Resident Involvement in the Landscape Architectural Redesign of Public Housing: Creating Opportunities for a Sense of Ownership, Control, and Efficacy through a Participatory Design Process

by

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(ABSTRACT)

Public housing provides affordable housing for low-income families. However, the physical and social conditions have deteriorated since its inception, resulting in housing environments that are isolated and disconnected from surrounding neighborhoods and often plagued by crime and violence. This study explores opportunities for enhancing residents’ sense of ownership, control, and efficacy through the redesign of outdoor spaces at the Fulton public housing development in Richmond, VA.

Residents participated in a design process that produced a Conceptual Landscape Master Plan based on their preferences, and a set of guidelines and recommendations for the implementation and maintenance of the proposed external spaces of the Master Plan.

The study presents design objectives and criteria addressing public-private spatial delineations, public space, pedestrian and vehicular circulation, development image, and safety considerations. These objectives and criteria were used to evaluate design options and to generate two design concepts from which the residents selected appropriate design solutions for their housing development. The study concludes with the presentation of a preferred Conceptual Landscape Master Plan. The plan presents a hierarchy of public-to-private spaces, clear delineations of semi-public and semi-private spaces, and the location of active and passive public recreational spaces. It also addresses the legibility of pedestrian and vehicular access, circulation, and parking, as well as safety issues such as natural surveillance, access control, and territoriality.

The participatory process guided the redesign of the Fulton public housing site, and also provided an understanding of the underlying social conditions that significantly impact the residents and their use of space. The preferred landscape design reflects the residents’ needs, concerns, and wishes, and creates opportunities to foster interaction and involvement among the residents and the surrounding communities.
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CHAPTER 1: INTRODUCTION

1.1 Background

The Great Depression of the 1930’s brought a decrease in the standard of living as well as a decrease in the incomes of most working class Americans. This made purchasing affordable, decent housing difficult for war veterans and the working poor. As a result, the federal government created the public housing program (U.S. Housing Act of 1937) to build and maintain low-income housing as a temporary place for the working poor and war veterans to live until they got back on their feet.

Today, public housing continues to provide affordable housing units to low-income families. There are more public housing units than any other type of assisted housing in the United States (Stegman, 1990). However, public housing developments have become a “series of vacant shells scarring the urban landscape” (Cisneros, 1996, pg. 1). The physical and social conditions within these developments have deteriorated considerably over the past 60 years, resulting in environments that are isolated and disconnected from surrounding communities and often plagued by crime and violence.

Typical public housing looks drastically different from the market housing developments found in surrounding neighborhoods. It lacks the public-to-private hierarchy of external spaces that allow residents opportunities for both social interaction and privacy. Physical design standards adopted during the 1940’s and 1950’s eliminated through streets in urban renewal schemes, and placed large areas of undifferentiated open space around the new high rise buildings and row houses. These measures were intended to combat the unsanitary housing conditions and overcrowding that were prevalent in low-income areas in many American cities. Instead, these design standards eliminated opportunities for private and semi-private spaces outside housing units. The units became detached from public areas and isolated from surrounding neighborhoods and commercial and social services.

Design standards typically restricted the type and color of materials used in construction of public housing, and the use of physical barriers such as fencing and vegetation to delineate private and semi-private outdoor space from more public areas (von Hoffman, 1994). These elements were contrary to the prevailing architectural vision of an unrestricted, open community for all to view and enter. This has resulted in safety problems and a fear of crime on the part of residents, since they are unable to provide natural surveillance onto public areas, control access to their sites, or claim territory around their housing units.

For most residents, public housing is no longer a temporary place to live. Residents live in public housing because of the failure of the private market to provide affordable, decent housing for the very poor (Cisneros, 1996). The decline of
physical and social conditions in public housing developments has resulted in monolithic environments that prevent resident interaction and involvement. Residents are denied private and semi-private external spaces around their housing units. These spaces help to foster responsibility, an element essential to creating and building a sense of community.

Public housing residents typically live in high poverty neighborhoods. They endure a federal system that penalizes them for being poor through statutes and regulations. Residents often lack a sense of ownership and control over where they live. Frequently they feel powerless to effect change in the physical delineation of space around their own homes, due to management and maintenance regulations that restrict the use of fencing to provide privacy or contrasting materials to differentiate façades.

“Humans feel a psychological need to be able to control their immediate environment and have the freedom to shape their territorial space” (Leavitt, 1995, pg. 225). For public housing residents, this type of control does not exist. Therefore, designers need to begin to address the physical characteristics of the outdoor environment in public housing developments, in order to create safe, legible, and aesthetically pleasing public and private spaces, that foster interaction among residents and reconnection with surrounding communities.

1.2 Purpose

The purpose of this study is to explore, through the redesign of outdoor spaces in a public housing development, opportunities for enhancing residents’ sense of ownership, control, and efficacy (i.e., the power to produce results or effects). This study addresses the challenges involved in designing the landscape of a public housing development with the participation of its residents. It explores a process of user/designer collaboration aimed at creating more satisfying public and private outdoor spaces, based on an understanding of the needs and desires of the public housing residents.

Residents of Fulton Multifamily Housing development, a small public housing development in Richmond, VA, engage in a process that encourages their active participation, so that their concerns, needs, and wishes can inform the redesign of the external public, semi-public, and semi-private spaces within the development. The study takes the approach that Fulton residents should be encouraged to exert more control over physical and social aspects of their housing development. They can voice their opinions and actively participate in a process that provides them a sense of efficacy.

The study site exhibits many of the physical design characteristics commonly found in public housing developments, such as large areas of undifferentiated open space around buildings, lack of a clear hierarchy of public-to-private space, and safety issues such as poor access control and lack of natural surveillance. But the site also presents issues that are site-
specific, such as severe erosion/drainage problems, soil compaction, and exposed tree roots.

The redesign proposes improvements to external (public-to-private) spaces around housing units, based on resident input. By collaborating in the design process, a mutual understanding results between designer and residents. This is essential to creating a landscape architectural design that enhances the physical environment of the public housing development, and gives residents the power to effect change and take on more responsibility for the maintenance of the external spaces surrounding their units.

1.3 Approach

The study engages the residents of a small public housing development in a participatory process to encourage a sense of efficacy. Design options are proposed for the improvement of the exterior public-to-private spaces in the housing development in order to increase resident responsibility, as well as their sense of ownership and control. The design process begins with a review of pertinent literature and case studies to provide a conceptual framework for studying the site. Literature on public housing provides a context for understanding the origins of public housing, its social problems, the evolution of physical and spatial design characteristics, and the future design directions for these environments. Case studies are a reference for selecting the types of methods that are best suited for engaging the public housing resident in a participatory design process.

The site analysis explores existing site conditions and residential preferences. Analysis of the housing development provides information about existing perceptual and spatial qualities, safety issues, erosion/drainage problems, pedestrian and vehicular circulation, vegetation, and landscape character. The site analysis also presents useful information about the location and context of the study site within the city of Richmond and the surrounding community of Fulton. Site observations provide information about the residents’ use of the external spaces.

The study employs participatory design methods to gather information from the residents, housing authority personnel, and external community members, in order to understand the dynamics of the site, its problems, needs, and potentials. Public meetings, workshops, observations, and informal interviews either corroborate or refute information provided by the various sources. The study also assesses the strengths and weaknesses of these techniques to determine their effectiveness throughout the process.

The information gathered through these means (meetings, workshops, site analysis, informal interviews, and observations) informs design objectives and criteria that are used to generate and evaluate landscape architectural design options.
for public-private space, development image, pedestrian circulation, and vehicular circulation. Safety considerations are also applied in evaluating each option.

Two design concepts are derived from evaluating the options. These concepts best provide opportunities for increasing resident interaction as well as resident responsibility, ownership, and control of the public, semi-public, and semi-private spaces. Residents and housing authority personnel evaluate the two design concepts, selecting a preferred concept for implementation.

1.4 Product

The study provides a Conceptual Landscape Master Plan for the Fulton Multifamily Housing development that takes into account the overall image of the development, internally and externally. The conceptual landscape master plan establishes a hierarchy of public-to-private space, clear delineation of semi-private residential space and semi-public (communal) space, as well as the location of active and passive public recreational spaces. The plan also addresses the legibility of pedestrian and vehicular access, circulation, and parking. Safety issues such as access control and natural surveillance are also important considerations in this plan.

Illustrative perspective, axonometric, and section drawings support the Conceptual Landscape Master Plan. They illustrate design characteristics of the public space as well as the semi-public and semi-private spaces around the housing units. These drawings show examples of vegetation and fencing used to delineate spatial boundaries, the placement of play areas, and design elements such as retaining walls, lighting bollards, textured walkways, and porch details recommended in the plan.

1.5 Document Content

The first chapter of this document introduces the background and purpose of the study, the study site and the approach used to gather information, and describes the final product. Chapter 2 examines relevant literature and case studies that deal with the design of exterior spaces in public housing, and participatory design methodologies, in order to formulate a conceptual framework for studying the site. Chapter 3 examines the study site, its location, context, and demographics, as well as site analysis results, in order to uncover the critical potentials and constraints that direct the exploration of design ideas. Chapter 4 describes the process used to gather information from the residents and the conclusions generated. Chapter 5 analyzes information gathered from participatory workshops and meetings, together along with the potentials
and constraints derived from the site analysis, in order to generate design objectives and criteria for the design process. Chapter 6 presents design objectives for various landscape architectural design options dealing with public and private spatial delineation, pedestrian and vehicular circulation, development image, and safety. Two design concepts are generated and presented to residents for selection of the final design. Illustrative scenarios showing the public-to-private spatial characteristics of the conceptual landscape master plan are also provided. Chapter 7 presents design guidelines and recommendations for maintenance and management of public, semi-public, and semi-private spaces. Finally, Chapter 8 concludes with a discussion of the implications of the study, recommendations for further study, and an assessment of the effectiveness of the participatory process.
CHAPTER 2: LITERATURE REVIEW

Physical, economic, and social issues in public housing must be understood by the landscape architect in order to create design opportunities in the external spaces of public housing developments that foster a sense of ownership and control as well as provide a sense of efficacy for its residents. This chapter presents information on the physical, economic, and social issues that impact public housing design, its management and maintenance, and the involvement of residents in the revitalization efforts. Physical issues address the physical design characteristics of public housing, public-to-private spatial delineations, and safety issues that have resulted in a lack of semi-public, semi-private, and private spaces, lack of access control, and crime that plague many public housing developments.

Economic issues address the origins of public housing and the social impact of design decisions on the physical characteristics of public housing, such as the lack of long-term goals and strategies to sustain a permanent group of housing residents. This section also presents current federal programs, such as Welfare Reform and HOPE VI that seek to change management, maintenance, and the physical redesign of public housing developments.

Social issues address community building, tenant organizations, and resident participation, which are impacting revitalization efforts today in public housing. This section shows the importance of resident interaction and involvement in design decision-making as well as efforts by tenant organizations to spearhead change.

Case studies present some examples of public and low-income housing that have engaged residents in the design process in order to redesign their developments. These examples provide valuable information on the types of participatory methods, and how they were used, as well as an evaluation of their strengths and weaknesses.

2.1 Physical Design Issues in Public Housing

The following sections present literature on the physical design characteristics of public housing, public-to-private spatial delineation, and crime prevention through environmental design. Physical design characteristics present the different stages of public housing design and the architectural influences that led to the current state of public housing. Public-to-private spatial delineation addresses the spatial hierarchy necessary to enhance sense of belonging, community, and responsibility, elements lacking in many public housing developments. Crime prevention through environmental design (CPTED) provides information on the techniques necessary to provide a safe housing environment, such as natural surveillance, access control, and territoriality. These elements are also lacking in many public housing developments.
Public housing has experienced many design changes over the past 60 years. However, the majority of public housing units constructed between 1950 and 1970 are still being used today. Crime, a lack of public, semi-public, and semi-private space, as well as a lack of ownership, control, and responsibility for the external spaces plague these developments. The following section addresses the physical design characteristics that contributed to the lack of ownership and control by the residents in today’s public housing developments. In addition, this section presents design elements that are being reincorporated into public housing to enhance a sense of community and responsibility for its residents.

**Physical Design Characteristics**

Public housing has undergone three distinct stages of design since its inception during the 1930’s. Stage I design introduced the garden apartment. This stage lasted from the 1930’s until the early 1940’s. Stage II design introduced the superblock, which was used from the late 1940’s until the 1970’s. And in the 1980’s, Stage III reintroduced low-rise buildings that had been used during the early stages of public housing design. These are currently used in the new construction and the redesign of many public housing developments.

Stage I design of public housing began with the construction of 2-to-4 story walk-up buildings, also known as garden apartments (Franck, 1994). (see Diagram 2.11) These developments typically ranged from 300-400 units and contained semi-enclosed courtyards, providing semi-private and semi-public spaces for residents to use and claim as their own. Buildings were aligned with the public streets, providing natural surveillance and connection to the surrounding neighborhoods and entries were primarily from interior courtyards, controlling access onto the site and ensuring privacy for residents (Franck and Mostoller, 1995).
During the 1940’s, public housing design was experimental and subject to change. Row houses and high rises surrounded by large open spaces replaced the garden apartments that had provided individual and communal outdoor spaces. According to von Hoffman (1994), public housing designers and planners were influenced by leading architects in European housing design, such as Walter Gropius, Marcel Breuer, and Le Corbusier. As a result, they began to adapt these styles to public housing developments in American cities.

This began stage II, which introduced the universal design theme to American public housing. This design provided large amounts of open space around buildings, closed through streets to create superblocks, and created geometric patterns by placing buildings at angles to neighborhood streets, in order to increase the amount of open space around the buildings. (see Diagram 2.12) The universal design theme also downplayed individuality of households and communal character. Housing units lacked physical barriers to delineate semi-public, semi-private, and private space. They also lacked visible distinctions to differentiate between dwelling units (Franck, 1994).

European architects envisioned using the universal design theme to create “an all-inclusive and unrestricted community that extended beyond the actual site” (Franck, 1994, pg. 28). However, American public housing designers and planners believed that it would create a safe, decent, and healthy housing environment for residents. Using open space to create a safe and healthy environment was an important design consideration during this time. Designers and planners believed it would alleviate the unsanitary housing conditions caused by overcrowding, and other public safety issues that had plagued urban areas in the U.S. since the 19th century. By creating large masses of open space around buildings and providing no through streets (superblocks) to connect the site to the surrounding neighborhoods, public housing designers felt they were protecting residents from urban problems, such as crime and disease seen in the blighted areas (Franck, 1994).

The 1950’s brought additional changes to public housing that were also influenced by European architects. American public housing designers and planners adapted Le Corbusier’s tower-in-the-park design to public housing. Towers were
built to increase the number of housing units in order to meet the overwhelming demand for public housing. This was done without sacrificing the surrounding large open spaces. According to Franck (1994), these towers, also known as elevator or high rise buildings, were typically a minimum of 10 stories tall and could house more units (most averaging >1000 units) than the previous row houses. (see Diagram 2.13) In addition, their massive height provided more open space at the base of the building. These spaces were symbolically and physically open to all to view and enter, thereby supporting the universal design theme of an all-inclusive and unrestricted environment.

Diagram 2.13: Stage II Public Housing - Superblock (High Rises)

But during the 1980’s, the universal design theme was rejected in exchange for Stage III public housing design. Stage III replaced large open spaces (universality) with more private and semi-private spaces (individuality), a design characteristic originally used during the first phase of public housing construction. (see Diagram 2.14) Franck (1994) states that public housing designers began to understand the importance of spatial definition and enclosure and its subsequent impact on identity, the sense of community, and connection to the surrounding neighborhoods.

Diagram 2.14: Stage III Public Housing - Individual Units
Designers discovered that the large, open spaces had become vast wastelands because of the lack of territorial ownership on the part of the residents, and due to misuse by outsiders. Criminal activities were exacerbated in these open spaces, and residents were concerned for their safety. Furthermore, the massive high rise structures and large open spaces produced environments that were isolated from the surrounding communities, due to the lack of amenities and services, and lacked safety, due to the disconnection between buildings as well as the individual units from the ground level.

Today, low-rise buildings, private yards and semi- or fully enclosed courts are now the design preference for public housing developments. They provide residents with a sense of individuality through private and semi-private yards for each unit, and a sense of community through the public and semi-public spaces used for social gatherings and recreational activities. However, many public housing developments are still isolated from surrounding neighborhoods. They lack through streets and amenities typically found in market housing, such as the delineation of private space provided by fencing and vegetation and façades that differentiate one house from another.

Franck (1994) states that public housing designers and planners now want to integrate these developments back into the community. Treatment of building façades, private entrances and yards, and communal spaces, once seen as unimportant, is now providing a sense of identity internally within these developments as well as externally to the surrounding communities. Renovations and new construction of public housing provide opportunities for making physical distinctions between fronts and backs of buildings, public and private space, and individual dwelling units (Franck, 1994). Furthermore, the reintroduction of through streets and the alignment of building entries and façades to the public street are reconnecting many public housing developments back into the urban fabric.

**Public-to-Private Spatial Delineation**

A well-functioning built environment provides appropriate levels of public space as well as space for private activities. Lang (1994) states that “people need to carry out certain activities ... free from censure and to have opportunities to withdraw from other people and the activities of the world” (pg. 238). Spatial boundaries provide that level of privacy, and allow people to exert “control over one’s own activities and the access other people have to them” (Lang, 1994, pg. 238).

According to Gehl (1987), the physical framework and the functional and social partitioning of a space can enhance or diminish opportunities for activities to develop. Urban form provides patterns in the landscape that yield a sense of order and “integrate built structures by enclosing space for some use together with unbuilt areas used as open space for circulation” (Lozano, 1990, pg. 40). A hierarchy of space from private to public gives meaning to those patterns, providing environmental cues and enabling people to orient themselves within the landscape and to determine the types of activities
that can be performed.

“Flexible boundaries ... function as connecting links making it easier ... for residents and activities to move back and forth between private and public spaces...” (Gehl, 1987, pg. 115). These transitional zones are neither completely private nor completely public. They permit movement to occur from small groups and spaces toward larger ones, providing a greater sense of security and a stronger sense of belonging to the areas outside the private residence.

The design direction adopted for public housing at its outset ignored all the characteristics that had contributed to interaction and involvement and sense of community among neighbors. It stressed design from a functionalist perspective, providing residents with large amounts of open space around housing units, in order to combat diseases that resulted from overcrowding in urban areas. Psychological and social aspects of building and public space design were disregarded. Buildings and entrances were oriented away from the street, and the delineation of spatial boundaries from public-to-private was abandoned.

Today, design and redesign guidelines for public housing recommend private yards, use-defined common spaces, and public-to-private transitional zones. Physical boundaries are needed to create private and semi-private spaces, giving residents responsibility for as well as a sense of ownership and control over the external spaces surrounding their housing units. “Establishing residential areas so that there is a gradation of outdoor spaces with semi-public, intimate and familiar spaces nearest the residence makes it possible to know the people in the area better” (Gehl, 1987, pg. 61). The perception that outdoor spaces belong to the residential units results in a greater degree of natural surveillance, collective responsibility, and territoriality.

• Crime Prevention through Environmental Design (CPTED)

The physical design of public housing lacks many of the physical elements that provide for a safe environment. The absence of user-defined boundaries (symbolic or real) and informal gathering spaces minimizes communication and interaction between residents. In addition, design standards that abandoned the street and placed large expanses of open space around the housing developments, also limit resident access to surrounding neighborhood services and facilities.

The universal design of public housing stresses the symbolic and physical openness of the site, provides no physical barriers, and de-emphasizes individuality and community within the development. These developments lack the very elements that allow people to feel safe, because they are isolated as well as visibly and physically open to anyone who wants to enter the site. People need to feel safe and to know where they are in relation to their social and physical
surroundings (Lang, 1994). However, the physical design of public housing provides opportunities for outsiders to come in undetected and commit criminal acts, due to a lack of territorial ownership by the residents.

