in facilitating this commitment. Therefore the project design builds upon these already established government objectives as well as the existing Imperial canal and lake systems of Beijing and provides an effective framework upon which this proposal could be accomplished. Overall, the wetland establishes a high performance landscape strategy allowing for water aggregation and treatment network that leverages natural processes. This emphasis on functional landscape infrastructure is born out of the strategies witnessed within the project site and around Beijing. These strategies were incorporated in order to maintain the high performance of the built environment in both public and private spaces and to provide the appropriation of landscape to meet users’ direct needs. The wetlands will filter and retain water flows from public and private usage (grey water), nearby street runoff, and seasonal storm water, as well as provide water for site amenities, return clean water to the municipal supply, and address endemic drainage and vector issues.
3.3.c.iv. Landscape/Wetlands Design

As described earlier, a constructed wetlands system will proliferate throughout the entire project area, collecting diverted street runoff, rainwater, and the site’s grey water. The wetlands incorporates multiple strategies, both mechanical and natural processes, to remediate the water. Flows from these sources will move through a series of small ponds, connected by swales and channels, and finally terminating at a large pool at the South end of the site. Though a highly effective element of communal infrastructure, the wetlands will also provide a perennially ebullient and enigmatic landscape enveloping buildings and site-circulation.

Features

The design of the wetlands focuses on remediation, production, habitation, and recreation. Features include:

• New and preserved trees
• Dispersed Orchards
• Native, high-performing, and regionally appropriate landscaping
• Recreation and community garden space
• Perennial and vernal pools
• Wildlife habitat

Benefits

Incorporation of the wetlands will create a more climatically resilient urban landscape and net both infrastructural and experiential benefits for the community. This system will provide water for fountains, public art, and landscaping, with additional benefits including:

• Cleaner on-site water
• Return of native animal and plant species
• Reductions in polluted runoff
• Increase in open space

Fig. 3.3.c.12: Wetland Gathering Space Vision

Fig. 3.3.c.13: Landscape Plan
Runoff from neighboring streets will be directed from existing storm drains into diversion systems. Flows will continue to hydrodynamic separator units, which filter refuse and debris, before piping the water into the wetlands.

Greywater, rainfall, and treated runoff will move by way of subsurface systems (gravel and UV light treatment) and vegetated swales to settling pools where additional debris is filtered and shallow ponds, where plants will absorb pollutants in the water.

Remediated water will flow into the terminal retention basin to percolate into groundwater aquifers, recirculate into site amenities or get diverted to the municipal water system.

The topography and grading of the site, aided by pumps, will ensure proper water flow for optimal remediation and prevention of mosquito breeding and other vector issues. The highest elevations are at the North end of the site, where diverted runoff flows from adjacent streets will be directed Southwest through the project site wetlands. A separate network will initiate from the West of the site and move only greywater and precipitation through the wetlands. Both networks will then flow East, and subsequently to the South, terminating in a retention basin.
Landscape Planting

The planting program consists of working landscapes that are highly functional, yet aesthetically pleasing on an ornamental level. As the site is an urban wetlands, plants will be chosen for their functional value in bioremediation, such as pollutant uptake, evapotranspiration, and water/drought tolerance. Planting arrangements will primarily be large swaths of single or limited species in organically rigid patterns and designs. Edible landscaping is also an important aspect of the planting plan, which is inspired by the residents’ vegetable gardens found within the General Xie memorial site and the redevelopment zone. This will translate primarily to fruit trees, nut trees, and perennial vegetables, as well as allocation of space for community gardens.

Most of the buildings in our proposal incorporate green roofs, which will be a combination of raised planters and directly vegetated roofs. Direct plantings will be shallow rooted and tolerant of extreme climate conditions, primarily grasses.

3.3.26 herbaceous plants / grasses / sedges / rushes

3.3.26 trees / woody shrubs

3.3.27

3.3.d. Proposed Transportation Infrastructure

The project site’s transportation network was designed to support the needs of the average pedestrian rather than to accommodate vehicular traffic. This was built into the projects design in order to keep with the theme of the historical hutong district and the narrow streets and alleyways associated with them that created an ideal walkable community. This limitation led to the restriction of vehicles to the site to sites peripheries, except for designated service and emergency vehicles. Other methods of transportation were examined by the design team such as biking, bussing, and or riding the subway in order to increase the sites sustainability. Transportation studies were therefore conducted at both the metropolitan macro level and neighborhood local level to build upon studies performed during the phase one section of the project.