Jacobs (1961) states that there are two physical characteristics necessary for the street, neighborhoods, and residents to be safe. These characteristics are “eyes on the street” and mixed zoning (residential and commercial) which provides residents with natural surveillance opportunities of their neighborhood, and allows for interaction and involvement throughout the day and night, due to the intermingling of commercial businesses with residential dwellings. However, many public housing developments contain practically “no facilities or services and no functional provisions in order to support the community” (Franck and Mostoller, 1995, pg. 212). They are disconnected from surrounding neighborhoods and commercial areas, due to the absence of through streets and the surrounding large expanses of open space. In addition, the physical design of many public housing developments places the building entries away from the public street, thereby limiting opportunities for natural surveillance by the residents.

Mixing commercial and residential areas is essential to the development of community. It provides opportunities for continued use by different user groups, and natural surveillance through the presence of people performing their everyday activities (Jacobs, 1961). This, in turn, decreases the opportunity for crime and more importantly, the fear of crime.

The first step toward bringing tenants out of the state of isolation and fear in public housing developments is regaining a measure of control of the physical environment. Vale (1995) argues that “successful low-income housing must involve an approximation of precisely those spatial amenities and standards that are valued in the private-sector homes” (pg. 301). By providing physical elements, such as windows facing the street, lighting, fencing, and front porches, that are similar to those found in the private market, public housing residents will be more inclined to observe their surroundings, control who and who does not have access to the site, and move around without fear.

Physical designs can make communities more attractive as well as prevent crime (Crowe, 1994). “Proper design and effective use of the built environment can reduce the fear and incidence of crime and thereby improve the overall quality of life” (Crowe, 1994, pg. 22). Newman (1972) identified characteristics necessary for creating safer neighborhoods - natural surveillance, access control, and territoriality. When these characteristics are present, they can make it difficult for criminal opportunities to occur, facilitate the detection of offenders, and influence social behavior. By providing a physical structure that is safe, the individual is given the opportunity, encouragement and the means to extend his/her use and sphere of responsibility for the neighborhood beyond the front door.
2.2 Economic Issues in Public Housing Design

The following section presents literature on the origins of public housing and its social impact on the physical design characteristics as well as an overview of federal legislation and key decisions that led to the creation of the public housing system. This section helps to clarify key design decisions that led to the three stages of public housing design as well as the change in the demographic nature of the resident population over its history. This section also provides an overview of new federal programs instrumental in the revitalization of public housing developments.

• Origins of Public Housing

The U.S. Housing Act of 1937 created public housing due to a continuing decline in working class incomes that made it difficult for war veterans and the working poor to purchase housing. This program provided direct assistance to local agencies “… to remedy the unsafe and unsanitary housing conditions and the acute shortage of decent, safe, and sanitary dwellings for families of low-income in rural or urban communities…” (Nenno, 1996, pg. 178). At its inception, public housing was intended to provide temporary places to live. But by the mid-to-late 1940’s, lower class minority families were migrating to northern cities in search of profitable jobs and war veterans were returning home, thereby making the housing shortage even more evident. Post war housing programs, such as the federal loan programs, helped war veterans and white working class families to move out of public housing, but many migrant lower-class minority families were still confronted by a lack of decent, affordable housing. As a result, public policy began to shift in order to accommodate this growing population. Furthermore, the demographics of public housing developments began to change from the homogeneous group of white working class families and war veterans to a lower class of under-educated minority families who migrated from the southern rural areas in search of jobs.

The U.S. Housing Act of 1949 prohibited discrimination against welfare recipients, (i.e. unemployed and minority families displaced by slum clearances and the Urban Renewal Programs), and fostered the integration of public housing (Stegman, 1990). As a result, white working class families considered public housing as the “domicile of last resort” (Vale, 1996, pg. 104). In addition, the 1964 and 1968 Housing Acts extended subsidies to all families displaced by urban renewal policies. This introduced more very low-income and minority families into public housing and further enhanced the image of public housing as a permanent haven indelibly associated with race.

During the 1940’s, many families whose incomes exceeded poverty-level ceilings, were evicted from public housing, making way for lower class families that could not afford housing. Tenant screenings for admissions were abandoned and selection was on first come, first serve basis. As a result, public housing came to be even more associated with lower class
minority families. Vale (1996) states that “as the socioeconomic status of the public housing population deteriorated, the percentage of white families housed likewise decreased. As a result, the political clout of the residents - never very great to begin with - declined further making them increasingly vulnerable to negligence and mistreatment” (pg. 104).

Today, public housing accounts for only 5% of all rental housing, but it is the major supplier of assisted housing to the poor in the United States (Stegman, 1990). It provides a stable supply of affordable rental housing to low-income families and is a tangible response to the failure of the private market to provide sufficient housing at affordable rents for the poor. But even though public housing is still affordable, it is no longer a temporary place to live. Key decisions made by federal legislators, such as the U.S. Housing Act of 1969 (Brooke Amendment), which “protected very low-income tenants by capping rents at 25% of resident income”, helped to create and sustain a resident population that is now permanent (Stegman, 1990, pg. 348). Furthermore, housing planners failed to anticipate and prepare for the future by providing economic and social provisions to address the changing resident population. This has had serious implications for both the physical and social environments of the public housing development.

Today, the physical implications of public housing design are manifested in the physical design characteristics as prescribed in the previous section. But in terms of social consequences, the concentration of poor (primarily minority) non-working families in housing environments that lack public-private spatial boundaries and access control, and are isolated from commercial and social services, has served to enhance opportunities for crime and diminish social interaction between residents.

However, federal reforms, including HOPE VI and The Personal Responsibility and Work Opportunity Reconciliation Act of 1996, were proposed in 1996 to overhaul housing policy. HOPE VI provides flexible resources to local housing authorities by giving federal dollars for physical renovations and socioeconomic support programs. It also permits public housing authorities to develop a plan that not only includes physical reconstruction or rehabilitation, but also replacement of units (Cisneros, 1996). The Personal Responsibility and Work Opportunity Reconciliation Act of 1996, also known as Welfare Reform, revises federal welfare policy. It relaxes and/or eliminates some of the restrictive rules, such as employment restrictions and income limits, that penalized the public housing resident for being poor. These two programs hold the most promise for change in the social and economic aspects of public housing.

• Social Impact of Public Housing Design

With the shift in the demographic nature of public housing and the failure of housing planners to prepare for such changes, public housing began a gradual decline. Public housing began to exhibit some of the same physical and social
conditions that were the driving force for its creation in the first place, i.e. being unsafe, unsanitary, and overcrowded.

Public housing was now a housing problem both socially and physically and a source of criminal activities.

According to Nenno (1996), “serious mistakes were made in the selection of sites, design of projects, and construction of public housing” (pg. 99). After World War II, administrators were too quick to embrace “functionalist and collectivist architectural theories…” that proposed building design provide ample amounts of light, air, sun, and ventilation as well as provide access to large open spaces (Nenno, 1996, pg. 103). In addition, new technical advances in construction such as the elevator and the high rise (tower) building enabled designers to create structures that reached upward toward the sky without sacrificing the amount of surrounding open space on the ground.

Public housing was built to standards restricting design to health and safety rather than attractive livability” (Nenno, 1996, pg. 104). The new design theories provided the vehicle to address the unhealthy housing conditions found in the tenements and slums of the city. However, these theories also rejected activities deemed important to the interaction of residents and the sense of community in any housing development, including playing in or near the streets, sitting on stoops, and standing around the street corner. This has resulted in a public housing environment that lacks resident involvement and responsibility for the external spaces surrounding their housing units, providing opportunities for criminal activities.

Public housing was created with a limited economic mission and despite changes in the racial, economic, and social demographics of residents throughout its history, no provisions were made for basic restructuring and timely maintenance and renovations (Nenno, 1996). From the 1930’s until the 1980’s, the number of housing units produced increased substantially, but there has been little or no funding for replacement or renovations of the existing units. This has resulted in a backlog of repair needs and a public housing stock that has serious structural and safety problems (Nenno, 1996).

Fiscal policies also led to the failure of public housing operations. Nenno (1996) believes that limited short-run costs and long-run responsibilities, ineffective operating subsidies in the 1960’s and early 1970’s, and inadequate management controls locally and nationally were major factors in the decline of public housing. However, two new policies, as described in the previous section, are providing federal dollars for management improvements, community and supportive services for residents as well as for the physical reconstruction of public housing sites.

2.3 Social Issues in Public Housing Design

The following section presents literature on community building, tenant organizations in revitalization efforts, and resi-
dent participation, issues currently impacting physical changes in public housing design, and resident and housing au-

thority perceptions of public housing environments. Community building empowers residents to take more ownership and
control of their housing environments and thereby, to be more responsible for where they live. Tenant organizations are
spearheading change because change cannot occur through government efforts alone. Residents must want to change in
order for change to occur. And resident participation empowers and provides a sense of efficacy, which many public
housing residents feel they lack.

• Community Building

The physical form of a community is one of the highest cultural expressions of society. It translates social structure,
lifestyle, and values into buildings and spaces which are the vessels in which the community lives and evolves (Lozano,
1990). However, communities are not only united by the physical elements of the environment, but more importantly, by
common goals, objectives, and shared relationships among their residents. A sense of community does not exist in every
neighborhood. It may or may not exist, depending upon the motives that bring it together. Therefore, individual assess-
ment of how people feel about the neighborhood, what they expect, and what they are prepared to do can be used as
indicators of whether a sense of community exists or not (Schwartz, 1991).

Striving for a sense of community can be difficult. It requires a synthesis between sincere motives and sincere efforts
toward action (Rousseau, 1991). Involving residents who isolate themselves and feel no commonality with their neighbors
is a challenge. If residents feel no obligation to identify with others in the neighborhood, they will have no reason to
interact socially or emotionally (Schwartz, 1991).

Change can only occur by examining the system, people, and the structure that is to be changed in its entirety. Building
community encourages neighbors to work together on decisions that directly affect the neighborhood (Schwartz, 1991).
And it encourages them to help each other in difficult times, leading toward empowerment. If people are going to organ-
ize, they must value where they live. According to Rousseau (1991) community building enhances our perceptions of
where we live and makes communal spaces and residential areas more meaningful and attractive. But many public
housing developments lack a sense of community. This is due not only to physical design characteristics such as the lack
of defined public and private space that inhibit social interaction, but also the management and maintenance regulations
that restrict individuality and variety in the external spaces adjacent to the housing units.

Residents are also often apathetic about the possibilities of change. They have been long-time victims of unkept promises
and they are indifferent to the idea that change can occur. Public housing residents are convinced that they cannot effect
change and therefore, they remain behind closed doors. But the first step in building interest is to identify key individuals who are interested in working together for the sake of the community and creating safe environments in which to meet. Making contacts with tenant organization leaders or other community leaders is an important step to getting in the door, making contacts, and becoming empowered.

- **Tenant Organizations in Revitalization Efforts**

Currently, some public housing developments are undergoing extensive renovations. Severely distressed developments are even being demolished to make way for low-rise apartments and townhouses with private yards. With the advent of the new federal policies, units are being partially or totally demolished in order to reconfigure sites. And for the first time, federal monies are being used to address local needs and provide the communities with resources and incentives that have been lacking in the past.

But, government is not doing this by itself. The Department of Housing and Urban Development (HUD) is encouraging cities and tenants to think broadly about how best to utilize federal dollars. HUD realizes that isolating public housing developments and its residents from the broader community results in urban decay. Success requires tenant activism as well as an institutional framework to support it (Gurwitt, 1995). “Tenant management must be an integral element in all plans designed to turn around troubled projects. It is an excellent way to prepare public housing residents for the responsibility for homeownership” (Stegman, 1990, pg. 355).

Tenants are now taking action and in some cases, spearheading redevelopment in many public housing developments. They are at the core of the efforts to revitalize their physical environments and management practices. Tenants in many public housing communities are engaged in both management and design improvements helping to shape their communities. They are “building a mutual level of trust and respect among parties such as designers, planners, and housing managers, that had previously been perpetual enemies” (Vale, 1996, pg. 110).

According to Clarence Page (1997), tenant organizations and tenant opportunity programs are helping residents find permanent and stable work, own and operate businesses, establish financial independence, and participate significantly in their housing communities. Tenants are successfully organizing and assuming responsibility for saving their own communities. They are finding innovative ways through education and mentor programs to provide support to their fellow residents. Public housing tenants are striving to become productive members of their neighborhoods, communities, and society as a whole. With governmental encouragement and support, public housing can become part of the community and can be reincorporated into the urban fabric (Page, 1997).
• Resident Participation

Collective participation instills a sense of pride, accomplishment, and responsibility. Leavitt and Loukaitou-Sideris (1995) believe that “human beings have a deep need to feel home as a shelter and a symbol of stability” (pg. 225). The symbolic role of the home as an expression and confirmation of desired identity is important to residents. Therefore, they are motivated to take matters into their own hands and fight for design alternatives involving qualities such as safety, legibility, and identity, that will enhance their sense of ownership and control.

Today, some public housing developments are undergoing revitalization efforts and reconstruction with the help of their residents. Residents are expressing their wishes and incorporating them directly into design projects. And therefore, designers are listening and translating residents words into spaces that respond to their human needs. However, when designers do not listen, residents do not feel their words are of any value, making participation difficult to establish. And without this information and the residents’ participation, designers cannot possibly create successful designs for the people who live in public housing. According to Schweitzer (1984), “participation fosters understanding and ownership in change resulting in more socially acceptable solutions” (Schweitzer, 1984, pg. 16).

Hester (1984) maintains that “the design of neighborhood space must relate to the behavior patterns and values of the people for whom the space is designed...” (pg. 27) As a result, ownership will increase as use, collective involvement, and perceptions about the neighborhood space increase. Designers must realize that successful participation with the residents only occurs over the long term and cannot happen without hearing the voices of the primary users, the residents. Solutions lie in combining social issues and community values.

2.4 Case Studies

This section provides three examples of public and low-income housing developments that have engaged residents in the participatory process of redesigning of their housing developments. These case studies present specific strategies and participatory methods used to gather information from the residents, as well as an evaluation and assessment of their strengths and weaknesses.

Many case studies were examined for this literature review that stressed the need for resident involvement in the design process. Most even provided a laundry list of methods to encourage participation, but few explained how the methods were used to gather information. However, the following three case studies provide a good range of methods and strategies that contributed to the format and content of this study.
• “The Brooks Knolls Cooperative Housing Community: A Case Study for Resident Design of Public Open Space”

This case study was examined not only because it provided methods and strategies for working with low-income housing residents, it also provided a breakdown of the types of participatory methods and how they were used in the design process, as well as an assessment of their strengths and weaknesses. The following is a summary of the case study and its findings.

This case study uses participatory methods to gather information from residents in low-to-moderate income and modular housing. The designer wore many hats, including facilitator, manager, educator, and applied social scientist, to gather information from the residents, in order to produce a built environment to satisfy the interests, needs, and lifestyles of the residents. Various methods such as a series of thematic workshops, participant observations, informal meetings, design activities, slide presentations, and site visits were employed to understand the collective desires, values and attitudes of the residents.

The study provides ideas about design strategies and actual projects that can be used with residents. It also assesses the overall merits of using qualitative versus quantitative methods and concludes that quantifiable methods are more reliable, but will not yield the type of information necessary to understand the residents.

The study determined that the workshops were too long and the residents were more interested in the actual construction process, due to sporadic participation in design development and a decline in interest and attendance. However, the researchers felt that the residents learned more about the design process and as a result, they were better design participants. Finally, the study concluded that the two most important lessons learned were: that success only occurs over the long-term due to a rapport being built between the users and the designers, and designers educate as well as learn from the users.

• Developing Defensible Space Plans through Resident Involvement: An Open Space Study and Conceptual Landscape Design for Bristol, Virginia Public Housing (1993) - Appleby, Inc., The Bristol Redevelopment and Housing Authority, and The Community Design Assistance Center (Virginia Tech)

This case study examines issues related to defensible space and crime prevention through environmental design (CPTED) in a large public housing development in southwest Virginia. Issues such as access control, natural surveillance, and territoriality were addressed in order to create a secure environment for the housing community.
This case study was examined primarily because it used participatory methods at a public housing development. It provided insight into working with public housing residents as well as detailed information on the workshops and brainstorming activities engaged. Methods used with the residents were limited to workshops, but the landscape architects also visited other public housing sites that had been recently renovated. Site visits were used as a tool to understand the physical design and safety issues that plague many public housing developments in order to address the issues in Bristol. The following is a summary of the case study and its findings.

Workshops were employed to involve the residents directly in the process, so that they could participate in the evaluation and proposal of modifications to their site. To evaluate space and understand its use, the researchers used site observations and post-occupancy evaluations. Renovated public housing sites in Raleigh, N.C. and Lexington, KY. were visited to provide a context for comparison of issues and to understand solutions that were used.

Resident involvement was limited to three rounds of interactive workshops. These workshops helped to define and identify problems, learn how space is used, and present design element alternatives. Preliminary and revised site designs were presented for evaluation and comment, followed by the presentation of the final design to the residents.

The researchers learned the following three lessons:
1) Design is a two-way process that can empower residents, but only if they want to be empowered.
2) Success is dependent upon input from the residents and their desire for change to occur.
3) The design process works when the designer gets to know what the residents value about their communities.

• Diggs Town Apartments - Norfolk, VA

The following information is from a site visit performed by the author to a public housing development that had been redesigned in 1992. The redesign process began in 1990 and the residents were involved all phases of the design, from information gathering meetings to the construction phase. The site visit was made in order to see what improvements have been made to the external spaces and to understand what impact, if any, the changes have had on residents’ perceptions. The visit was also made to understand the maintenance and management issues associated with public housing redesign as well as to see if this would be a worthwhile trip for the advisory committee members. The following is a summary of my findings.

Diggs Town was built in 1952. Located in Norfolk, VA, the large public housing development contains more than 400 units and the resident population consists largely of African-American single females and their children. By 1990, Diggs
Town had become a distressed neighborhood due to crime and inadequate housing policies. The characteristic row houses and large, open space design of the public housing development of the 1950's resulted in isolation, a lack of spatial hierarchy, poor public and private spatial delineation, and drab and characterless architecture. In 1990, The Norfolk Redevelopment and Housing Authority initiated a million-dollar redevelopment project for Diggs Town in order to transform this development into a neighborhood with connections to the rest of the city (Gindroz and Bothwell, 1997).

Designers used a series of meetings and discussion groups in order to understand the relationship of Diggs Town to the adjacent neighborhoods as well as the developments relationship to the city of Norfolk. The meetings revealed a lot of information about the importance of identity and the residents’ desire to become reconnected with the surrounding communities. These are elements present in most housing developments that had been lost at Diggs Town over the years.

In 1992 renovations of Diggs Town began. Designers used the Traditional Neighborhood Design (T.N.D.) concept that stresses the expression of the individual within the community, the definition of the public and private realm, and the connection to the surrounding neighborhoods through a network of streets and public open spaces. These design principles were addressed on each of the following levels: dwelling, front yard, back yard, block, street, public spaces, and neighborhood (Gindroz and Bothwell, 1997).

As a result, front porches were added to the existing row houses to emphasize the private entrance and to provide semi-private space for natural surveillance of the outdoor public areas. Color was used on the trim panels, doors, and shutters to add variety and individuality to the houses. Low fencing was placed in areas closest to the buildings to delineate private and semi-private space and to allow residents the opportunity to express their individuality. Fencing was also used to enclose areas between the row houses, creating villages that contained individual patios, storage sheds, and a communal play area. This delineation of space provided safer semi-private and semi-public spaces for the residents and their children.

Buildings were grouped around communal backyards, using fencing to increase privacy and security. One and two-way through streets were added to provide access to previously inaccessible courts and to reconnect the development to the city. Public spaces were located so that visibility was clear from nearby streets and sidewalks. As a result, the neighborhoods created were more compatible with the surrounding community and provided a sense of connection and identity for the residents.

Today, Diggs Town is a viable community that believes in families first. It has on-site management to assist with everyday housing needs and concerns, recreation facilities that provide after school programs and other activities, programs to
assist residents with education, job training, childcare, and employment. It also has special services such as a community police outpost to provide a presence and address issues dealing with safety and crime.

Diggs Town is still public housing, but it treats its residents as “tenants” - people who are responsible, take ownership for where they live, and have control and power to produce results. Diggs Town still has problems such as crime and the concern for safety, issues plaguing most public housing developments, but it has ongoing programs and services to address the social, physical, and educational needs of its residents. Diggs Town provides affordable housing for families who live on a tight budget and is a model for other public housing communities nationwide.

The visit to Diggs Town was very informative. I had the opportunity to speak with the manager of the housing site about a range of issues including participatory methods used during the design process, the construction phase of the project, management strategies and maintenance issues. I also had the opportunity to walk around the site to take pictures. I observed many people walking outside and sitting on their porches, enjoying the weather. Also, many homes displayed holiday decorations.

There are many services located on-site such as the maintenance department, a community center, a police substation, and offices for job training and educational programs. They are located near schools, public transportation, and small shopping areas. According to Mr. Robinson, NRHA Manager for Diggs Town, there are still safety issues to deal with on-site. But overall Diggs Town is a very well maintained and well-managed community that takes pride in the positive physical and social changes that have occurred. And as a result, I highly recommend taking the advisory committee members from Richmond for a site visit.

2.5 Conclusions

Public housing developments are drastically different from surrounding market housing due to the lack of spatial hierarchy, illegibility of circulation, increasing opportunities for crime as well as the lack of amenities provided on the sites. Housing units lack variety and individuality from one another, due to management and maintenance restrictions that limit the use of fencing, vegetation, and building materials. They also lack use-defined recreational spaces close to the housing units, thereby diminishing opportunities for natural surveillance as well as resident ownership, control, and responsibility for these spaces.

Public housing needs a hierarchy of public-to-private space. A hierarchy enhances legibility within the landscape and allows people to maneuver through it without confusion. According to Lozano (1990), “environments must offer subtle
gradations of oriented differences to provide clues of direction and distance ...” (pg. 284). However, public housing environments are monotonous in their architecture and landscaping, reducing the potential for orientation.

Public housing developments need real and symbolic cues, such as fencing and vegetation, to indicate spatial boundaries for residents in order to encourage opportunities for territorial ownership. Territorial ownership provides residents with a proprietary interest and responsibility over the areas beyond their front door. It is a responsibility that is shared among neighbors and only develops as residents use and extend their realm of control and responsibility over of the adjacent spaces surrounding their housing units. That type of control does not exist in many public housing developments.

They also need legibility in pedestrian and vehicular access and circulation. By providing direct and easy access onto and within the site, residents are able to provide natural surveillance and control access, thereby diminishing their fear of crime. However, physical designs of public housing deter the presence of “eyes on the street” and enhance opportunities for unwanted activities.

Public housing cannot change through government actions and architectural designs alone. Residents need to be involved in the process of design decision-making about their housing environments. Socially acceptable solutions result when community values are integrated into the design process. Therefore, design should take into account demographic and economic realities.

According to Hester (1984), ownership of space increases as residents’ work together to acquire and manipulate those spaces. Participatory methods allow resident involvement and produce designs more related to the values of its users. Participatory methods empower residents and bond a community to a common goal. Hester (1984) states that “direct participation in design of neighborhood space can promote a sense of community involvement through the mobilization of energies around a common problem” (pg. 95).

Therefore, the following chapters present a study in which residents are given the opportunity to effect change in the landscape architectural redesign of their housing development. Participatory methods provide the residents with a voice in the design decision-making process and empower them, increasing their interaction and involvement and extending their sphere of control and ownership to the external spaces outside their private housing units.
CHAPTER 3: THE STUDY SITE

This chapter contains information regarding the study site, the study population, and the analysis of the site for issues such as erosion/drainage problems, pedestrian and vehicular circulation, safety, and spatial quality. Sections 3.1 and 3.2 describe the location of the study site within the City of Richmond, its existing conditions, including physical dimensions and layout, as well as the relationship of the site to the community and surrounding blocks. Section 3.3 describes the study population, addressing the demographic composition of the residents living in Fulton Multifamily Housing development as well as other variables that influenced data collection and results. Section 3.4 provides information pertaining to the site analysis. This information is used to determine the potentials and constraints of the site conditions, in order to address critical issues in the design process.

3.1 Location

Fulton Multifamily Housing development, located in Richmond, VA, is the site for this study. It was selected based on its size, manageability, and the presence of an organized tenant council, after visits to five Virginia housing agencies. Most importantly, it was selected because of its adjacency to an established, developed neighborhood and community, as well as to the downtown area and historic district of the City of Richmond. (see Map 3.11) Located in the community of Fulton Hill in the East Planning District of Richmond, the study site is within walking distance of the James River and the historically and culturally significant neighborhoods and commercial areas where the first city settlement occurred in 1609.

According to the City Planning Commission’s 1983 Master Plan, the community of Fulton Hill was once occupied by a railroad terminal, and a thriving neighborhood commercial district and residential community. But over time, commercial services declined and the existing population decreased significantly due to displacement by fire, demolition or abandonment of substandard residential and non-residential structures, public urban renewal projects, and the private rehabilitation of structures. Therefore, beginning in 1970 as part of the Fulton Urban Renewal Project, 346 acres of land in Fulton Hill were cleared of existing structures to make way for new homes, apartments, and industrial and commercial buildings.

Today, zoning for the community allows for single family detached housing, multi- and single family attached housing and light-to-heavy industrial use. (see Map 3.12) By 1993, the Fulton Redevelopment Project had completed 140 single-
Map 3.11: Metropolitan Richmond
Map 3.12: Residential Housing Types
family detached housing units, 250 single family attached housing units, and 64 units of multi-family housing. (see Photo 3.11) As of 1997, the industrial area contained 7 different companies ranging from a petroleum refinery to a paper mill, totaling about 25 to 30 acres of land along the James River. (see Photo 3.12) Other development originally proposed for the area, such as more residential housing, a neighborhood park, and a retail shopping/commercial area, has been suspended indefinitely.

3.2 Context

Fulton Multifamily Housing development is located at the intersection of Government Road and Admiral Gravely Boulevard. (see Map 3.21) It is a multi-family housing development comprised of eight buildings each containing eight housing units ranging from 2 to 5 bedrooms. (see Appendix A) There is a one room Boys and Girls Club located at the back of the property on Denny Street. (see Map 3.22) The residential units, flanked on the east and west by large, open spaces, were originally built for multi-family housing use in 1980 as part of the Fulton Redevelopment Project. However, the contract with the builder fell through and the development became the property of the Department of Housing and Urban Develop
Map 3.21: Context Map
Map 3.22: Site Map

Basketball Court
Fulton Multifamily Housing is one of the smallest public housing developments in Richmond, with only 64 units. The majority of public housing developments in Richmond range from 400 to 500 units in size. The study site differs from the other public housing developments not only because of its small size, but also because it is located in a fairly quiet neighborhood of primarily owner-occupied single family detached housing. The site is also located away from the interstate systems that typically surround and isolate some of the larger public housing developments in Richmond. Several developments near the downtown area are built next to the interstate, and much of the surrounding neighborhood housing sits unoccupied or boarded up.

The neighborhoods adjacent to the study site contain a large number of single-family detached houses, but they also contain churches, parks and playgrounds, as well as small-scale public and commercial services for the residents. A city park, Baptist church, and a single family housing development are located directly across the street from the study site. (see Photo 3.21) This housing is rent-subsidized by the federal government (Section 236). (see Photo 3.22) Many of the structures constructed during the Fulton Redevelopment Project of the 1980’s were built to encourage a range of low-to-middle income families to locate in the community, in order to help revitalize the area.

Small public and commercial services such as a post office, fire department, recreation center, convenience stores, laundromat, and mini-market along Government Road and Williamsburg Road are within a comfortable walking distance of the study site. (see Photo 3.23) But, a car or public transportation must be used to reach large, major public services such as social services, grocery stores/supermarkets, shopping malls, police department, hospital, or library. A bus stop located directly in front of the study site on Admiral Gravely Boulevard provides direct access to the downtown Richmond area, where
many of these services are located.

There are elementary and middle schools within the immediate vicinity of the study site. School buses and public transportation are used to access these schools, though they can be reached on foot if necessary. There are no high schools in the community, making it more difficult for teenagers or their parents to reach these sites, due to the need to rely on public transportation or a car.

Crime in the Fulton Hill area is not a significant problem for residents according to the 1997 statistics provided by the Crime Analysis Unit of the Richmond Police Department. Crime statistics for the City of Richmond are broken down into four precincts. In Precinct One, which includes the study site, larceny (vehicular and other) and burglary are the crimes most often committed. Seven hundred eighty-five and 534 cases, respectively, were reported in the first nine months of 1997.

The Fulton Hill area is located in census tract 211 (1990 U.S. Census Bureau). Based on this information, the type of crime
committed most often in this area is larceny (vehicular and other). There were 39 cases reported in the first 9 months of 1997. The remaining crimes, including burglary, stolen vehicles, aggravated assault, robbery, homicide, and arson, totaled 41 cases reported during the first nine months of 1997. Therefore, a total of 80 crimes were reported by census tract 211 in 1997. This is significantly lower than 10 of the 12 census tracts that comprise Precinct One.

### 3.3 Residents

As of 1990, the city of Richmond had a total population of 203,056 residents, a slight decline from the 219,214 residents listed in the previous 1980 census report. But the Fulton Hill area, which includes the study site, has experienced a net gain of over 400 residents, due to the new housing construction during the redevelopment projects of the 1980’s. While African Americans comprise 55% of the residents living within the city limits, the population at the study site is 99% African American. Residents in the surrounding community of Fulton Hill are 75% African American.

Demographic information about the residents was difficult to obtain from the housing authority, due its confidential nature. However, it was determined that in order to qualify for public housing, resident income must not fall below nor exceed the range of $50 to $538 per month. This would qualify individuals for not only housing, but also related benefits such as job training and education provided by The Personal Responsibility and Work Opportunity Act of 1996.

There are approximately 184 residents residing in the 64 housing units at the study site. According to HUD data obtained through the internet, the average family size is 3.6 persons, and females head 94% of the households. Of female-headed households, 89% are single parents with at least one child. Children comprise the vast majority of the resident population at the study site, most of them falling between the ages of 6 and 17 years of age. Only 4% of the resident population are married with at least one child, and the majority of the adult-aged population is between the ages of 25 and 44. The average rent paid by residents is $135 per month, including utilities. Average total household income is about $7000 per year, which corresponds to the current poverty level. However, Fulton Multifamily Housing is one of the few public housing developments in Richmond where a large segment of the adult population works. The majority of the residents (62%) earn their income from a combination of wages and welfare assistance, although 27% earn their income from wages only.

### 3.4 Site Analysis

The following sections summarize the physical conditions found at the public housing development during the site analysis.
• Existing Conditions

The study site, built in 1980, is located within an urban renewal area. The buildings are situated in the middle of a slight-to-moderately sloping tract of land located near the intersection of Admiral Gravely Boulevard and Government Road. (see Map 3.41) Topographic changes are most evident within the central portion of the study site. Retaining walls and stairs are used to address changes in elevation from Denny Street to Admiral Gravely Boulevard. Steep excavated grassed slopes, along the Denny Street, are used to delineate the property line and separate the housing development from the adjacent wooded area.

The centrally located buildings are flanked on the east and west ends by large, open grassed spaces with few trees. These areas are flatter than the central portion of the site, especially on the east side. They contain a half basketball court (east end) and a tot lot (west end). (see Map 3.41) A large asphalt parking lot extends the length of the development frontage. At the rear is a cul-de-sac used for service access and some parking.

Eight 2-story buildings, each containing 8 units ranging from 2 to 5 bedrooms, seem to be arranged quite deliberately on the study site. (see Map 3.41) The majority of the front entrances face interior court areas, thereby creating a sense that the development has turned its back on the surrounding community. The backs of some units face the fronts of others, thereby creating a sense that they have turned their backs on each other. Only one building faces the public street, but due to its angular orientation, its back also faces the public street, thereby limiting the amount of privacy that can be achieved. (see Photo 3.41)

Photo 3.41: Back of housing units facing onto Admiral Gravely Boulevard

Many residents use the back entrance as the primary entrance into their units. This is especially common in those units whose backs face directly on the front parking lot. Residents and visitors alike utilize the back door because it is the closest access to the parking lot. Others use it because it accesses the kitchen/dining room areas of the units, which is where many residents spend most of their time. Clotheslines are located at the backs of the units and many are exposed to the public
site analysis

existing conditions

map 3.41: site analysis map - existing conditions
street or to the fronts of other units. For many the clothesline is the feature that distinguishes between the back and front of the housing unit, rather than the textured cement areas used to identify the front porches.

Public/private spatial delineation is non-existent within the study site. The majority of the site’s external spaces are fully accessible to the general public. Only those spaces adjacent to the housing units are considered semi-private, but they actually function more as semi-public spaces because of their use as entrances, and their exposure to the public circulation system. There are very few physical or visual cues in the landscape to indicate a difference between public, semi-public, and semi-private use. Slightly narrower pedestrian walkways and texturally different front porches adjacent to the housing units are not successful indicators of semi-public and semi-private space. Therefore, legibility of circulation and use is poor. Circulation and use throughout the site is fully public; there is no hierarchy or buffer zone to distinguish between fully public and private spaces.

Residents spend little time outside their units, and few have taken responsibility for or ownership of the outdoor spaces, especially the small planting beds adjacent to their units. Children are the primary users of the exterior spaces, but the designated play areas on the site do not provide enough room or the proper setting for a range of ages to play. Many of the children spend time inside the Boys and Girls Club, a small building located near Denny Street. The Boys and Girls Club provides programs for the children after school, but there are few structured activities to keep them busy throughout the evening.

 Teens and young adults spend their time at the front of the development passing time or playing basketball. Since the basketball court is only half the standard size, this limits the number of people who can play. Because it is the only court on the site, this also limits its use by the younger children. Teens and young adults use the new retaining walls at the front of the development as sitting spaces. Large green graffiti-sprayed transformer boxes, located above ground in spaces adjacent to the housing units, are also used as seating. (see Photo 3.42) There are no designated seating areas within the site, and therefore people stand or sit on steps, retaining walls, and transformers.

Photo 3.42: Graffiti-sprayed transformer
Wrought iron fencing has been placed along the parking lot and other areas, to control circulation by limiting foot traffic across some grassed areas. Railings have been added to stairs with three or more risers to aid people walking throughout the site. Handicapped units with ramps and railings are provided on the site to provide direct access to the parking lot. There is limited disabled access to the remainder of the site due to the sloping terrain and the stairs.

![Photo 3.43: Mailboxes located at the front of the study site](image)

The main cable box is located at the rear of the development. Other electrical boxes located adjacent to the units are broken and/or the wires are exposed. Outdoor lights are provided on each housing unit. They are timed to come on at dusk. Lighting is also provided around the site, but it has been subjected to vandalism along with the mailboxes at the front of the development. (see Photo 3.43) Residents complain not so much about the damage to the boxes, but about the inconvenience of having to go to the post office to pick up their mail.

There are many trees located in the interior court areas of the site, as well as along the Admiral Gravely Boulevard frontages. Many of these trees are in poor condition. They are overcrowded with roots exposed. Tree roots are causing some walkways to heave and crack. The trees provide ample shade, but they also block views to court areas and parking lots, thereby diminishing surveillance.

Drainage and erosion problems are serious issues on the site. Water penetration is limited due to the severely compacted soil. Shrub and grass growth is limited due to the severely compacted clay loam soil and the abundance of mature trees. Drainage grates are provided throughout the site, but due to improper maintenance and improper placement these grates tend to block and overflow. A wooded area adjacent to the property on Denny Street contains dead trees and brush that could pose a safety hazard. A cut slope that separates the wooded area from the housing units is eroding. Unsuccessful attempts have been made to correct this problem with boulders and grass. Landscape timbers have been used to control erosion along the front of the site, but these attempts have also been unsuccessful, resulting in silt build-up on pedestrian walkways. (see Photo 3.44)
NOTES:

1. Improper maintenance or placement of drainage grates contributes to standing water, runoff, and erosion.
2. Interior softscape - moderate to severe erosion and water runoff at higher elevations.
3. Increased foot traffic in interior softscaped courtyards result in severe compaction along level grades.
4. Muddirt collects at bottom of stairs and around the front and back of unit entrances.
5. Overflowing drainage grates result in severe water runoff and erosion.
6. Pressure treated landscape timbers - used to prevent movement of soil onto pedestrian paths.
A bus stop and public telephone are located at the front of the study site on Admiral Gravely Boulevard. Many residents use the public transportation to reach public and commercial services. There is no bus shelter provided for the riders. Residents at the study site also use the public telephone. All trash dumpsters are located on Denny Street, though there are spaces in the front parking lot designated for their use. Only a single wire trash can is located at the front of the development. This trash can fills up quickly and trash and other debris ends up on the ground as well as in and around the fronts and backs of the adjacent housing units.

**Erosion/Drainage**

The center of the study site is slight-to-moderately sloped. (see Map 3.42) A large asphalt parking lot is located at the lower portion of the site. During rainstorms, water movement carries soil from the upper portions of the site toward the parking lot. Severe erosion and drainage problems are most evident within the court areas of the development (see Photo 3.45) Mud is carried across the pedestrian walkways and collects at the bottom of stairs near the parking lot, as well as at the fronts and backs of the units nearest the parking lot.
NOTES:
1. Pavement is cracking and heaving due to tree roots and erosion is causing back porches to settle
2. Two play areas are concrete with unsanitary sandboxes
3. Improper slopes along pedestrian paths cause standing water and silt to collect at the bottom of stairs and around front and back porches
4. Landscaped areas contains many deciduous trees with superficial root systems that do not hold the soil resulting in erosion
5. Many of the mature trees are overcrowded and have suffered root damage due to their exposure to heavy foot traffic and erosion
6. Landscaped area is severely compacted, leading to excessive water runoff and erosion along slopes; mud collects at the lower elevations
7. New interlocking concrete retaining walls were installed along the front of the development in 1997 to control erosion, circulation and to create planting areas for the residents
8. Clay type soil - difficulties in growing plants and grass without amending; compacts tightly
9. Pavement cuts landscaped areas into small pieces that can not be properly maintained. The amount of usable public, semi-public, and semi-private space is limited
10. Opportunity to create more privacy by decreasing the amount of pavement especially near the backs of units; maintenance issues involved
Pedestrian paths that have heaved and cracked due to overcrowded tree roots have changed the direction of the slopes and the drainage patterns. Also, soils that are severely compacted due to heavy foot traffic prevent the water from penetrating into the ground, increasing the amount of runoff to the lower portions of the site.

Many of the drainage grates are located close to deciduous trees. When the trees drop their leaves and branches, the grates become blocked, resulting in an overflow of water. Also, due to changes in the slopes on site resulting from severe erosion, soil compaction, and heaving walkways, some drains are no longer in the proper locations to effectively collect and drain the water.

• Landscape Character

Paved areas with asphalt, concrete, brick and concrete pavers are located primarily within the interior courtyard spaces. These areas contain some landscaped areas, but because of the current placement of walkways, the pavement divides the landscaped areas into small pieces. (see Map 3.43 and Photo 3.46)

The largest landscaped areas are located on the east and west ends of the study site. These areas are open grassed spaces with few trees. They contain few organized recreational facilities to encourage their use. Within the study site, there are two play areas with concrete sandboxes. These areas are unsanitary as well as physically unsafe for children to play in.