Metropolitan and District Level Study

The following district level transportation sources were identified based on researched pulled from Phase I of the project and research conducted by team members.

Subway: The nearest subway terminal, Line 4, is 300 meters away from the project site, or roughly a seven-minute walk. This subway entrance sits at the traffic intersection of Luomashi Road and Caishiku Street. The designers envision this to be the main public transportation access point for many of the lower-income residents within the proposed project site.

Busses: The site lies adjacent a number of bus stops which lie in all four directions. Bus stops that are easily within walking distance to the site include the following routes: 201, 5, 6, 48, 57, 109, 381, 613, 715, 54, 381, 604, 613, 646.

Fig. 3.3.c.19: Edible Plantings with Chinese Meanings

Fig. 3.3.c.20: Wetland Planting Programs

Fig. 3.3.d.1: Site Relation to Major Arterials

Streetscape: Finally, the site sits adjacent to the Luomashi Road and within very close proximity of Caishiku Street, both of which are major thoroughfares that pass directly through the historical inner ring of Beijing. In addition, the site lies within a five-minute drive to the second ring highway of the city, which would allow residents to easily navigate to other parts of the city.
As previously stated, the goal of the site is to allow for the unobstructed flow of pedestrian and bicycle traffic to move freely throughout the project site. This strategy includes a number of measures to prevent automobiles and other vehicle types from entering into the site.

Pedestrian Friendly Implementation Techniques

Pedestrian and Bicycle: Pedestrians and bicycles have an exclusive right-of-way on all streets within the project site in order to cut down on the chaos of having to walk and live next to a busy street. By excluding cars from the project area this will not only increase overall site safety but will also reduce the inhalation of toxic fumes and minimize noise pollution in adjacent residences.

Raised Boardwalks: A series of raised boardwalks elevated above the wetlands will span many of the pedestrian walkways throughout the site. The boardwalks will be made of a wood and plastic composite mixture akin to Trex material, commonly used on outdoor decking projects.

Retractable Bollards: Removable bollards will be constructed at all maintenance vehicle pathways throughout the site. This will have the dual effects of preventing non-maintenance vehicles from entering the site, while at the same time allowing maintenance vehicles through when necessary.

Auto-Oriented Design Techniques

On-Site Parking: Designated and restricted resident, visitor, and shopping consumer parking is planned to exist on site in large scale, underground parking garages. Parking garages are to be located below both high density types facing both Guangaman Inner Street to the North, and Jiaozi Hutong to the West. Exact specifications regarding underground lot size requirements would be determined at a later phase in the development process.

3.3.28

3.3.e. Proposed Program and Architectural Designs

The program and architectural designs for the proposed project were conceptualized to blend together a constructed urban wetlands with built structures taking their shape and form from traditional Chinese siheyuans and hutongs. These structures were designed to contain multiple types of building densities and typologies that could interface differently with land, water or land and water simultaneously. Additional, these shapes and forms were extruded to find new building densities and typologies that could then individually interface differently with water, land or both. These programs and architectural designs also took into account the design principals and guidelines, challenges posed to the project and information garnered from project site visits to help guide the direction of this portion of the project.
Our project proposal consists of new architectural designs exemplified through different building typologies. These designs would focus on the current cultural housing values and the current need for a higher density in the City of Beijing. We designed three types of densities; low, one to two (1-2) stories, medium, three to four (3-4) stories and high, five to seven (5-7) stories. Each typology pushes the boundaries of flexibility and performance within each building through their structure, open spaces and program layouts. These three typologies attempt to keep the values of the current community intact by representing these values in a more contemporary way. The typologies vary in the amount of units, amount of families, types of income and types of programming. We focused on a modular system for each of the individual typologies to construct and design these structures. Our goal was also to propose a more flexible way of designing, so that cost, use, structural systems and sustainable factors can all be high performing within the project. The wetlands system creates a unique opportunity for us, some would consider it a problem when mixing water with buildings, but we embraced it. From this opportunity, the three typologies we developed have different individual characteristics and attributes depending on how each type interfaces with land, water, or both.
The main intentions behind the design of the contemporary siheyuan units are to include small courtyard spaces comparable to the existing courtyard and corridors within the project sites siheyuan housing. The building units are owned by individual families and surround a communal courtyard-like open space instead of having four separate buildings surround one family-owned courtyard, thereby addressing the issue of required density. The contemporary siheyuan units are designed to match characteristics of the existing site conditions and then gradually allow for the other typologies to scale up their size and functions to meet the overall density required for the project site. The structure of this typology is flexible enough to have the units sit on a site that is land, water and land/water.