Concrete walkways are used as public and semi-private space for the residents. Retaining walls installed in 1997 provide semi-private planting areas for the residents, but they are used more as seating by teens and young adults. (see Photo 3.47) The planting beds are severely compacted and are not used by most of the residents.
major pedestrian access - stairs
handicapped pedestrian access
primary circulation
secondary circulation
major public circulation
stairs with or w/o railings
handicapped accessible paths

NOTES:
1. Narrowness of paths result in overflow foot traffic on landscaped areas
2. Secondary circulation systems are used as primary circulation systems by the public; they are slightly narrower, but this is not a successful cue to the user
3. No distinction is made between paths leading to the front or back of units; both are close to the units and used for access by residents and visitors
4. Stairs are too narrow for use by more than one person at a time
5. No visible or physical connection is provided between major pedestrian entrances and the public circulation system
6. All interior pathways function equally as a circulation system for residents as well as visitors
7. No designated crosswalks in the front parking lots to indicate pedestrian access to vehicular traffic
8. Handicapped ramps and railings provide access from the front parking lot to handicapped units, but handicap access to Denny Street is limited due to slope and stair restrictions
9. Recommend moving public bus stop closer to proposed main pedestrian entrance
10. Potential to create more direct disabled access to public street as well as from Denny Street
Brick walls delineate the back porches, however newer retaining walls have been constructed of interlocking concrete pavers. These walls were cheaper and easier to install, but are aesthetically different from the existing brick walls and brick façades of the housing units. The mixture of the two types of wall systems lacks aesthetic appeal. Also, the large asphalt parking lot at the front of the site diminishes the overall image of the development to the community.

![New interlocking concrete retaining wall](image)

Photo 3.47: New interlocking concrete retaining wall

**Pedestrian Circulation**

When entering the study site on-foot from the Admiral Gravely Boulevard, there are few visual or physical connections provided between the pedestrian entrances to the site and the public circulation system within the site. (see Photo 3.48) Walkways and stairs from the street lead to court areas that contain many indistinguishable circulation routes. (see Map 3.44) All the court areas and their walkways look alike. Furthermore, there are no symbolic or real cues such as fencing or vegetation to indicate public, semi-public, or semi-private circulation.

![Pedestrian and vehicular entrances from Admiral Gravely Boulevard](image)

Photo 3.48: Pedestrian and vehicular entrances from Admiral Gravely Boulevard

Central walkways provide direct access from the front parking area to the rear of the study site at Denny Street. Slightly
NOTES:

1. Excellent view - direct surveillance and access to the public street and transportation system; distant, aesthetically pleasing and not limited by vegetation; direct, unobscured view of public street, public intersection and neighborhood.

2. Good view - direct surveillance of parking lot; public street partially obscured by mature trees and parked cars; wide view of public play areas, basketball court, large open areas, and/or neighborhood.

3. Fair view - indistinguishable/undifferentiated courtyard space; views of other housing units, courtyards, vegetation, and/or parking lot.

4. Poor view - totally obscured by vegetation, hillside, wooded area, and parked cars; not aesthetically pleasing; surveillance severely limited.

5. Large asphalt front parking lot as well as back porches facing parking lot give perception that development has turned its back on the community.

6. Many views are limited by other housing units, mature trees, and parked cars.

7. Back porches are exposed to parking lot and public street thereby limiting privacy.

8. Clotheslines are used by the public to distinguish the back from the front of units.

9. Interior views - obscured by mature trees; surveillance beyond the courtyard is limited.

10. Limited views entering site from public street; legibility lost in pedestrian circulation due to lack of distinguishing features throughout site.

11. Fencing and vegetation partially obscure views into single family cul-de-sac near the west end of the housing development.

LEGEND

- excellent view
- good view
- fair view
- poor view
- wooded area
- interior courtyard

Map 3.45: Site Analysis Map - Perceptual Quality
narrower secondary walkways provide access to the front and back of each housing unit. These walkways are closer to the unit than the primary walkways, leading directly to the front and back porches. Since the visual difference is slight, all walkways are used in the same manner, as public space. There is no appreciable hierarchy of space from public to private. Minor cues such as proximity of paths and stairs to units, narrowness of paths and stairs, do not create clear, perceptual distinctions to limit access to only those who live in these units or have business there.

Photo 3.49: Pedestrian entrance and circulation from Denny Street

New railings have been installed on stairs that contain 3 or more risers to assist people as they walk up and down the steps. (See Photo 3.49) But the footings of some of the railings have been placed in the landscaped areas instead of into the concrete steps. This is a safety concern because of the erosion problem and the potential for the shifting in the soil which could make the railings insecure. Pedestrian access for physically impaired residents is limited to the areas around their housing units and the front parking lot.

• Perceptual Quality

Views range from excellent to poor throughout the study site. Excellent views are afforded to a few units at the front of the development which have direct surveillance capabilities and access to the public street. (see Map 3.45) These units have direct, unobscured views of the public street, intersections, and the surrounding neighborhood. (see Photo 3.50)

Good views are provided to those units fronting the public street, but distanced by the parking lot or large recreational areas. These units provide surveillance for the recreational areas and parking, and views of some of the surrounding single family housing, but they do not have direct access to the public street and mature trees and parked cars block some views.
NOTES:
1. Trash on the ground and around the dumpsters results in unsanitary conditions and attracts animals such as raccoons and cats from the wooded area behind the development.
2. Location of the trash dumpsters as well as vehicular access limits the type of activities that can occur in the adjacent spaces.
3. Paved play areas provide safety concerns for the children as well as adults, especially the sandboxes that are used as litter boxes by stray cats.
4. Dual access in the front parking lot allows unwanted traffic to easily enter and exit the site; this can increase opportunities for unwanted activities.
5. No designated crosswalks in the parking lot to indicate pedestrian access to vehicular traffic.
6. No designated area in the front parking lot for school bus drop-off and pick-up.
7. Spaces within the inner courtyards and parking lot of the development provide hiding places from pedestrian and vehicular traffic on the public street.
8. Mailboxes (clutterboxes) and windows and doors to the Boys and Girls Club have been vandalized; trash cans have been set on fire; therefore, there is only one trash can at the front of the development and debris and broken glass collects around this area.
9. Poor lighting around the Boys and Girls Club especially at the rear of the building as well as along the west end of the site; potential for more lighting in the rear of the site and along central circulation paths.
10. Lights on housing units are timed to come on at dusk to deter criminal activities.
Fair views are limited to the interior areas of the study site. Court spaces are indistinguishable and undifferentiated and surveillance is limited to the surrounding units. Vegetation, fencing, or parking blocks some of these views.

There are poor views at the rear of the study site along Denny Street. These views are not aesthetically pleasing and are totally blocked by vegetation, a wooded area, an eroding cut slope, and parked cars. (see Photo 3.51) Surveillance in these areas is severely limited by the factors mentioned previously.

Housing units, mature vegetation, and parked cars limit views to the site from the public street. Views are also limited by the separation of the public street from the housing units by the large, asphalt parking lot and large recreational spaces.

**Safety Issues**

Dual entrances into the front parking lot on Admiral Gravely Boulevard, provide opportunities for cars to easily drive in and out of the study site. This can lead to an increased amount of unwanted traffic and activities that can affect safety and
crime. (see Map 3.46) There are no designated crosswalks in the parking lot to indicate pedestrian access to vehicular traffic. And there is no designated area such as a shelter or space for children to safely wait for the school bus.

Two play areas located near Denny Street are completely paved with concrete, providing safety concerns for children playing in these spaces. (see Photo 3.52) The location of the trash dumpsters in this area also provides a concern for children playing near the adjacent Boys and Girls Club. The severe erosion problems and superficial root systems presents a safety hazard for pedestrians. Mature trees obscure surveillance onto the parking lot, court areas, and public street. The west end of the parking lot provides an ideal hiding place from the pedestrian and vehicular traffic along Admiral Gravely Boulevard.

More lighting is needed throughout the study site, especially along the primary circulation system and at the rear of the site. There is insufficient lighting along the open area on the west end of the site as well as behind the Boys and Girls Club. Evidence of vandalism such as the broken upper windows and broken back door indicates the need for more surveillance and access control for this area. (see Photo 3.53) Residents who must walk longer distances from either parking lot to their units (such as those in unit 1211) would benefit from more lighting and better surveillance.
NOTES:

1. All play areas are public, but equipment provided limits use to children 6 and under
2. No play areas for children between 7 and 12 yrs.
3. Basketball court is only half court therefore limiting its use
4. Open spaces that flank the site are potential areas a large playing field or playground for adolescents and teenagers
5. No signage provided at front of development to give a sense of identity or to provide legibility
6. Retaining walls at front of development are used as sitting spaces by teens and young adults
7. No hierarchy of space from public to private; only private space is interior to housing unit
8. No buffer or transition zones from public to private space
9. Back porches are used as public entrances by residents as well as visitors
10. Public space crosses directly in front of units 1219 and 1205; there is no textured cement to symbolize the transition from public to private
• Spatial Quality

There are no symbolic or real delineations between public and private space, such as fencing, gates, or textural changes in the landscape. A hierarchy does not exist and therefore there is little privacy for the residents. The only private spaces are located inside the housing units. (see Photo 3.54) Use of back porches intended to be semi-private spaces is also limited because of their proximity to other units, public walkways, and parking lots. (see Map 3.47)

![Photo 3.54: Back and front of housing units facing one another](image)

Some units facing the parking lot have railings instead of brick walls along their back porches. The amount of privacy or even semi-privacy is greatly diminished because these units are not only exposed to other units, but also to the public street. Play areas are for use by all residents, but the type of equipment provided by the housing authority limits the types of activities as well as the user group. The play areas have teeter-totters, hobby horses, and sand boxes. This equipment is used primarily by children 6 and under. There are no play areas for children between seven and twelve years of age. The large, open grassed areas have few organized recreational facilities, and the half basketball court, which is provided for all residents, is used mainly by teens and young adults. (see Photo 3.55)

![Photo 3.55: Half-basketball court on east end of the study site](image)
NOTES:

1. Honey Locust trees - superficial root systems; potential safety hazard due to exposed roots
2. Pine trees - poor condition; sparse branching and some dead growth
3. Trees - poorly maintained; majority are deciduous, mature, and overcrowded
4. Pruning and thinning as well as removal of some poorly maintained trees is necessary for overall health and growth potential
5. Severe compaction in and around planting beds adjacent to units
6. Grass and low maintenance vegetation planted in many interior areas are not thriving
7. Semi-shaded to full sun large, open grassed areas flank the site; no pedestrian paths, organized recreational use limited to basketball and a small tot lot
8. Opportunities for recycling of deciduous tree leaves on-site
9. Potential need for barriers around units to control access and foot traffic
10. Potential need for support programs (e.g. children’s garden workshop) to increase awareness and appreciation for plant materials and to encourage interaction and involvement

Map 3.48: Site Analysis Map - Vegetation
• Vegetation

Many mature, deciduous trees such as honey locust and oaks are located throughout the study site, especially within the court areas. (see Map 3.48) These trees present a maintenance concern for housing authority personnel in the fall when leaves and branches drop. Leaves are raked up and placed in the dumpsters instead of being recycled for mulch on-site or for use at another housing site. Also, loblolly pine trees on-site are in poor condition. They have sparse branching and dieback in the upper areas and the stand near Denny Street has an exposed root system. (see Photo 3.56)

![Photo 3.56: Exposed tree roots and erosion](image)

Many shrubs and other plant materials were removed prior to the installation of the new concrete interlocking retaining walls. Since then most residents have taken little interest in planting shrubs, perennials, or annuals in the small planting beds adjacent to their housing units. However, residents who have attempted to plant flowers have met with little success due to the compacted clay loam soil that needs amending and tilling, and the ineffective weed barriers installed by maintenance staff.

• Vehicular Circulation

The front parking lot has been repaved, but only the handicapped spaces have been marked. These spaces provide direct access to the handicapped units. Most other residents can park close enough to their units, but units in the southwest corner (such as 1211) are far away from both parking areas, and therefore more difficult to reach due to the distance that must be walked. (see Map 3.49)

Denny Street is a cul-de-sac that is used primarily for service by sanitation workers and housing authority personnel. Residents whose units face or are more directly accessed from this street also use Denny Street for parking. (see Photo
NOTES:

1. No shelter provided for children waiting for the school bus
2. No markings in front parking lot to designate parking spaces except for handicapped use (ramp and parking spaces only)
3. Denny street - turnaround street that is used primarily for trash/garbage collection, housing authority personnel parking, and parking for residents whose units are most directly accessed from Denny Street
4. Potential parking areas should be considered behind the Boys and Girls Club and along the west end of the development for those units furthest away from both the front and rear parking areas
5. No designated/restricted parking spaces along Denny Street
3.57) There are no designated visitor parking spaces, therefore visitors using this area to park prevent residents from parking close to their units. In addition, the Boys and Girls Club is located at the end of the cul-de-sac adjacent to the space where the dumpsters are located. The turnaround is sufficient for a large vehicle, but when many cars park along this space maneuvering can be difficult, especially for a dump truck.

![Photo 3.57: Cul-de-sac on Denny Street - parking and dumpsters](image-url)
CHAPTER 4: INFORMATION GATHERING PROCESS

This chapter describes the selection, use, and results of the participatory methods employed to gather information from the residents and housing authority personnel at Fulton Multifamily Housing development. The chapter documents the user/designer process between the landscape architect and the residents of Fulton Multifamily Housing. Participatory methods evoke a wide range of responses that may not otherwise be attained through surveys and questionnaires. Therefore, they are best suited for gathering information regarding the residents’ use of the external spaces surrounding their housing units as well as their perceptions, needs, and concerns about their housing development.

This study also addresses the impact of the design process on resident involvement and interaction in the design process. Interaction and involvement by the residents in the design process creates opportunities to effect change and enhance the sense of ownership and control they have over the external spaces surrounding their housing units. Participatory methods are flexible in their use and degree of involvement, thereby providing opportunities to collect the most useful and detailed information about the residents and their use of space.

However, participatory methods such as observations and interviews are subject to investigator and sampling error due to observer bias or interpretation, unclear categories, or the self-consciousness of the observed (Patton and Patton, 1991). Therefore, reliability and validity of participatory results are questioned. Triangulation uses different data collection techniques and evaluation strategies to study the same site (Patton, 1990). Patton (1990) states that using “a multi-method approach to fieldwork increases both the validity and reliability of evaluation data” (pg. 245). Therefore, information collected from the residents uses different methods and sources to strengthen reliability and validity and minimize the weaknesses of any single approach.

Participatory methods for this study were selected based on their ease of use, time constraints, flexibility, enjoyability for participants, and ability to encourage resident participation. The following is a summary of the participatory methods employed during this study, their reasons for selection and their use in gathering information from the residents and housing authority personnel.

- PANEL DISCUSSIONS (ADVISORY COMMITTEE)
- PUBLIC MEETINGS
- INFORMAL INTERVIEWS
- WORKSHOPS
• SITE OBSERVATIONS
• SITE VISIT TO DIGGS TOWN

Site observations allow the landscape architect to understand the uses and users of space. They reveal issues dealing with safety, legibility, and spatial relationships as well as indicate evidence of territoriality. Site observations are time consuming, but if done properly convey a wealth of information about users and uses of space. Public meetings inform, answer questions, and present design information. They are a good way to convey information to a larger audience, such as the residents of this study site. Workshops gather a lot of information in a short amount of time. By using smaller groups, workshops create an intense atmosphere, which enables information to be gathered more quickly. Furthermore, participants in small groups often feel more comfortable voicing their opinions.

Brainstorming activities allow participants to think about feelings and perceptions, problems and concerns, and wishes and needs for their housing development. Because brainstorming activities are quick and to the point, they generate many ideas and give many alternatives. Panel discussions involve key participants who represent the residential community, in this case tenant council leaders and ministers. Key participants discuss and generate ideas based on information gathered through participatory methods and communicate those ideas to other residents in their community. Finally, informal interviews confirm or refute information gathered through participatory methods such as meetings and workshops. They provide a means of checking the validity and reliability of collected data and ensuring that it is not compromised.

In addition, residents, housing managers, and maintenance personnel visited Diggs Town Apartments, in Norfolk, VA., a public housing development where renovations to units and landscaped areas had been recently completed. Site visits can heighten resident awareness of design modifications and put it into context. They not only provide visual examples of physical design changes, but also an understanding of the social implications of those changes. Furthermore, site visits allow residents to think about design ideas that can be used specifically in the physical redesign of their housing site.

4.1 Description of the Participatory Process

The following describes activities used to gather information from the residents and housing authority personnel at Fulton Multifamily Housing development.

• Advisory Committee
An initial meeting with tenant council leaders and housing authority managers and maintenance personnel provided the opportunity to introduce the landscape architect and the study to key participants. It also provided the context in which to present an outline of the process, locate resources such as maps and demographic information, discuss resident involvement and realistic outcomes, as well as provide examples of design work to give a frame of reference. (see Appendix C)

Key participants within Fulton Multifamily Housing development and the housing authority included the President and Vice-President of the Fulton Tenant Council, Chief of Maintenance, and Resident Services Team for Fulton. These individuals made up the members of the study advisory committee. It served as a point of contact for the landscape architect when visiting the study site for observations and analysis and meetings/workshops. The members were kept up-to-date on the progress of the study and worked together to make key decisions based on the information gathered during the meetings, workshops, and observations.

Initial meetings provided opportunities to discuss ways to encourage interest and participation by the residents, strategies for gathering information from the residents, agendas for meetings and workshops as well as meeting times for on-site visits.

Once the initial information gathering stage was over, advisory committee meetings provided opportunities to visit other housing sites, generated design ideas and provided feedback to the landscape architect for proposed design concepts. Meetings also allowed for active discussion of the potentials and constraints of the study site as well as design ideas in order to inform decision-making about the types of physical design improvements that were needed.

• Public Meeting/Workshop

The process began with a public meeting/workshop to gather information and to formally introduce the landscape architect to the residents of Fulton Multifamily Housing development. (see Appendix D) The intent and the extent of the study were explained, and the residents had an opportunity to voice their concerns, needs, and wishes as well as to understand the scope of the study and realistic outcomes. Explanations using visual aids and a question and answer period helped to clarify the process and explain the purpose of the proposed study.

The workshop portion consisted of a series of brainstorming activities. Each activity built on the previous activity, providing a wealth of information in a short amount of time. Activities limited group size to no more than 5 to 8 persons. This allowed maximum involvement by each resident. The agenda consisted of four brainstorming activities. (see Appendix D)
The first activity addressed the feelings and perceptions of the residents about the study site by asking them about their likes and dislikes regarding the external spaces surrounding their housing units. The second activity examined the problems and concerns around each housing unit. It used a base map of the site for the residents to identify and locate unwanted activities or problems around their housing unit. The third activity explored wishes by asking residents about the types of improvements that they wanted to see in their development. The final activity had each resident rank their top three wishes in order of importance from the wish list generated in the third activity.

Worksheets were provided for each activity to allow residents to write down their thoughts. Each activity had a specified time frame in order to keep the momentum going and the interest alive. The end of the workshop provided an opportunity to present the overall top three ranked wishes for each group. A sign-up sheet to encourage resident involvement in further meetings and/or discussions was also provided.

• Informal Interviews and Site Analysis

Informal interviews were combined with site analysis in order to confirm or refute information gathered during the public meeting/workshop. Site analysis is a normal part of the design process and involves the landscape architect gathering and analyzing information about site conditions. This provides information about the history, and context (i.e. relationship to surrounding communities and placement within the City of Richmond), and involves assessing existing conditions of the site, including circulation patterns, erosion/drainage conditions, and vegetation.

Site analysis consisted of updating the 1980 base map to include physical design changes as well as to examine the site for patterns of use and problems. (see Appendix G) Updated site maps were used to record vehicular and pedestrian circulation patterns, existing conditions, spatial, perceptual and landscape qualities, erosion/drainage problems, landscape character, and safety issues at the study site. This provided an overall assessment of the physical and spatial design considerations on the site and enabled the landscape architect to better understand the potentials and constraints in order to address needed design issues.

Residents and housing authority personnel were randomly solicited for informal interviews during site visits. They were asked about their perceptions and feelings about the study site as well as what improvements they would like to see in the external spaces. This method was used to ensure validity and reliability of results obtained through workshops and observations.
• Children’s Workshop

According to the advisory committee, the children of Fulton Multifamily Housing Development are the best source of information for the use of outdoor space. They are the primary users of the external spaces in the study site and can provide a wealth of information for the landscape architect. Therefore, the children’s workshop provided an opportunity to discover what children ages 7-12 like to do when they are outside, as well as to build upon the information provided by the adult residents.

The format of the workshop was similar to that used with the adults, but activities explored likes, dislikes, and wishes through the use of drawings. (see Appendix E) The agenda included a brief introduction by the landscape architect and used a model to explain the purpose of the study and the relationship of the buildings to the external spaces. The first activity involved drawing favorite outdoor activities. Drawings were on newsprint and children used the pencils and/or crayons provided. They were to draw at least 3 quick sketches so that they could pick their favorite activity. The second activity involved the selection of each child’s favorite activity drawn from the previous activity. It enabled the landscape architect to determine if any patterns of use exist. These activities were listed on newsprint to further involve the children. The third activity was the generation of a wish list similar to the list generated at the adult workshop. Each child named two things that they would like to see in the external spaces of the study site. There was no ranking involved since this exercise was used to clarify the wishes of the adults to provide more outdoor recreational spaces for children.

The final activity involved using Leggo blocks to redesign the concrete area in front of the Boys and Girls Club. The children were instructed to work together in teams of no more than 5 in order to redesign the area in front of the building to be whatever they wanted it to be. Each activity was given a specific time frame for completion, with a maximum time limit of 30 minutes for the final activity. At the end, each group presented and briefly explained what they built with the leggo blocks.

• Site Observations

Observations provided insight into the uses and users of space at the study site. It conveyed information about the sense of ownership, safety characteristics (lighting, access, hidden areas, natural surveillance capabilities throughout the property), issues of legibility as well as what people do when they are outside. Site observations were conducted utilizing the basic format of the City of Toronto’s (1985) study entitled “A Comparison of Five Inner-City Parks”. This study utilized ecological mapping techniques and observation diaries to record data on sex, age, location and racial origin. Since the residents of Fulton Multifamily Housing development were all African-Americans, it was not necessary to use race as a
A pre-test determined the general types of activities that occurred in the external spaces of the development. These activities were based on observations made over a three-day period and at three separate times. This produced fourteen categories of use. (see Appendix F) In addition, a coding system designated the sex and age of the users of the external spaces at the study site. Each category of use was given a letter of the alphabet. Uppercase and lowercase were used to distinguish sex, and symbols such as circles, triangles, squares, and diamonds were used for age. Determining exact ages was very subjective, therefore results might contain a bias dependent upon the person’s physical appearance and not their actual age.

Site observations were performed over four consecutive days and in two blocks, totaling eight days of observations. The pretest was used to determine the best time to be on site to make the observations. The days to be on-site were also selected based on the weather forecast and the landscape architect’s ability to be there for four consecutive days.

Each observation was performed during one hour on the assigned days and site maps were used to plot the locations of the activities, the types of activities as well as the person or persons performing the activities. (see Appendix F) Observation diaries were also used to provide additional comments/notes, weather conditions, date and time of observations. Observations were performed before dark for safety considerations.

• Site Visit

The site visit to Diggs Town in Norfolk, VA, by advisory committee members, provided a visual example of landscape architectural renovations at a public housing development. It allowed them to see the use of fencing and vegetation in the landscape, as well as construction materials for the new façades of the buildings firsthand. Furthermore, the site visit provided visual examples of well-defined semi-public, semi-private, and private spaces around the housing units. This hierarchy of space was created through the addition of streets, front porches, and fencing to create “villages” within the larger public housing apartment complex.

The site visit also provided opportunities for positive dialogue between two different housing authorities in the same state regarding management, maintenance, and safety issues. Furthermore, it allowed residents and housing authority personnel to better understand design concepts such as Traditional Neighborhood Design (TND) and Crime Prevention through Environmental Design (CPTED) and to bring design ideas for their housing development to the advisory committee meetings for discussion.
4.2 Participatory Process Results

The following section presents the results of the adult meeting/workshop, children’s workshop, site observations, informal interviews and site visit to Diggs Town in Norfolk, VA.

• Adult Workshop

The adult workshop was used to gather information about the likes/dislikes, problems, and wishes of the residents at Fulton Multifamily Housing development. Thirteen residents and four persons from Richmond Redevelopment and Housing Authority were in attendance, but only eight residents participated in the workshop. Activities were short in duration in order to maintain interest and participation and worksheets were provided for the residents to write down their thoughts and record problems and unwanted activities around their housing units. But due to reading and comprehension difficulties by some of the residents, all responses were recorded on newsprint by the landscape architect and a facilitator from the housing authority. The following is a summary of the results for each activity.

Activity 1

The landscape architect solicited responses by the residents to the following questions - What is it that you like about the spaces around your housing units? and What is it that you dislike about the spaces around your housing units? The following is a list of the residents’ responses.

LIKES
• Private entrances
• Lights
• Brickwork (new interlocking retaining walls)
• Flowers that were planted (later pulled up to install new retaining walls)
• Playground on west end (existing tot lot)
• Parking lot (newly paved)
• Fencing (wrought iron)
• Boys & Girls Club
• Front Porches
DISLIKES
• Only 1 playground (tot lot on the west end)
• No fences around playground
• Not a full basketball court (only a half court)
• Light in back parking lot (insufficient)
• Dumpsters (attracts animals - cats, raccoons)
• People standing on/in (other people's) porches, yards, etc.
• Mailboxes (clutterboxes)
• Cleaning up trash thrown on ground by other people
• Guys sitting on transformer boxes
• No sign saying name of community (signage/identity)
• Dirty sand in sandbox
• Parking lot too far away (for units facing back of property)
• Not enough phone booths (on the public street)
• Back of units that face parking lots
• No fence around dumpsters
• No outside water hook-ups (can't water plants, grass, etc.)
• Cheap locks on screen doors
• Poor maintenance of trees
• Trees that block views
• No swimming pool for kids during the summer
• Play area has no swings

Activity 2

The landscape architect provided a base map on which the residents could locate their housing units and indicate the unwanted activities and/or problem areas around their units by recording a number and noting each type on the map. This exercise created some confusion for the residents due to reading and comprehension difficulties. Therefore unit numbers, names and responses were recorded directly onto the newsprint paper by the landscape architect. The following is a description of the problems and unwanted activities cited by the residents who participated.

1213C - Dirt from hill washed down on sidewalk; would like to have grass and shrubbery planted; cable wires coming out of the ground

1203B - Dirt runs down onto patio; mud collects on patio

1225B - Animals around the dumpster; trash blows in the yard; neighbor never cleans her yard and it has an odor

1201C - A lot of trash in front of 1201; water piles up when rains
1209D - (Housing unit located) in the corner and can’t see anything but hills; poor lighting; a lot of loitering in external spaces

1211A - Center of sidewalk clogs up with water when it rains; sidewalk too narrow

1209B - Mud slides between front and back doors and gathers at the bottom of steps leading to parking lot; trash being thrown over fence in front of door

Activity 3

The landscape architect engaged the residents in the discussion of the following question - What improvements, within reason, are needed for the external spaces around your housing units? Residents not only listed their wishes for the external spaces of the study site, but also stated what elements they felt were important to their daily lives. The following is a list of the responses provided by the adults.

- Swimming pool
- Tennis court (where existing basketball court is located)
- Volleyball court
- Tot lot at Boys and Girls Club (where existing sandbox is located)
- Tot lot on east end (where existing sandbox is located)
- Playgrounds
- Swings
- Trash cans (Dumpster) for each section - (only one dumpster at back of property)
- Fencing along hill (at the back of property)
- Shrubbery
- Individual trash cans (for each unit)
- New screen doors
- Fencing for private space (wrought iron)
- Longer clothes lines
- Flowers (everywhere)
- Larger no trespassing signage (on buildings)
- Signage at entrances (along pedestrian and vehicular accesses on Admiral Gravely Blvd.)
- Signage (new name for the housing development)
- Assigned parking (front lot)
- Rear parking - restrict guest parking; guests to be gone by a certain time
- Lights - bulletproof/shatterproof throughout the property
- Exterminate external spaces around units for bugs, etc.
Activity 4

This activity involved the ranking of the wish list generated by activity 3. Residents were asked to rank their top 3 choices in order of importance. Each choice was given a dot based on first, second, or third choice. The following are the criteria used for the ranking exercise. The list presents the ranked and unranked responses by the residents.

- red dot = 3 points
- blue dot = 2 points
- yellow dot = 1 point

RANKED RESPONSES
1) Longer clothes lines - 12 points
2) Playgrounds - 9 points
3) Swimming pool - 6 points
4) Exterminate external spaces around units for bugs, etc. - 5 points
5) Individual trash cans (for each unit) - 5 points
6) Fencing for private space (wrought iron) - 3 points
7) Fencing along hill (at back of property) - 3 points
8) Rear parking - restrict guest parking; guests to be gone by a certain time - 3 points
9) Tennis court (where basketball court is) - 3 points
10) New screen doors - 2 points
11) Tot lot at Boys and Girls Club (where sandbox is) - 2 points
12) Tot lot on east end (replace existing sandbox) - 2 points
13) Swings - 2 points
14) Lights - bulletproof/shatterproof - 2 points
15) Trash cans (Dumpster) for each section-(only one dumpster at back of property) - 1 point
16) Larger no trespassing signage (on buildings) - 1 point
17) Signage (identity) - 1 point

UNRANKED RESPONSES
Volleyball court
Shrubbery
Flowers (everywhere)
Signage at entrances (identity)
Assigned parking (front lots)

Adults were most concerned about issues that impact their daily lives. Issues dealing with the function of the study site
ranked the highest on wish list such as having a longer clothesline, exterminating the exterior spaces around the housing units, providing individual trash cans for each unit, and accessing units from the parking areas. Some of these issues could not be addressed by the landscape architect through the design process, therefore a list is provided in Appendix H for the housing authority to take into account.

Recreational issues ranked the second highest on the wish list. Providing more play areas, playgrounds, and recreational facilities for the children and teenagers is an interest that is very important to the residents. Safety, privacy, image, and aesthetics ranked much lower in comparison to the previous two categories, but were nonetheless important since residents voiced their concerns by other means. The erosion and drainage issues were also a concern for the adults. The majority stated that runoff and the collection of silt in and around their housing units and the parking lot on Admiral Gravely Boulevard needs to be addressed.

These results suggest the need for more semi-private and private spaces around the housing units as well as a need for parking spaces closer to housing units on the west corner of the study site. In addition, there is a need for designated public and semi-public spaces for recreational facilities, providing opportunities for organized and unorganized play for older children and teens as well as semi-public play areas for younger children closer to the housing units.

• Children’s Workshop

This workshop used various activities to learn more about the children’s use of the external spaces at the study site. Twelve children ranging from 4-12 years of age from the Fulton Betterment Program participated in the workshop. The activities encouraged the children to actively participate in the process and use their imaginations. (see Appendix E) Activities were short in duration in order to maintain interest and involvement. Examples were provided for each activity and assistance was given by the landscape architect and the Boys and Girls Club Coordinators to stimulate idea generation. The following is a summary of the results for each activity.

Activity 1

This activity involved answering the question - What do you liked to do when you are outside? e.g. walk the dog, read a good book, plant flowers, talk with friends. The children were asked to draw at least 3 pictures as well as write the name of each activity they like to perform in the outdoor spaces of the study site. The following is the list of things the children at Fulton Multifamily Housing development like to do in the external spaces. Asterisks indicate multiple responses.
Activity 2

Activity 2 had the children select their favorite activity that they like to do when they are outside. Selections were made from the three drawings each child did in activity 1. The following is the list of favorite activities. Asterisks indicate multiple responses.

- Play basketball ***
- Cheerleading with friends
- Talk with sister
- Draw
- Roller-skating
- Jump Rope
- Play on playground
- Swing *

Activity 3

This activity involved making a wish list of the things the children would like to see in the external spaces of the study site. The wishes were not ranked since this exercise was used as an extension of the adult workshop and the parents wish for more play areas for their children on-site. The following is the list of wishes as generated by the children. For the purposes of this study, they have been divided up into two categories, equipment and areas.
Activity 4

Activity 4 was performed even though many of the children had lost interest. There were 5 children (all girls) who wanted to play with the leggo blocks. This activity asked - If you could have a new play area in front of the Boys and Girls Club, what would it look like? The following is a description of what they built using leggo blocks.

The children built a partially enclosed exercise playground. A low wall surrounded the playground and only one entrance provided access. The playground consisted of monkey bars in one corner, two multi-level block structures for climbing at opposite corners, a central water feature with seating to provide a cool resting place, additional benches outside of the area, and signage to provide location information. In addition, the children decided to use the vacant building adjacent to the space as a store to sell refreshments.

The children’s workshop was used as an extension of the adult workshop in order to understand what the children of Fulton Multifamily Housing like to do in the external spaces of the study site. Playing basketball had the highest number of responses from the boys, and playing on swings from the girls. Though playing basketball had slightly more responses, the favorite activities varied.

This suggests that the children have a variety of interests, but there are few public and semi-public spaces on the study site that provide opportunities to explore active and passive recreational activities, such as the ones listed in the children’s
wish list. Therefore, there is a need to provide public and semi-public spaces for the children. This was evidenced in Activity 4. The children designed a play area that not only included recreational equipment, but also amenities including a water feature, benches, and a store to encourage active use of the space.

- **Site Observations**

Site observations were performed for one hour each day, Thursday through Sunday, over two consecutive weeks in December. A pre-test was used to determine the best time and day to observe. A total of eight observations were performed, but no observations were done after dark due to safety considerations. Observations were performed by a sole source, the landscape architect; therefore there may be inconsistencies due to weather conditions, observer techniques, or the selection of day and time.

During the week, observations were performed between 2-3 p.m. when children were beginning to arrive home from school, and between 4-5 p.m. when adults were arriving home from work. On the weekends, the Boys and Girls Club was open from 9-5 p.m. on Saturdays, but closed on Sundays. Therefore, observation times were in the morning between 10-11 am and the afternoon between 2-3 p.m.

Site observations indicated that the primary users of the external spaces were the teenagers and children. They gathered primarily in or near the parking lot located along Admiral Gravely Boulevard. Some teens either stood or sat along the retaining walls facing onto the front parking lot, while others occasionally sat along retaining walls at the back of the housing units. Younger children tended to congregate in and around the Boys and Girls Club located at the back of the study site along Denny Street. They used this space for circulation, casual conversation, or passive play. However, the majority of the activities occurred inside the building.

Children were not observed using the two play areas with sandboxes. Parents informed me that the sandboxes present hygiene problems due to use by stray cats in the neighborhood. Few younger children were observed using the tot lot on the west end of the site and few other residents were observed playing basketball. However, time of day and weather conditions could have been a major factor in their lack of use.

External spaces between the buildings were primarily used as transition zones from one building to another. Few amenities encouraged residents to stay outside for long periods of time. Residents who were observed outside primarily stood adjacent to their units or along pedestrian walkways to hold casual conversations. No residents were observed using their front porches, but this may have been due to the time of year the observations were performed as well as the day and time.
Adults were primarily seen walking from their housing units to their cars or to other housing units. Few adults were seen outside sweeping their porches, cleaning their cars, picking up the mail, or hanging up laundry. Laundry was observed hanging at the backs of some units even on rainy days, but only one observation was actually made of this activity.

Trash, broken glass and other debris were noted around the dumpsters at the back of the site and near the one trash container at the front of the site. Informal interviews revealed that areas at the front of the site were used by teens and young adults in the late evening, thereby confirming observations. Observations were made of small children taking trash to the dumpsters on Denny Street. Many were too small to reach the opening and as a result, trash was left on the ground around the dumpsters. This area is a feeding source for stray cats living in the wooded area behind the study site.

Site observations revealed that the children are the primary users of the external spaces at the study site. However, their uses are limited by the lack of amenities such as recreational equipment or benches to encourage use of space. Children primarily congregate in or near the Boys and Girls Club. Teens and young adults use retaining walls, steps, and transformers for seating and tend to congregate near the front parking lot on Admiral Gravely Boulevard or the basketball court on the east end of the site.

Therefore, these results suggest the need for designated public and semi-public spaces for active and passive recreational activities for teens and young adults as well as children. Also, there is a need for more semi-private and private spaces around the housing units for adults to encourage the use of the external spaces and provide a buffer zone, allowing them to perform chores away from the public eye.

• Informal Interviews

Information gathered by informal interviews confirmed previous data collected through site observations, workshops, and site analysis. This included the need for legibility between backs and fronts of housing units, direct pedestrian and vehicular access and circulation, delineation of semi-private, semi-public, and public spaces, and semi-public play areas closer to the housing units. Informal interviews also identified the need for more lighting throughout the study site.

• Site Visit to Diggs Town

The tour of Diggs Town allowed the advisory committee members (residents, managers, and maintenance personnel) to
see firsthand the delineation of public-to-private spaces in the landscape, using fencing and vegetation, as well as cosmetic modifications to the façades of the buildings, including new front porches, screen doors, and trim. The members liked the overall layout of the site, and the low fencing used to delineate space in some of the larger open spaces around the housing units. However, the residents did not like the tall fencing used to delineate yards and play areas along the backs of the units. Residents felt that this fencing was too tall, making the area look like a prison.

Some Fulton residents could not see any similarities between Diggs Town and the study site because of their difference in size and sloping topography. The study site has a slight-to-moderate slope and it houses only 64 units, whereas Diggs Town is located on a flat area and houses over 400 units. The residents also had difficulty understanding how principles of design, namely Traditional Neighborhood Design (TND) could be applied to the study site. Diggs Town added streets, front porches and provided space at the backs of the units for semi-private and semi-public use.

All committee members liked the way that spaces were delineated at Diggs Town by creating buffer zones between the public-to-private areas, increasing the sense of ownership and responsibility for the residents of Diggs Town. This is something that the advisory committee members want to see happen at the study site. They also liked the storage buildings and semi-public play areas located at the back of the housing units. These fenced areas increase the amount of private space for the residents. By providing amenities such as these at the study site, the advisory committee members hope to encourage more resident control and responsibility for maintenance at the study site.
CHAPTER 5: CONCLUSIONS

This chapter presents the summary of conclusions, design objectives, and design criteria used to generate design options and concepts for a conceptual landscape master plan for Fulton Multifamily Housing development. The summary of conclusions is based on the results of the site analysis, adult and children’s workshops, site observations, and informal interviews, which provided information about the study site and its residents. The conclusions provide the framework to support the overall goal of this study: to explore opportunities for enhancing residents’ sense of ownership, control, and efficacy through the redesign of outdoor spaces at a public housing development. Design objectives direct the design. Design criteria represent more detailed standards used to test design options and concepts.

5.1 Potentials and Critical Issues

The community of Fulton Hill was once an established, well-developed neighborhood containing a railroad terminal, single family housing, and commercial services. But as the population decreased and services declined, this area was cleared for residential, commercial, and industrial redevelopment. Fulton Multifamily Housing development was built as part of this revitalization program. The close proximity of the James River, the historic district of Church Hill, public parks, and downtown Richmond were amenities that helped to enhance the revitalization of this community.

Today, Fulton Multifamily Housing development sits within a diverse housing community that has grown to include a mixture of incomes as well as commercial and public services. But despite its current location, Fulton Multifamily Housing development has fallen victim to social, economic, and physical design problems, as well as safety concerns such as vandalism and drugs, that plague many public housing developments. Therefore, the site analysis reveals problems as well as potentials that need to be addressed in order to improve the landscape character, vegetation, erosion/drainage conditions, spatial and perceptual qualities, and pedestrian and vehicular circulation, and to reincorporate this development back into the community. The following is a summary of critical issues and opportunities that warrant consideration.

• Public-Private Spatial Delineation

Public-to-private delineation of space within the study site does not exist. There is no hierarchy and all external spaces are currently used as public space with minimum buffer or transition zones between the public areas and the so-called semi-private front and back porches. The lack of real and/or symbolic cues in the landscape, to limit public circulation and access, has contributed to the illegibility of the site, as exhibited by the residents’ confusion as to where their space end
and their neighbors’ begin.