The contemporary siheyuan is more closely related in scale to the existing conditions on site when compared to the vertical courtyard and vertical hutong typologies. This smaller scale typology is limited to two stories because it is located within close vicinity of the historical siheyuan structures that have been kept and restored similar to their original design intentions. These structures are also designed and situated to not block the views or sun from the existing historical siheyuan structures. This low density living will allow for the establishment of a small amount of mom and pop-sized businesses scattered throughout the individual contemporary siheyuans. In order to make a strong impression that this new typology is designed to last, the units will be constructed of strictly sturdy, long lasting materials. Some examples of these materials include: composite decking for all outdoor decks, including the raised walkways, concrete foundations and walls, high performance glazing and metal louver systems.

“The smaller scale typology is limited to two stores because it is located within close vicinity of the historical siheyuan structures...”
Land

The land condition has similar characteristics to that of the existing traditional siheyuans. In this condition, the units are placed surrounding a courtyard space on level ground with no contact with the water from the wetlands, only vegetation. Connecting the various contemporary siheyuans is a raised platform, which stands above the new ground plane, that allows for the vegetation to grow below and beyond these walkways. This allows for the least amount of disturbance to plant growth, improved water runoff and pedestrian/bicycle circulation throughout the site. This typology has medium to high income living in this portion of the site because of the large open spaces and lower density, which necessitates a higher cost of living.
Some contemporary siheyuans will be constructed entirely on water. These will be similar to those constructed solely on land, being that individual units will face inward towards a centralized courtyard area. But this condition will be different in that the agglomeration of units will more closely resemble that of a man-made island. The shared foundation for each unit will sit at the middle of the site and double as a hardscape for the courtyard area. The walls of the units will rise above the surrounding berm, with the second floor extending past the berm line over the water, supported by steel columns that rise out of the water. This second level will have a view that looks over the wetland area at a dense mixture of foliage and fauna interdispersed throughout the project site. This typology will also have personal gardens situated on the roof's of some building units.

3.3.36

**Land/Water**

Having land and water be determining factor for the footprint of the buildings allows for a mixture of the land and water driven units create an courtyard space connected by the surrounding landscape. The land/water units are arranged using a method similar to the all-water condition by having a bermed structure separate the water from the dry land and foundations of the units. This condition still requires the steel columns supporting the cantilever to be placed out in the water. Private garden spaces will be located on the lower level as well as above the units.
The communal courtyard is an important part of life for the Chinese people and has overtime lead them to a greater sense of community. In developing a mid-density typology we wanted to create smaller courtyards throughout each level of the buildings so that multiple families could utilize these spaces. Additionally, the focus was to also create a denser form of living than the proposed two story housing. The vertical courtyard also has a large community courtyard for its residents to utilize. We have attempted to obtain the same elements found in the current siheyuan housing, but taken to a denser form. These large, open spaces allows the residents to expand on the community gathering aspect found in the siheyuan housing but at a safer, more open space when compared to the current conditions.

The vertical courtyard would be the more commonly represented typology found throughout the site. This typology would be the most flexible in terms of the various program integrated into the organized layers of this typology. The vertical courtyard would allow for numerous amounts of mixed use program spread throughout the lower level of the units. The open courtyard space is open to the public but still allows for the residents to use the common area.

In order to have this new typology last, it is designed to be constructed of only sturdy, long-lasting materials. Materials, such as composite decking for all outdoor decks including the raised path, concrete foundations and walls, high performance glazing and metal louver systems, all of which are used to construct the other two typologies. This typology addresses the density issue in China more so than the contemporary siheyuan because of the increase in the number of residents per square area. These units would be open to low to medium income earners, which would be similar to apartment units reaching about 3 to four stories in some areas.