There is potential to create a hierarchy of space from public to more private by relocating circulation paths away from the housing units, and creating a transition zone from public walkways into private housing units. Also, incorporating real and symbolic cues to define the limits around the housing units provides the residents with more control as well as opportunities to determine the types of activities that can occur within the social spaces adjacent to their housing units. There is also the opportunity to create public space that limits the types of activities such as functional for circulation, and active for recreation.

**Circulation**

Circulation within the housing site is illegible. Residents and visitors consider all walkways and stairs as public walkways despite the close proximity of many of these paths to the fronts and backs of the housing units. The extensive system of walkways provides too many choices in accessing the housing units, thereby dividing the landscaped areas into small fragments that diminish the amount of semi-public and semi-private space that can be used by the residents. Also, the narrowness of the walkways forces pedestrians to walk across the landscaped areas, thereby contributing to compaction of the soil and the creation of a new circulation system.

Limiting circulation and access provides opportunities for creating a hierarchy of public, semi-public and semi-private space. Providing real or physical barriers such as fencing, gates, or vegetation, and symbolic barriers such as a transition from concrete to grass or stepping stones, adds to legibility and limits use to those people living or having business in these spaces. Limiting circulation as well as access also creates opportunities for residents to distinguish and individualize the spaces surrounding their housing units. This, in turn, provides residents with the opportunity to take more ownership of and responsibility for their units.

The current circulation system also contributes to the erosion and drainage conditions at the study site. Erosion is most evident in the interior court areas, due to excessive water runoff that collects in the lower elevations of the housing site. Compacted soil prevents the water from penetrating into the ground and results in severe drainage problems on the site. There is potential to regrade the site, altering the circulation system to allow for wider, more direct walkways for public use and eliminating formal walkways in semi-public and semi-private areas. Also, repositioning drainage structures after regrading in accordance with the new drainage pattern will diminish the amount of water runoff and collection around the front and back of the housing units.
**Legibility**

The siting of the housing units in relationship to each other as well as the surrounding community gives the impression that the study site has turned its back on the community as well as on each other. Front entrances are primarily from the interior courtyards and back entrances face parking lots or the fronts of other units. Therefore, many residents and visitors use the backs of their units as entrances. This contributes to the illegibility of entry and the lack of differentiation between back and front, and limits the amount of privacy for residents. There is potential to distinguish between the fronts and backs of unit. Legibility of entrance can be regained by creating a hierarchy of space, and in some cases, limiting access to the back of the housing unit, as well as limiting the placement of public spaces throughout the site and providing walkways that function purely for circulation.

Legibility is poor when entering the site on foot or by car. Multiple walkways and stairs and dual driveways provide access to different parts of the site, contributing to the lack of direction, especially to the first time visitor. There is no signage for pedestrians or vehicles to provide a sense of direction or to indicate locations of the housing units. Also, pedestrian walkways and stairs to the street do not provide a direct connection to the circulation system within the site, thereby adding to the pedestrian’s confusion.

There is potential to enhance legibility on the site by providing a central entrance for vehicles as well as pedestrians when entering the site and by providing cues/elements in the landscape to indicate entry and connection such as crosswalks. Also there are some units that do not have direct access to parking and there are opportunities to expand or create new parking areas closer to these units.

**Safety**

Dual vehicular entrances into the front parking lot provide a circulation pattern for unwanted traffic as well as unwanted activities at the study site. Multiple public walkways and stairs at the entrances to the site as well as throughout the site provide opportunities for those who neither live in the development nor have business in the development to easily access the site. By limiting the access points onto the site and providing surveillance onto these areas, unwanted visitors will be discouraged from entering the site.

Safety is also an important issue for the children since they are the primary users of the external spaces. Lighting on the site needs to be enhanced especially near the Boys and Girls Club and on the west end of the development. Play areas need
to be constructed with safer building materials such as wood, bark, peanut shells, or grass. Also, surveillance capabilities need to be addressed, especially around the back of the Boys and Girls Club and for units at the back of the development.

There is potential to decrease safety concerns by limiting the number of public areas, controlling access to the site and providing direct surveillance onto the spaces throughout the site. Also providing more and better quality lighting (i.e. not easily shattered) and encouraging territoriality through the delineation of more semi-private and private spaces can create opportunities for control and responsibility. This can deter unwanted visitors from entering the site.

5.2 Design Objectives and Design Criteria

This section contains design objectives and design criteria that address the overall goal of the study: to explore opportunities for enhancing residents’ sense of ownership, control, and efficacy through the redesign of outdoor spaces at a public housing development. Design objectives are presented for public-private spatial delineations, public space, pedestrian and vehicular circulation, development image, and safety considerations. These objectives are based on the existing site conditions and resident preferences and are used to evaluate the design options in order to obtain an appropriate design solution.

Design criteria address physical design characteristics that are lacking in the external spaces of the study site. Each criterion is based on a broader design objective, providing a basis for evaluating landscape architectural design options and concepts in Chapter 6.

• Public-Private Spatial Delineation

The first set of objectives encompasses the relationship of public-to-private space. Since the study site lacks private, semi-private, and semi-public external spaces, creating a hierarchy is important to providing spaces for privacy, which enhance self-expression and responsibility by the residents for the spaces surrounding their housing units, as well as spaces for communal gathering, which enhance interaction among residents. But before a hierarchy can be created, there must be an understanding of the physical characteristics which define public, semi-public, semi-private and private space. Therefore, the following are definitions of space are used for the purposes of this study.

• Public spaces are physically and visibly open to all. There are no restrictions limiting access or use.
• Semi-public spaces are visible to the public, but contain real or symbolic cues in the landscape such as fencing and gates or a textural change in building materials, to limit access physically to residents or those with a right to be there
• Semi-private spaces are partially visible to the public, but access is limited to residents who live there and invited guests
• Private spaces are totally secluded from the public and are accessible only to residents who live there and invited guests

In order to create a hierarchy from public-to-private space at the study site, the relationships between buildings must be examined. Some buildings have a back-to-back/front-to-front orientation, but the majority of the units are oriented front-to-back or back-to-parking lot. This diversity in the physical arrangement of the buildings makes creating a spatial hierarchy more challenging. The following criteria address the design objective and are used for the purposes of redesigning the public-private space on site, taking into account the physical arrangement of the buildings.

**DESIGN OBJECTIVE: To create a hierarchy of public-to-private outdoor spaces**

1) Create private/semi-private back yards for those units with a back-to-back orientation
2) Provide semi-public play areas for younger children
3) Provide more privacy for back of units facing the parking lot or front of other units
4) Limit public access through semi-private and semi-public spaces to enhance privacy
5) Provide real or symbolic cues, such as fencing, vegetation, or a textural change, in the landscape to create legible transitions from public-to-private space
6) Provide legible cues, such as a single walkway into private unit, textured front porch, displaying unit numbers only at the front, to distinguish between the fronts and backs of units
7) Delineate space between housing units to indicate boundaries and a sense of ownership

**• Public Space**

Once a public-to-private spatial hierarchy is created for the study site, the types of locations and their potential uses must be determined. The following types of public spaces accommodate the activities proposed for each public area in the design options.

• Social Space (SS) - children’s play areas, formal gathering areas
• Functional Space (FS) - circulation
• Recreational Space - active and passive recreation
• Active (AR) - organized sports (basketball, football, baseball) exercising, running, golf
• Passive (PR) - waiting for school bus, picking up mail, greetings/conversations
Since there is currently no delineation of space for public or private use at the housing site, this issue must be addressed in relationship to the types of activities that can occur and where they should be located on-site. The following criteria address the design objective and are used to locate and design the public spaces on the study site.

**DESIGN OBJECTIVE:** To provide public spaces for residents that provide opportunities for social, functional, and recreational activities (Active and Passive)

1. Create diverse recreational spaces for diverse age groups that are physically and hygienically safe
2. Provide passive public space(s) at the front of the development
3. Provide external social space(s) for informal play or formal gatherings
4. Provide passive as well as active recreational spaces that do not infringe upon the privacy of adjacent housing units
5. Provide active recreational spaces that allow flexibility for organized and unorganized activities
6. Utilize large open spaces for active recreational facilities

**Pedestrian and Vehicular Circulation**

Maintaining a hierarchy of space is also relevant to pedestrian and vehicular circulation. A hierarchy of space provides legibility or an understanding of the layout of a site and how to maneuver through it. Currently, the study site has multiple points of access for pedestrians and vehicles and therefore a hierarchy does not exist and legibility is lost. The following criteria address the objectives and are used for the purpose of redesigning the pedestrian and vehicular circulation patterns on site.

**DESIGN OBJECTIVE:** To provide direct and clear pedestrian access and circulation to the study site from the public street

1. Provide distinct (main) pedestrian entrances at the front and back of the study site from the public street to enhance legibility and image
2. Provide pedestrian access from the public street that links directly to the public spaces and public walkways on-site
3. Provide a more direct access from the public street to the handicapped housing units
DESIGN OBJECTIVE: To improve legibility of pedestrian circulation within the study site

1) Limit public circulation through semi-public/semi-private areas
2) Provide direct pedestrian access into the housing units from the public walkways
3) Create a buffer zone between the public circulation paths and housing units
4) Locate functional public circulation away from the housing units

DESIGN OBJECTIVE: To provide direct and clear vehicular access and connection to the study site from the public street

1) Limit unwanted traffic flow in parking lot along Admiral Gravely Boulevard
2) Provide visual connections for vehicular traffic with the public spaces at the front and back of the study site
3) Provide distinct (main) vehicular entrances at the front and back of the study site that enhance legibility and image

DESIGN OBJECTIVE: To improve legibility and access to parking areas within the study site

1) Provide parking close to units that are located far away from existing parking areas

• Development Image

After examining the public-private spatial hierarchy, location of public space, pedestrian and vehicular circulation, the overall image of the development must be addressed. All of the previously mentioned characteristics contribute not only to the internal image of the development, which affects the degree of ownership and responsibility the residents are willing to accept, but also the image that is projected onto the surrounding neighborhood and community.

To the surrounding community, Fulton Multifamily Housing development is representative of public housing because of its lack of boundaries and poorly defined spaces, illegible circulation, identical building types, and increased opportunities for crime. The study site differs drastically from the surrounding single family housing due to the lack of spatial hierarchy, and environmental problems, such as erosion, compaction, and poor vegetative quality of the landscaped areas that diminish its image.
DESIGN OBJECTIVE: To enhance the physical image of the study site within the community

1) Create more of a presence or frontage for the development on the public street
2) Diminish the scale of the asphalt parking lot along Admiral Gravely Boulevard
3) Limit views onto semi-private backs facing the parking lot and the public street
4) Screen trash dumpsters from public view
5) Distinguish back of units from front of units
6) Address the environmental problems on-site such as erosion, compaction, and exposed tree roots by creating a new circulation system, and using plant materials or retaining walls to control erosion

• Safety Considerations

In many public housing developments, crime and the fear of crime are the primary contributing factors to the lack of interaction and involvement by the residents, thereby resulting in a lack of responsibility for the external spaces surrounding their units. Therefore, in addition to the previous objectives and criteria used to address the redesign of the study site, the following criteria are also used to address the image and safety issues at the site.

DESIGN OBJECTIVE: To improve safety conditions for the residents at the study site

1) Provide semi-private spaces around the housing units to enhance territoriality
2) Increase surveillance capabilities onto more public and semi-public spaces
3) Control access by providing pedestrian and vehicular circulation that is legible and direct
4) Provide play areas for young children closer to housing units to provide natural surveillance
5) Provide more lights throughout the study site
6) Improve overall surveillance into and from the study site
7) Locate play areas away from the public street and vehicular circulation areas
8) Limit the number of public spaces at the front of the study site along Admiral Gravely Boulevard
CHAPTER 6: LANDSCAPE ARCHITECTURAL DESIGN OPTIONS

This chapter presents landscape architectural design options that address the relationship of public-to-private space, the location of public space, vehicular and pedestrian circulation, and the overall image of the housing development in relationship to the surrounding community. These characteristics are important in solving many of the physical design problems in the external spaces such as the lack of private, semi-private, and semi-public space, illegibility of pedestrian walkways, and safety issues such as lack of surveillance, access control, and territoriality.

Two design concepts are presented which demonstrate suitable design solutions for the external physical problems such as erosion, compaction, and water run-off as well as the social considerations such as responsibility for maintenance and creating opportunities for ownership and control. The study concludes with the presentation of a Conceptual Landscape Master Plan that is based on the residents’ evaluation of the two design concepts.

6.1 Landscape Architectural Design Options

The following section presents landscape architectural design options addressing public-to-private spatial delineation, design of public space, pedestrian and vehicular circulation, and development image. Public-to-private spatial delineation includes design options addressing back-to-back, front-to-front, and front-to-back building orientations.

Each option is evaluated for its strengths and weaknesses based upon relevant design objectives. Evaluations determine whether or not the option is a viable solution in addressing the physical design issues on this site, such as spatial boundaries, semi-public and semi-private space, and access control into more private areas.

Public-to-Private Spatial Delineation

• BACK-TO-BACK OPTIONS (see Diagram 6.11)

Option 1

• Symbolic cues, such as a textural change from concrete to grass and a narrow entrance, indicate a transition from public space to semi-public, semi-private, and private spaces
• Back porches are more private
• Semi-private common spaces and the semi-public play area contain no delineations and therefore, are to be used by residents living in the adjacent units
PUBLIC-PRIVATE SPACE
Back-to-Back

Option 1: 1) Private porches, 2) Two semi-private yards, and 3) A semi-public play area

Option 2: 1) Small, delineated semi-private yards, and 2) A large semi-public play area

Option 3: 1) Large, delineated semi-private yards, and 2) A small semi-public play area

Option 4: Totally enclosed area that includes: 1) Large, delineated semi-private yards, 2) A small semi-public play area, and 3) Fencing

Diagram 6.11: Back-to-Back Design Options for Public-Private Space
Option 2

• Small semi-private yards and a large semi-public play area
• Low fencing creates a physical entrance from the public space into the more private back and delineates boundaries of semi-private space for each housing unit
• Vegetation, such as grass or low groundcovers, acts as a symbolic cue to indicate a transition from public-to-private space

Option 3

• Large semi-private yards and a small semi-public play area
• Low fencing and vegetation are used in the same manner as in Option 2

Option 4

• Large semi-private yards and a small semi-public play area
• Fencing, vegetation, and gates physically separate the public circulation at the front of the units from the more private activities at the back of the units
• Large yards and play area are totally enclosed and for the private use of residents living in adjacent units

Option 1 provides subtle cues for transition from public-to-private space and opportunities for individual and group responsibility by residents for the semi-public and semi-private spaces. However, the absence of real cues, such as fencing and gates, to indicate spatial boundaries and transition may cause too many problems in the long run for the maintenance of these spaces. Option 1 may be too much responsibility for a group of residents unaccustomed to having a sense of ownership and control over the external spaces surrounding their housing units. Residents already struggle over maintenance issues pertaining to the external spaces belonging to other housing units. Therefore, they need to have clear physical delineations such as fencing or vegetation to indicate boundaries of ownership.

Option 2 also encourages resident responsibility and fencing delineates clear boundaries for semi-private yards, alleviating any concerns regarding maintenance issues. However, this option also proposes a large semi-public play area that requires maintenance. This option may be a viable solution, but if resident responsibility is to extend to this area, maintenance will still need the cooperation and involvement of all the residents living adjacent to the semi-public space.

Option 3 requires less maintenance than option 2 for the semi-public play area because it is smaller. However, maintenance is still necessary and needs the interaction and involvement of the residents. This option may be more appropriate than option 2 because it does not require as much of a group effort to maintain the semi-public play area.
Option 4 provides more privacy for the residents because it cuts-off access and public circulation to the backs of housing units. However, maintenance issues are similar to those proposed in options 2 and 3. This is especially true since the area uses fences and gates to increase privacy and keep those who do not live there out. Problems may result due to the proposal to make these spaces completely private with no public or semi-public through access. This option would adversely affect pedestrian circulation due to the existing physical orientation of the buildings. If all of the spaces with back-to-back orientation were made totally private, direct access to other residential units would be completely removed making access more difficult and inconvenient.

• FRONT-TO-FRONT OPTIONS (see Diagram 6.12)

Option 1

• Public circulation is placed away from the front of the buildings in order to provide more semi-private space for residential use
• A single sidewalk provides clear and direct access from the public circulation system into the private home
• Public circulation provides no amenities such as benches to encourage lingering
• Low fencing and/or vegetation delineate the more private space from the public circulation paths

Option 2

• Public circulation is placed away from the front of the buildings, similar to Option 1, but less space is designated for semi-private use by the residents
• Larger spaces are given to the public areas, providing amenities such as benches and shade to encourage their use for social or recreational activities
• A single sidewalk, similar to that proposed in Option 1, provides clear and direct access from the public circulation system into the private home

The single sidewalk in both Options 1 and 2 clearly define access and provide legibility for entering the housing unit. However, the functional circulation in Option 1 limits opportunities for loitering in the public spaces, which the residents want to discourage. Furthermore, the larger semi-private yards in Option 1 increase the distance between the public circulation and the private home, thereby increasing the amount of privacy for the residents as well as the maintenance responsibility for the semi-private spaces, which the residents want to encourage. Therefore, Option 1 presents the most appropriate solution for the study site.
Diagram 6.12: Front-to-Front/Front-to-Back Design Options for Public-Private Space
• **FRONT-TO-BACK OPTIONS** (see Diagram 6.12)

**Option 1**

- Public circulation is placed away from the buildings, but less space is designated for semi-private/private residential use
- Larger public spaces provide amenities such as benches and shade to encourage social and recreational activities
- A single sidewalk provides clear and direct access into the front of the housing unit
- Semi-private front yards are clearly demarcated with fencing and/or vegetation
- Semi-private yards at the back of the unit provide no formal access or entry

**Option 2**

- Public circulation is placed away from the building, similar to Option 1, but more semi-private/private space is provided for residential use
- Public space functions solely as a circulation path with no amenities to encourage loitering or unwanted social or recreational gatherings
- A single sidewalk, also similar to option 1, provides clear and direct access to the front of the housing unit
- Semi-private yards at the front and back are similar to Option 1

Options 1 and 2 propose a single walkway at the front of the housing unit and no formal entrance at the back. This clearly distinguishes fronts from backs, decreasing confusion when approaching the housing units. However, Option 1’s proposal of small semi-private yards results in a larger semi-public space that infringes on the privacy of residents as well as increases opportunities for unnecessary gathering and loitering. Screening and buffers may provide some relief from the public activities, but depending upon the size can also limit surveillance and create opportunities for crime.

Residents want to discourage loitering around housing units and there is a desire to increase opportunities for resident responsibility, ownership, and control of the external spaces. Therefore, Option 2’s proposal of large semi-public yards that are clearly demarcated is the most appropriate solution to decrease opportunities for unwanted social and recreational activities around the housing units and to address the need for more privacy.