“In developing a mid-density typology we wanted to create smaller courtyards throughout each level of the buildings so that multiple families could utilize these spaces.”
In the land condition, the vertical courtyard would have the units’ foundations located directly within the top layer of earth like a typical building. The center courtyard space is the main gathering point of the public and private activities. It is lowered below grade to create a safe, quiet space for the Chinese to enjoy community gatherings. The space is wide open on the east and west sides to allow for a high level of permeability and circulation between the various spaces. This shares characteristics with initial design intentions of the existing courtyards, having different program situated in the north, south, east and west axis. Open spaces are stacked vertically throughout the strips of units. These have access to natural sun and ventilation to allow for the free flow and growing of private gardens and activities.
The water condition for the vertical courtyard drastically changes the way the structure of the units touches the ground. Instead of having the foundations of the buildings sit directly on the ground, the steel columns support the units by raising them directly out of the water. The communal courtyard is more flat compared to the land condition of the same typology because the entire enclosed area is elevated a set distance above the water line, creating a more secure and safe area for activities to occur. Unit covered walkways connected to the elevated path running throughout the site is what connects this typology to the rest of the site. The private, open garden spaces are situated above the units throughout openings in the systemized strips of units and on the top level above the varying heights of units.

The wetlands create many conditions where the units are surrounded by water on one side and land on the other. This mixture creates a change in elevation for the courtyard as well as the individual units. The structural members rise out of the water of the wetlands but also extend to support the units above the land as well. These units are also connected to the elevated path either from above the water or land areas. Private garden areas are located throughout the openings between units as well as on top of them. The public courtyard, which is utilized by both the public and residents, has the various communal activities situated at different levels between the units.
The hutong (or narrow streets) of Chinese communities are extremely unique, not only in characteristics but also in how the Chinese people interact with each other in these narrow pathways. The focus on the Vertical Hutong was to re-create the same identity and interaction of the hutong but to take these ideas and place them into a vertical design. This vertical design allows for the residents to shop, play, eat, rest or interact with other residents on different plazas at different levels. The circulation becomes the focal point in this typology and the system that sustains it is flexible enough that programs can always change depending on the current needs of the community. The circulation from the existing buildings is translated vertically into the circulation paths with various levels of resting points that become nodes of interaction amongst the residents. The vertical circulation of the Vertical Hutong is the main focus that is driving the design of this typology.

The exterior structure works as a frame or open canvas so that residential units, shops, markets, and offices can be inserted as the demand for them is needed. This way the life span of each building is extended through different economic times. To create the most efficient and high performing structure, we designed two long narrow slab building types which run east to west, so that the maximum amount of sunlight would reach each unit. The layout of the buildings is reminiscent of the layout of the siheyuan housing because of the community courtyard at the center of the complex. This space varies on program and uses depending on the landscape and the surrounding densities. The heights of the structures also take into consideration sun angles, having the southern building lower to maximize the sunlight on the community courtyard as well as the surrounding buildings.

“The focus of the Vertical Hutong was to re-create the same identity and interaction of the hutong but to take these ideas and place them into a vertical design.”
When the Vertical Hutong is in contact with the land, the community courtyard is used to create a small community mall with restaurants and regional stores to serve the larger surrounding community as a whole. The mall would be below grade while having the entry to the complex on the ground level. Some of the unique features of this typology are that there are more lower income residents living in the complex because the regional mall can support the building as a whole. The public gathering spaces are located on the ground and lower mall level, while the private residences and private gardens are located on the floors above. Similar to the vertical courtyard, the axial layout of the typology is one of the main design guidelines, which creates open connections through the east and west directions and the arrangement of units on the North and South.
The wetlands create a unique opportunity for the Vertical Hutong and we were able to experiment with platforms and sky bridges to connect the two buildings together. These bridges serve multiple functions for the complex. At the water level they serve as a place to gather for different activities. At the upper levels it serves as a connection point between the north building and the roof garden. Since there is less space on the ground we utilize roofs for the public to gaze out into their community from experience the connection to the wetlands. Because of the increased quality of views due to the flowing of the landscape, a larger amount of medium to some high income residents will live in this typology. The visual and physical connection between the private gardens integrated within the stacked units will be a draw for higher income earning residents.