**Public Space**

**Option 1** (see Diagram 6.13a)

- One public space is located at the front of the development that can be used for passive activities such as
Diagram 6.13a: Public Space Design Option 1

B/G Club = Boys and Girls Club
AR = Active Recreation (e.g. sports, exercising)
PR = Passive Recreation (e.g. waiting for bus, gardening)
SS = Formal Gathering Space (e.g. group meeting)
Diagram 6.13b: Public Space Design Option 2

PUBLIC SPACE
Option 2

B/G = Boys and Girls Club
AR = Active Recreation (e.g. sports, exercising)
PR = Passive Recreation (e.g. waiting for bus, gardening)
SS = Formal Gathering Space (e.g. group meeting)
B/G Club = Boys and Girls Club
AR = Active Recreation (e.g. sports, exercising)
PR = Passive Recreation (e.g. waiting for bus, gardening)
SS = Formal Gathering Space (e.g. group meeting)
picking up the mail, waiting for the school bus, or casual greetings and conversations by residents

- Larger recreational spaces are placed at the east and west ends of the development, allowing opportunities for organized and unorganized activities such as basketball, football, or casual play
- A social gathering space is located in front of the Boys and Girls Club, providing space for formal meetings and passive play

**Option 2 (see Diagram 6.13b)**

- Public spaces, containing benches, plants, and trees are located at the front of the development between buildings that are oriented front-to-front
- Active recreational spaces are located close to the public street on the east and west ends of the development, providing organized play equipment such as teeter totters, slides, basketball courts, and a large playground and natural surveillance
- Undefined recreational areas provide space for unorganized activities such as football, soccer, or exercising.
- A social gathering space, similar to option 1, is placed near the Boys and Girls Club

**Option 3 (see Diagram 6.13c)**

- Public spaces are placed at the front of units facing onto the parking lot along Admiral Gravely Boulevard
- Active recreational spaces are located on the east and west ends, designating less space for organized recreational activities and more space for informal play or unorganized sports.
- A social gathering space placed in front of the Boys and Girls Club is similar to Options 1 and 2

Options 1, 2, and 3 propose a social gathering space near the Boys and Girls Club. This space provides benches and shade to encourage use by adults and children. However, activities are limited to passive play such as hopscotch and reading and to social gatherings that do not intrude on the privacy of adjacent housing units. Furthermore, recreational spaces at each end of the development provide diverse play equipment and activities, discouraging older children, teens, and young adults from playing in areas meant for younger children. However, recreational equipment placed close to the public street, as proposed in Option 2 for purposes of surveillance, may attract unwanted public use.

Options 2 and 3 propose multiple public spaces at or near the front of the development. Some of these areas are more secluded, increasing opportunities for loitering, encouraging hiding as well as other unwanted activities along the parking lot. Multiple public spaces infringe on the privacy of residents, especially those units whose backs face on the parking lot. Too many public spaces decrease legibility and the hierarchy of space that allows for privacy as well as communal spaces. Therefore, limiting the number of public spaces at the front of the development, as presented in Option 1, presents a viable solution to decreasing opportunities for loitering and illicit activities in the adjacent parking lot. The proposed public space is easily viewed from the public street and adjacent housing units.
Diagram 6.14a: Pedestrian Circulation Design Option 1
PEDESTRIAN CIRCULATION
Option 2

HC = Handicapped Housing Unit

Diagram 6.14b: Pedestrian Circulation Design Option 2
Diagram 6.14c: Pedestrian Circulation Design Option 3

PEDESTRIAN CIRCULATION
Option 3

HC = Handicapped Housing Unit
Pedestrian Circulation

**Option 1** (see Diagram 6.14a)
- Public walkways are placed away from the housing units
- Public staircase along Admiral Gravely Boulevard leads directly onto the main public space used by residents for picking up mail and waiting for the school bus
- Sidewalks from Admiral Gravely Boulevard provide direct access to handicapped units on the site
- Public stairs along Denny Street provides direct linkage to housing units and the public circulation system on the site.
- Single private sidewalks provide direct access into the front of the housing units
- No formal walkways are placed at or near the back of housing units, thereby enhancing residential privacy.

**Option 2** (see Diagram 6.14b)
- Two entrances are located at opposite ends of the site, each provide direct access to public spaces and walkways as well as direct access to handicapped units
- Pedestrian sidewalks placed away from the buildings, the absence of formal walkways at the backs of the units, single semi-private/private sidewalks at the front of units, and sidewalks and stairs along Denny Street are the same as those elements proposed in Option 1

**Option 3** (see Diagram 6.14c)
- Staircase along Admiral Gravely Boulevard is more centrally located on the site
- Central staircase directly links to a public walkway creating a corridor from the front of the development to the rear of the development
- Sidewalks from Admiral Gravely Boulevard provide direct access to handicapped units
- Pedestrian sidewalks placed away from the buildings, the absence of formal walkways at the backs of the units, single semi-private/private sidewalks at the front of units, and sidewalks and stairs along Denny Street are the same as those elements proposed in Options 1 and 2

Options 1, 2, and 3 propose placing sidewalks away from the buildings, thereby increasing opportunities for privacy and territoriality. Also, the lack of formal walkways at the backs of the housing units decreases public circulation and increases opportunities for active play by younger children. However, placing two main entrances at opposite ends of the study site, as proposed in Option 2, diminishes legibility and increases confusion regarding pedestrian access. Multiple entrances decrease the hierarchy of space as well as the ability to understand how the site is laid out. Despite their being directly linked to public spaces, multiple entrances decrease access control and limit surveillance. Furthermore, combining main entrances with the handicapped accesses increases the amount of pedestrian traffic near these units, thereby decreasing the amount of privacy for the residents.
VEHICULAR CIRCULATION
Option 1

B/G Club = Boys and Girls Club

Diagram 6.15a: Vehicular Circulation Design Option 1
VEHICULAR CIRCULATION
Option 2

B/G Club = Boys and Girls Club

Diagram 6.15b: Vehicular Circulation Design Option 2
Options 1 and 3 propose placing public stairs so that they enter onto a designated public space. This provides legibility, a sense of direction, and strengthens the image of the entrance, allowing visitors and residents to understand the layout of the site and how to maneuver through it. In addition, pedestrian walkways directly accessing handicapped units provide physically impaired residents and visitors easy access to the public street and parking lot as well as allow movement throughout the development to directly access other housing units. But Option 3 presents the most appropriate design solution. The centrally located staircase along Admiral Gravely Boulevard provides a physical and visual connection from the front of the development to the staircase located on Denny Street. This central location allows surveillance of the development as a whole upon entering the site and enhances legibility for residents and visitor.

**Vehicular Circulation**

**Option 1** (see Diagram 6.15a)

- Parking lot is physically divided into two sections with separate entrances
- Vehicular access is directly connected to the public spaces and sidewalks on-site
- Parking along Denny Street is extended to create a small parking area next to the Boys and Girls Club

**Option 2** (see Diagram 6.15b)

- One centrally located vehicular entrance along Admiral Gravely Boulevard provides access into the parking lot and directly connects to the public circulation system
- Extended parking along Denny Street is similar to Option 1

Options 1 and 2 propose a small parking lot at the side of the Boys and Girls Club. This serves to pull housing authority and maintenance vehicles off the turnaround, which is also used by residents for parking and sanitation workers for trash pick-up. In addition, the small parking lot enables residents in unit 1211 to park closer to the front of their housing units, providing surveillance for an area that is plagued by vandalism.

Option 1 physically divides the parking lot into two separate areas, decreasing the amount of drive through traffic by making it more difficult to enter and exit the site. This option may also limit the amount of illicit activities that occur in the parking lot. In addition, two parking lots serve to symbolically divide the development into two sections that may enhance the image of the development and encourage ownership and pride as well as responsibility. Option 2 proposes a centrally located vehicular entrance. The location of this entrance strengthens the legibility of the site for vehicular access, providing better access control and surveillance than option 1. However, having only one way to enter and exit the large
HC = Handicapped Housing Unit

Diagram 6.16a: Development Image Design Option 1
Diagram 6.16b:  Development Image Design Option 2

HC = Handicapped Housing Unit

DEVELOPMENT IMAGE
Option 2
parking lot may cause congestion and signage is needed to alleviate confusion in locating housing units.

**Development Image**

Image can be addressed through pedestrian and vehicular circulation, delineation of public-to-private space, placement of public space, and safety issues such as lighting, concealment, and loitering. These are elements that were addressed in the previous design options. In addition, image can also be addressed through the use of design materials such as vegetation, walls, benches, recreational equipment, and fencing, providing amenities and opportunities for use by the residents. The following options present two ways to enhance the image of the study site.

**Option 1** (see Diagram 6.16a)

- Semi-private sidewalks and porches distinguish fronts from backs of housing units, providing legibility when entering the housing unit
- The lack of formal circulation systems, such as concrete walkways, at the back enhance the difference and enable residents to have more privacy and to claim territory
- Perimeter fencing controls access onto the public recreational spaces and semi-private spaces facing onto the public street
- Low fencing at the interior of the site serves to control access into the housing unit, delineate backyards, and provide more privacy for residents
- Vegetation serves to screen views into semi-private backyards especially those facing the parking lot and public streets, and to break up views onto the large asphalt parking lot along Admiral Gravely Boulevard, perceptually diminishing its size
- Vegetation at the interior of the site provides shade for public activities such as waiting for the school bus or casual play and buffers semi-private yards from the public circulation system
- Pedestrian and vehicular access placed side-by-side and centrally located to the site provides direct and clear entry onto the site, but may cause congestion due to the single entrance/exit and confusion if signage to locate housing is not provided
- Retaining walls help to control erosion, screen trash receptacles, and provide planting areas that can be used by the residents to create an aesthetically pleasing environment. Plantings also serve to discourage loitering and sitting along the ties encourage use by residents and deter use by people who do not live in the development

**Option 2** (see Diagram 6.16b)

- Low fencing is strategically placed around the housing units to create entrances, delineate space, and increase privacy
- Perimeter fencing is used, similar to Option 1, to control and direct pedestrian access onto the site
• A centrally located staircase serves to divide the parking lot and symbolically divide the housing site
• Two parking lots also serve to decrease the amount of unwanted traffic and activities, making entry and exit more difficult
• Vegetation placed along the street level serves to screen the view onto the parking lot, perceptually lessening its size. Signage may be needed near each parking lot to direct visitors and locate housing
• A central staircase provides a grand entrance onto the site from the public street that is legible and strengthens entry
• The central staircase also provides direct connection to the staircase on Denny Street, creating a corridor that is legible and easy to move through for visitors and residents alike
• Smaller semi-private yards require less maintenance by the residents
• Vegetation primarily serves as a screen around the housing units, therefore requiring less individual attention by the residents
• Larger areas such those designated for active and passive play require more maintenance and responsibility can be determined by the residents and the housing authority

Options 1 and 2 provide a hierarchy of space by using the same elements, i.e. fencing, vegetation, retaining walls, reallocation of public and private space, and the relocation of pedestrian and vehicular access and paths. However, the most striking difference between the two is in their delineation of space around the housing units and the adjacent semi-public play areas, and in the vehicular and pedestrian entrances onto the site from Admiral Gravely Boulevard. Option 2 uses subtler ways to enhance the image of the development. It proposes that less fencing can effectively control and direct access, delineate space, and increase privacy, if properly located.

Both options for image are very similar in their use of materials and delineation of space, but the key difference is in the way that they are presented and the amount that used. Both schemes incorporate the best ideas generated in the design options for public-private spatial delineation, pedestrian and vehicular circulation, location of public space, and safety. Therefore, these two schemes are further explained and expanded upon as design concepts in the following section.

6.2 Design Concepts

The following section presents two landscape architectural master plan concepts generated from the design options presented in the previous section. These concepts present design solutions that address issues such as the delineation of semi-public and semi-private space, the location and function of public space, legibility and access of pedestrian and vehicular circulation, image projected to the surrounding community as well as access control, surveillance and opportunities for territoriality.
LEGEND
1. Passive public space (waiting area/mail pick-up)
2. Passive public space (play area/formal gatherings)
3. Perimeter fencing
4. Pedestrian entrance (Admiral Gravely Blvd.)
5. Pedestrian entrance (Denny Street)
6. Vehicular entrance
7. Proposed tot lot
8. Existing tot lot
9. Large semi-private yards
10. Small semi-public play areas
11. Junior-sized basketball court
12. Recreational field
13. Playground (7-12 year olds)
14. Regulation-sized basketball courts
15. Dumpsters
16. Vegetation
17. Wooded area
18. Existing chain link fencing

Diagram 6.21: Landscape Master Plan - Concept 1
Landscape Master Plan Concept 1

This concept stresses the idea that more is better, i.e. more fencing to delineate public, semi-public, and semi-private space, larger semi-private backyards especially for those units with a back-to-back orientation, and more organized recreational space throughout the site. The following is a description of the design concept (see Diagram 6.21).

Concept 1 places fencing along the perimeter of the study site to delineate boundaries and direct pedestrian access to the designated public entrances and walkways onto the property. This concept also places fencing along the front perimeter of each housing unit to direct pedestrian access within the site and delineate semi-private front and backyards from the functional public circulation system. As a result, the latter creates large semi-private areas for residential use as well as a single, semi-private walkway that leads directly to the front of the housing unit.

Housing units surrounded by semi-private yards enhance opportunities for territoriality and resident responsibility for the spaces surrounding their housing units as well as provide formal entrances at the front that are direct, legible, and well-differentiated from the back of the units. Large backyards, where provided, also create opportunities for control and ownership. Small semi-public play areas, provided for those units with a back-to-back orientation, allow children to play closer to their housing units and parents to observe from a comfortable distance.

Designated public spaces throughout the study site provide active and passive recreational activities. The large, open grassed areas on the east and west ends of the site provide ample space for larger recreational activities for older children, teens, and young adults such as basketball, football as well as a large playground for those children 7 and older. Semi-public play areas adjacent to the housing units provide smaller, safer play areas for younger children near their homes. A proposed tot lot near the east end of the property (between units 1229 and 1233) also provides a variety of recreational activities for the younger children.

The majority of the interior public spaces are used purely for circulation purposes. There is one designated public space proposed for the front of the development, providing amenities such as benches and shade to encourage passive activities such as waiting for the school bus, picking up mail, or casual greetings and conversations. Public spaces are limited at the front of the development in order to discourage loitering and unnecessary gathering that can lead to unwanted social and recreational activities. The proposed location for the passive public space at the front of the development is directly connected to the public circulation system and allows for its surveillance from the surrounding housing units as well as the public street.
A public space is also proposed along the front of the Boys and Girls Club. This space, located near Denny Street and adjacent to two housing units, provides an area for formal gatherings as well as passive recreational activities such as sitting, reading, or casual conversation. Benches and shade provide a sense of enclosure to encourage stays of longer duration and allows use by adults as well as children. Seating allows casual observation of the space and passive activities such as hopscotch or shuffleboard can be performed without intruding upon the privacy of the residents in the adjacent housing units.

Public walkways, placed away from the fronts of the housing units, provide larger private and semi-private yards for the residents. They function primarily as circulation paths and provide no amenities to encourage loitering or unnecessary gathering. Public walkways also provide a direct connection from Admiral Gravely Boulevard to the disabled housing units located on the site. This allows the physically impaired resident or visitor to easily access the housing units from the public street or from the parking lot.

Public pedestrian access from Admiral Gravely Boulevard provides a direct linkage to the public spaces and circulation paths within the study site. A centrally located staircase at Admiral Gravely Boulevard provides the main public access onto the property. This entrance physically divides the parking lot into two separate areas and symbolically divides the development. It also creates a formal entrance onto the site that is direct, legible, and enhances the public image projected to the surrounding community. The central staircase on Admiral Gravely Boulevard is also directly connected by a public walkway to the back of the development and the staircase located on Denny Street. This connection increases legibility for residents and visitors entering the site. They are able to oversee the development, understand how it is laid out, and move through it without difficulty.

The proposed centrally located pedestrian stairs along Admiral Gravely Boulevard also serves to divide vehicular access into two separate entrances. This symbolically divides the development into two distinct communities and perceptually diminishes the vast size of the asphalt parking lot. The existing parking lot with its dual access is a source of unwanted traffic flow and illicit activities, therefore creating two separate parking lots serves as a deterrent, making entry and exit more difficult. It also serves to enhance the public image of the study site within the surrounding community. However, signage may be necessary along the public street to direct vehicular traffic onto the site and increase legibility.

Existing vehicular access and parking along Denny Street is more difficult to address because it is a turnaround street that is used not only by the residents, but also by sanitation workers, housing authority personnel, and maintenance crews. The proposed design provides a small parking extension to the turnaround that enables housing authority personnel and maintenance crews to move their vehicles closer to the maintenance building/Boys and Girls Club. In addition, this new
The additional parking lot also provides closer parking in the evening for residential unit 1211, which is located farthest away from existing parking areas.

The additional parking area creates activity behind the Boys and Girls Club, an area vandalized in the past. Providing pedestrian and vehicular activity in this area as well as an adjacent recreational space, such as a small-scale half-basketball court for the younger children allows opportunities for surveillance and deters crime. Also, a new parking lot requires additional lighting that is also a good deterrent for illegal activities.

Vegetation, placed along the front of the housing development, screens and provides more privacy for those units facing the parking lot and the public street. Vegetation also minimizes the perceived size of the parking lot along Admiral Gravely Boulevard and screens the semi-private backs of the units from the more public circulation and recreational areas. Existing vegetation is of poor quality and must be thoroughly evaluated for its contribution to the landscape.

Proposed low retaining walls and stairs located along Denny Street provide erosion control and direct pedestrian access to housing units and public spaces. They also provide a backdrop for the proposed extended parking area next to the Boys and Girls Club and act as a screen to shield the trash receptacles along Denny Street from public view. Since retaining walls are used throughout the site to address grade changes, they are also recommended to control erosion along the wooded hillside on the southwest portion of the site. Attempts have been made to control erosion by other means such as vegetation and riprap, but they have been unsuccessful.

**Landscape Master Plan Concept 2**

This concept stresses the idea that less is better, i.e. less fencing to delineate public, semi-public, and semi-private space, smaller semi-private backyards, and less organized recreational space. A few of the design solutions are similar to those proposed in Concept 1. Design solutions that address the extension of the parking area along Denny Street, the incorporation of functional public circulation, the use of retaining walls, screens for the trash receptacles, perimeter fencing, and the pedestrian staircases along Denny Street from concept 1 are also proposed for Concept 2. These options provided the best solutions to solving these physical design problems and can be referred to in the previous section. Therefore, the following provides a description of the design solutions that differ from the first concept (see Diagram 6.22).

Semi-private yards are smaller than those proposed in Concept 1. They still provide opportunities for territoriality, but require less individual maintenance and therefore, less responsibility for the residents. However, creating smaller semi-private yards results in larger semi-public spaces that also require maintenance. This is especially true for those units with
LEGEND
1. Passive public space (waiting area/mail pick-up)
2. Passive public space (play area/formal gatherings)
3. Perimeter fencing
4. Pedestrian entrance (Admiral Gravely Blvd.)
5. Pedestrian entrance (Denny Street)
6. Vehicular entrance
7. Proposed tot lot
8. Existing tot lot
9. Small semi-private yards
10. Large semi-public play areas
11. Children’s garden
12. Playground (7-12 year olds)
13. Regulation-sized basketball courts
14. Low (minimal) interior fencing
15. Dumpsters
16. Vegetation
17. Wooded area
18. Existing chain link fencing
19. Junior-sized basketball court

LANDSCAPE MASTER PLAN
CONCEPT 2

Diagram 6.22: Landscape Master Plan - Concept 2
a back-to-back orientation, containing large semi-public play areas. If resident responsibility is to extend to these spaces, support programs and organization will be necessary to ensure group responsibility.

Fencing is used to delineate space and direct access, but this concept proposes that a similar effect can be achieved using less fencing than proposed in concept 1. Fencing is not placed along the perimeter of the housing unit, but instead strategically located from the front edge of the backyard to the end of the front yard. (see Diagram 6.22) This creates a smaller front yard than proposed in Concept 1 that is symbolically bounded along the front edge adjacent to the public walkway. As a result, this symbolic edge creates an imaginary third fence that directs public circulation away from the building, similar to a real fence. Fencing also delineates space for the semi-public play areas and the semi-private backyards found with units having a back-to-back orientation (see Diagram 6.22). This fencing serves as a cue in the landscape that a transition is occurring from the more public front to the more private back. It acts like a gate to limit access and deter public circulation.

In comparison to Concept 1, designated public spaces at the east end are clustered toward the front of the housing site and provide only a basketball court and playground. These spaces are placed toward the front of the development to allow for additional surveillance from the public street. The remainder of the space can be used for informal activities and unorganized sports such as football, soccer, or exercising. In addition, a proposed tot lot near the east end of the property (between units 1229 and 1233) provides active recreational space for younger children closer to their housing units. But, in comparison to Concept 1, which proposed a tot lot similar to the existing one on the west end, this concept suggests that the tot lot be surrounded by a formal pedestrian walkway to delineate a boundary that provides circulation and buffers activities from the adjacent units.