3.3.48

Land/Water

In trying to design for both landscape and building features simultaneously, we incorporated retail at ground level, but also tried to create a unique experience with the water. It is similar in design to that of a typical boardwalk with retail around it, but at the center there are large, open platforms for people to gather around. The spaces on the platforms change depending on the rise and fall of the overall water levels. These communal spaces will be a large draw to the public as well as the residents, which will create a connection point between the two. Private garden spaces will also be included within this typology but on the levels above and between the stacked units. The pathways are connected to the elevated walkway which is how this typology is connected to the rest of the site.
3.3.e.ii. Architectural and Landscape Installation Guidelines

The landscape design features a rigid grid of organic, architectonic and built installations that will respond to the site and their specific position in responsive and critical measures. Sites that fall within the footprint of a building, for example, will have to respond to that condition, either within or around the structure. Conceptual examples follow, but installations are to be developed primarily by local designers and artists from the community.

Installation Examples:

TransPose

TransPose is inspired by the siheyuan courtyard homes. The buildings of a siheyuan surround a focal courtyard that anchors the design physically, socially, and spiritually. This installation inverts the siheyuan design, placing constructed materials in the courtyard center and forming the perimeter with earthen structure surrounded by trees. Users will enter from the corner through a narrow passage into an open area embraced by mounded earth and dappled shade. These spaces are intended to be openly usable, allowing for both intimate social interaction or active spaces where children can roll down the mounds and engage in the central area.
These water installations are placed on open fountains, dotted with tall, chrome beams and vertical water jets, placed at changing intervals on an irregular grid. The concept is inspired by falling rain, in that a single drop of water falling over time can be expressed as a straight line. The chrome beams are these straight lines, their reflective quality evoking a sense of water, and their placement, at varying angles, will be wide enough to move and play around. Between these poles, water jets emanating from the ground will shoot water into the air intermittently and at alternating times. In the warm months, this spirited installation provides escape from the heat and will invoke play and curiosity, as users can run throughout the installation exploring the spontaneity of the water jets. When the weather turns too cold to run the fountains, the beams will still provide serene reflections within the landscape, evocatively warping it in ways both contemplative and grotesque.

3.3.c.v. Project Implementation / Construction Schedule

The project team recognizes that due to the size and scope of the project, a number of residents and families will ultimately be affected and have therefore built-in provisions to provide temporary housing and later permanent, affordable housing for the current local populace. Secondly, the public will be encouraged to actively participate in the project development phase in order to gain the community input necessary to prevent future public resistance to the proposed project and to specifically tailor the project to meet the needs of the current residents. A similar plan will also be put in place to deal with project area businesses and other current commercial uses.

**Phased Approach**

The construction project will be completed in a series of phases to provide a smoother construction schedule work flow in order to encourage as many local citizens as possible to return to the redevelopment area once complete.

**Phase I:**
Phase one will consist of redeveloping the northeastern quadrant of the project area site. This site was selected first for a number of reasons:
- It's location is furthest from the project area site.
- It contains all three of the project’s housing typologies: low rise, mid rise, & high rise.
- Phase one will act as a prototype for the rest of the project regarding how each building type will look and function.
- It contains a large portion of open space that will contain the future wetlands proposed.
- During this project construction phase the future wetland site will serve as open space to hold the temporary worker housing, construction office trailers and construction equipment.
- Finally, it will contain the sales office of the project containing a scale model of the site and information pamphlets to allow potential future residents to see what the area will eventually become.

**Phase II:**
Phase two of construction will involve the lower portion of the site containing the General Xie memorial site and much of the historical hutong surrounding the General Xie memorial.

**Phase III:**
Phase three involves the construction of the multi-story high-rise and mid-rise buildings in the upper northwest section of the project area site. It is hoped that at this stage many of the offices/retail/residential units will have already been purchased and/or rented.

**Phase IV:**
Phase four involves the construction of the sites landscape and wetlands systems. This was selected to be performed at the end of the project, considering the process is delicate and would not work well during the building construction occurring during the prior three phases.

**Fig. 3.3.e.23: Water in Time Installation Vision**
The overarching theme of our project is to return land that has for thousands of years belonged to the built environment, back to the natural environment. The interdisciplinary team of architects, landscape architects and urban planners envisioned a design that would allow for the blending of these two very separate environments in order to satisfy the Chinese people and to provide developers with enough benefits to encourage them to invest in the project. This design approach of having the landscape define the built environment, allowed for more ecological adaptability while providing for a more vibrant community. As Beijing continues to advance into the 21st Century, protecting older areas of the city through creative and inventive strategies will ensure the longevity of China’s cultural traditions.