A children’s garden proposed for the space adjacent to the Boys and Girls Club and maintenance building replaces the half-basketball court in Concept 1 designated for younger children. The latter sits next to the existing tot lot at the west end of the study site so as not to infringe upon the privacy of the residents. Gardening is a more passive activity and may be better suited to the space that is also directly adjacent to the front of unit 1211. This space already has a proposed semi-public play area for the children and therefore, does not need an additional play area close by.

Similar to Concept 1, public pedestrian access from Admiral Gravely Boulevard provides a direct linkage onto the public spaces and circulation paths within the site. However, Concept 2 proposes a centrally located staircase adjacent to a single vehicular access point onto the site. Providing pedestrian and vehicular access side-by-side strengthens the physical and visual entrance onto the site, provides legibility and connection, and enhances the public image within the surrounding community.
The central location of the pedestrian and vehicular access also allows residents and visitors to survey the site upon entering and understand the physical connections and the visual layout. This allows for direct and clear movement from the front on the development along Admiral Gravely Boulevard to the rear of the development at Denny Street. Furthermore, the location of the adjacent vehicular and pedestrian accesses serves to symbolically divide the housing site into two separate communities, thereby enhancing its public image even further. However, signage may be necessary to increase legibility.

Vegetation, as in concept 1, screens the parking lot as well as units whose semi-private backyards face onto the public street and larger recreational areas. But at the interior of the site, spaces require less vegetation to buffer and screen public activities. Yards are smaller and located further away from public circulation, creating a larger zone of semi-public space around the housing units. Therefore in these areas, vegetation delineates the boundaries between semi-private yards and the semi-public spaces.

6.3 Conceptual Landscape Master Plan and Illustrations

The conceptual landscape master plan represents the physical design preferences of the residents, housing managers, and maintenance personnel at Fulton Multifamily Housing. Selections are based on the two design concepts presented in the previous section. The final design offers the most appropriate solutions that address the physical design problems at this study site such as the lack of spatial hierarchy, lack of spatial boundaries, illegibility of pedestrian circulation, lack of vehicular access control and the negative image projected to the surrounding community.

Section, perspective, and axonometric drawings support the conceptual landscape master plan. They illustrate design details in the public, semi-public, and semi-private spaces to delineate spatial boundaries, using retaining walls, fencing, and vegetation. Illustrative drawings also indicate the placement of play areas and design elements such as textured walkways, porch details, and lighting bollards recommended in the plan. The following section describes the concept preferred by the advisory committee, and their reasons for selection.

The preferred concept provides residents with large semi-private front and backyards to enhance privacy, to encourage a sense of ownership and control as well as give residents more responsibility for the maintenance of the external spaces surrounding their housing units. The committee also wants residents to take on responsibility for the maintenance of the adjacent semi-public areas on-site. Since these spaces are for the common use of the residents living in the adjacent units,
support programs and enforcement are necessary to ensure that group maintenance is provided in these areas. (see Diagram 6.31)

This concept uses perimeter fencing to delineate boundaries for housing units and recreational spaces facing onto the public street. The residents want to deter public access across the large, open spaces and direct pedestrian access to designated entrances and walkways on the site. They feel that fencing will create the desired effect. However, they also feel that using less fencing around the housing units will delineate space and direct public circulation away from the buildings. The placement of this fencing provides a smaller front yard for the residents, but it also minimizes enclosure, thereby decreasing the negative image of being in a prison.

Low fencing also delineates space for the semi-public play areas and the semi-private backyards found with units having a back-to-back orientation. (see Illustration 6.32) This fencing, as stated in concept 2, serves as a cue that a transition is occurring in the landscape from the more public unit front to the more private unit back. It limits access and deters public circulation, enhancing privacy for the residents and opportunities for territoriality.

Designated public spaces throughout the study site provide active and passive recreational activities for children, teens, and young adults. Semi-public play areas provide safe play areas for younger children close to where they live. Large recreational areas on the east and west ends of the study site provide organized and informal spaces for older children, teens, and young adults. Residents prefer to have recreational areas for older children separate from areas intended for younger children. Therefore, a large playground for children seven years and older, two regulation-sized basketball courts, and an undefined open space for unorganized sports/activities are designated for the east end of the study site. These areas provide active spaces for older children and young adults that are placed away from the public street to deter public access and use by outsiders.

The majority of the interior public spaces are designated purely for circulation purposes. The residents want to discourage loitering and unwanted gatherings at the front of the development and around the housing units. One public space located at the front of the development can be seen from the public street as well as from the surrounding housing units. (see Illustration 6.38) It provides amenities such as benches and shade to encourage passive activities such as waiting for the school bus, picking up mail, or casual greetings and conversations. Other public spaces at the front of the development are limited to public circulation and do not provide any amenities that encourage stays of long duration.

A public space along the front of the Boys and Girls Club provides an area for formal gatherings as well as passive recreational activities such as sitting, reading, or casual conversation. The children at the Boys and Girls Club can use this
Diagram 6.31: Preferred Conceptual Landscape Master Plan
space. It provides for activities such as a hopscotch or shuffleboard to encourage casual play. Benches and shade are also provided for adult gatherings to encourage stays of longer duration. Seating allows casual observation of the space. Passive activities can be performed without infringing upon the privacy of the residents in the adjacent housing units.

Public walkways place public circulation away from the fronts of the housing units and provide larger private and semi-private yards for the residents. (see Illustration 6.35) They function primarily as circulation paths and provide no amenities to encourage loitering or unnecessary gathering. Public walkways also provide direct pedestrian access for the physically impaired from the public street to the study site. The walkways allow the physically impaired resident or visitor to easily access the housing units from the public street or from within the parking lot.

Public pedestrian access from Admiral Gravely Boulevard provides a direct and clear link to the public spaces and circulation paths within the study site. The centrally located staircase at Admiral Gravely Boulevard, preferred by the committee, provides direct, legible public access onto the property. It also provides a direct connection to the back of the development and to the staircase located on Denny Street. (see Illustration 6.34) This connection increases legibility for residents and visitors entering the site. They are able to oversee the development, understand how it is laid out and move through it without difficulty.

The preferred pedestrian entrance also serves to physically divide the parking lot into two separate areas. This also enhances the public image projected onto the surrounding community. The existing parking lot with its dual access is a source of unwanted traffic flow and illicit activities, therefore creating two separate parking lots serves as a deterrent, making entry and exit more difficult. But, signage may be necessary along the public street to direct vehicular traffic onto the site and increase legibility.

Existing vehicular access and parking at the rear of the study site is along a turnaround street (Denny Street). Residents, sanitation workers, housing authority personnel, and maintenance crews use this access to the site. The residents wish to provide parking close to housing units that are located farthest away from existing parking areas. A small parking extension to the turnaround enables housing authority personnel and maintenance crews to move their vehicles closer to the maintenance building/Boys and Girls Club. It also provides closer parking in the evening for selected residential units.

In addition to the new parking area, the residents wish to have a small half-basketball court located adjacent to the Boys and Girls Club/maintenance building. They feel that this will encourage even more activity and deter crime in this space. The Boys and Girls Club/maintenance building has been subject to vandalism over the years and the residents feel that increasing pedestrian and vehicular activity will create opportunities for surveillance and deter crime. Also, additional
lighting in this area is a good deterrent for illegal activities.

Proposed vegetative screening provides more privacy for housing units on the study site and minimizes the perceived size of the parking lot along Admiral Gravely Boulevard. (see Illustration 6.36) It also buffers semi-private backyards from the more public circulation and recreational areas. (see Illustration 6.37) Residents also approve of the use of retaining walls to screen views of the trash receptacles and control erosion. (see Illustration 6.33) Retaining walls accommodate grade changes throughout the site and they are also recommended to control erosion along the wooded hillside on the southwest portion of the site.
Illustration 6.32: Semi-public play area, delineation of spatial boundaries at the back of units using fencing
Illustration 6.33: Semi-private space - textured front porch, retaining wall, fencing, lighting bollards
Illustration 6.34: Public circulation - retaining wall along public walkway on Denny Street
Illustration 6.35: Public-private spatial delineation at the front of housing unit
Illustration 6.36: Central pedestrian entrance from Admiral Gravely Boulevard
Illustration 6.37: Public-private spatial delineation (back of unit to parking lot)
Illustration 6.38: Public space facing on Admiral Gravely Boulevard (mailboxes/waiting area)
CHAPTER 7: GUIDELINES AND RECOMMENDATIONS

This chapter presents guidelines and recommendations for the design and maintenance of the proposed semi-private, semi-public, and public spaces at Fulton Multifamily Housing Development. Design guidelines provide principles to guide future decision-making in implementing the proposed conceptual landscape master plan. Guidelines address signage, lighting, vegetation and fencing, providing instruction for their use in the external spaces of the study site.

Recommendations are provided for improvements to the study site such as recycling programs, outside water taps, and the relocation of the bus stop. These recommendations also provide suggestions to enhance legibility and safety within the housing development, thereby providing a more secure, aesthetically pleasing environment for the residents.

Appendix H records other issues that arose during the public meeting/workshop. These issues can not be directly addressed by the landscape architect, but may greatly impact the image of the development and the attitude of the Fulton residents. Therefore, these issues are presented directly to the housing authority for their evaluation.

7.1 Design Guidelines

The following are design and maintenance guidelines to aid in the generation of the physical form of the proposed conceptual landscape design. These guidelines are grouped into categories of public-private space, maintenance, public space, pedestrian circulation, vehicular circulation, and development image, addressing issues such as the delineation of spatial boundaries, location of fencing, and the use of vegetation. Development image guidelines are categorized into issues concerning erosion, legibility, safety, and vegetation.

• Public-Private Space

1) Use different play equipment for each semi-public play area in order to help distinguish spaces and encourage individuality
2) Place benches near mailboxes located at the front of the development. Benches can be used by children waiting for the school bus or as seating for residents engaged in casual greetings and conversations while picking up their mail
3) Extend the front porch for each unit and provide a textural change in the sidewalk and porch to indicate a transition from public circulation into the more private housing unit
4) Place low fencing (maximum 2') between semi-private yards to delineate physical boundaries for maintenance pur-
poses. This should alleviate confusion between adjacent residences

5) Place fencing (maximum 3-4’) along the perimeter of the site to discourage public access through recreational areas located at the east and west ends of the housing development

6) Strategically place fencing (maximum 3-4’) near the housing units to delineate semi-private front yards as well as control access into semi-public play areas at the back of units

• Maintenance

1) Minimize the amount of space given (square footage) for semi-public play areas to be maintained by residents. Set-up a rotational or group program among the residents in each area that enforces maintenance requirements

2) Use landscape timbers to create a spatial boundary around children’s play equipment to reduce maintenance in semi-public areas. Fill with bark or peanut shells that are inexpensive and make a good flooring choice for children’s play areas, but need replacing due to their biodegradability. Shredded tires also make a good flooring choice and last longer, but may be more expensive to obtain

• Public Space

1) Place a smaller-scale half-basketball court behind the maintenance building adjacent to the Boys and Girls Club to increase natural surveillance behind the building and provide a basketball court for younger children

2) On the east side of the development, place organized and informal recreational activities for teenagers and young adults such as two regulation-sized basketball courts, a large, diverse playground, and an open grassed area that can be used for community picnics or football games

3) Encourage passive recreational activities such as hopscotch, playing cards, or reading along the front of the Boys and Girls Club. Provide benches for sitting, observing, and relaxing

4) Plant grass around proposed tot lot along Denny Street on the east end of the housing development (between units 1229 and 1233). Use an easy to maintain and safe floor such as bark, peanut shells, or shredded tires for each piece of equipment

• Pedestrian Circulation

1) Public circulation paths should be a minimum of 6’ wide and semi-private walkways a maximum of 4’ wide to maintain a hierarchy of pedestrian circulation

2) Do not place formal pedestrian circulation systems such as concrete walkways in the semi-private yards and semi-
public plays areas

• **Vehicular Circulation**

1) Place small parking area at the side of the Boys and Girls Club to increase pedestrian activity behind the building and provide parking closer to residential units at the southwest corner of the development
2) Maintain existing handicapped parking spaces, and also mark parking spaces for other residents and visitors

• **Development Image**

**Erosion**

1) Regrade site and resituate drainage structures to provide adequate drainage and encourage water penetration into the soil
2) Place low retaining wall along the back of the development to alleviate erosion of the hillside. Retaining wall should be aesthetically consistent with other building materials used on-site such as brick or interlocking pavers
3) Place a low retaining wall and vegetation along Denny Street, with stairs to alleviate erosion and compaction of soil and to provide direct access to housing units and public spaces

**Legibility**

1) Place housing unit locator signage for main public pedestrian access (stairs) along Admiral Gravely Boulevard
2) Place housing unit locator signage at both vehicular accesses along Admiral Gravely Boulevard. Signage should be readable from the public street and visible from both directions

**Safety**

1) Determine lighting heights, distances, and intensities based on areas of use and circulation. Lighting design should maximize safety for residents and minimize maintenance due to vandalism. Options include medium intensity lighting for parking lots (e.g. mercury vapor or metal halide), high intensity lighting for pedestrian walkways (e.g. metal halide or high pressure sodium), and low intensity lighting using bollards for semi-public play areas and semi-private entrances into housing units
2) Remove poor quality vegetation and thin out mature trees that obscure views, to improve natural surveillance
3) Screen dumpsters from public view by containing them with a retaining wall and a wooden fence at the front that provides natural surveillance

4) Place crosswalks in parking lot on Admiral Gravely Boulevard to indicate pedestrian use

5) Use groundcovers such as barberry or *Cotoneaster* in proposed retaining wall planters at the back of the property to discourage their use as hiding places

6) Use low maintenance groundcovers, perennials, and low shrubs around and between housing units to enhance aesthetics and provide natural surveillance (see Appendix I)

**Vegetation**

1) Use columnar or pyramidal trees (see Appendix I) for screening back of units facing parking lot along Admiral Gravely Boulevard

2) Use low maintenance vegetative screening (see Appendix I) between housing units and public recreational areas, public streets and adjacent single family housing

3) Use a lawn substitute such as a groundcover (see Appendix I) for the places on site where grass will not grow

4) Use trailing groundcovers in planting beds along retaining walls facing parking lot on Admiral Gravely Boulevard to discourage their use as seating

**7.2 Recommendations**

The following list provides recommendations for enhancing the image of the development and providing support programs to assist with maintenance and educational training. The recommendations are grouped into general categories that address legibility, image, transportation, management, and professional consultation.

**• Professional Consultation**

1) Hire a landscape architect to advise on the regrading, soil amendment, and removal of poor quality vegetation, in order to address the environmental problems such as severe erosion, compaction, and water runoff

2) Hire a landscape architect to design an appropriate lighting and irrigation scheme
• **Development Image**

1) Use retaining walls along Admiral Gravely Boulevard to display the name of the development. Residents were interested in obtaining a new name for the development, therefore utilize their input and give them a voice in the decision.
2) Provide external water taps for each housing unit to support maintenance of semi-private and semi-public spaces, as well as a sprinkler system to help maintain the public recreational areas.
3) Provide more trash receptacles at the front of the development to encourage residents to keep the development clear of trash, broken glass, and other debris.
4) Provide on-site recycling of deciduous tree leaves and other biodegradable matter.

• **Legibility**

1) Remove unit numbers from the back of units to discourage their use as front entrances.
2) Place housing unit numbers only at the front and closer to the public circulation paths.
3) Provide front door screens that help to differentiate units from one another as well as distinguish front of unit from back of unit.

• **Management**

1) Contact the local Master Gardener’s program or Lewis Ginter Botanical Garden to assist with support programs such as gardening for sustenance or a children’s garden, that educate adults and children about plants and their maintenance.
2) Provide incentives for residents to maintain the external spaces of their development such as a Beautification Day Picnic or awards for best looking yard.
3) Provide on-site management personnel randomly once per week to discourage unwanted activities on the site and enhance interaction and involvement with the residents.
4) Encourage resident responsibility for maintenance of semi-public and semi-private spaces by providing training programs.

• **Public Transportation**

1) Move public bus stop closer to the centrally located main public stairs along Admiral Gravely Boulevard. This provides direct access onto the site from the public transportation stop and strengthens the main pedestrian entrance.
CHAPTER 8: STUDY CONCLUSIONS

Residents of housing developments are being included more and more in the redesign of the external spaces of their housing developments because many believe that the most pressing problems in public housing environments, including crime, safety, and environmental issues, are best addressed through public participation. But many designers are still reluctant to fully engage public housing residents in the design process because they believe that it is too time consuming or that residents lack adequate design knowledge. In addition, many designers who do engage public housing residents, do so on a superficial level. Therefore, in contrast, this study engages the residents of Fulton Multifamily Housing development in a participatory process from the beginning of the design process. The process uses various methods such as public meetings, workshops, informal interviews, and a site visit, and gives the residents control over the decisions made about their housing development.

The decline in the external physical conditions of Fulton has produced an environment that works against creating community. Elements typically found in surrounding single family neighborhoods that contribute to a sense of community, such as control, ownership, safety, spatial hierarchy, legibility, and aesthetics, are visibly lacking in the external spaces at the Fulton housing site. Therefore, the participatory process provides opportunities for the landscape architect to address the physical problems at the housing site as well as to understand the underlying social issues, which significantly impact its residents and their use of space.

When designing for public housing residents, it is not only important to understand the origins of public housing and its physical design characteristics, but also the social aspects and the demographic make-up of its residents. Time spent getting to know the Fulton residents enabled the landscape architect to better understand how the residents use space as well as what they perceive as important issues. Their social and cultural points of view, needs, and ideas helped to produce a better, more satisfying and appropriate conceptual landscape master plan for the housing site.

According to Hester (1984), “designers need to involve the potential users in the design process” in order to enhance involvement and interaction and to foster a sense of ownership, control, and efficacy (pg. 95). Through the participatory design process, the landscape architect wore many hats and acted as facilitator, educator and expert in order to provide information to the residents. And as a result, the final design provides an external environment that does not alienate, but instead creates opportunities to foster interaction and involvement among its residents as well as the community-at-large.

This study concludes with the generation of a conceptual landscape master plan for the Fulton Multifamily Housing development, along with guidelines and recommendations for the design implementation and maintenance of the external
spaces. But further research can provide more insight into the subsequent impact of the implemented design as well as suggestions on improving the design process. Therefore, the following sections present implications for the study, recommendations for further study, and a personal evaluation of the participatory process.

8.1 Implications of the Study

The significance of this study is threefold:

The process engaged in this study is not limited to a public housing context. Valuable information can be effectively gathered from any neighborhood, community, or housing development in which the designer works with the principal users. Participatory methods such as public meetings, workshops, and informal interviews are flexible and adaptable to any design project. Selecting the proper methods is the most important consideration when using participatory design methods.

The study explores the relationship between the designer and the residents who are the users of the space, through a design process. The designer wears many hats such as expert, educator, facilitator, and leader, without defining the product. She allows the residents to provide as much input as possible, thereby helping to determine the types of methods that are most appropriate for their situation. Analyzing this information, and examining the strengths and weaknesses of the methods chosen, can help the designer understand how important the relationship between user and designer is in the selection of methods and the eventual gathering of useful information.

The study reveals avenues for further study. This study does not go beyond the scope of generating a conceptual landscape master plan, but further studies could explore post-occupancy evaluation at the housing site. This could provide information on the extent of design implementation and whether or not opportunities for ownership, control and efficacy resulted.

8.2 Recommendations for Further Study

The intent of this study was not only to generate a physical design, but also to create opportunities for ownership, control, and efficacy among the residents. While this study ends with the generation of the conceptual landscape master plan, further studies can be performed evaluating the design, its implementation and subsequent impact on crime, and residential perceptions of space. How design is implemented can impact the opportunities for ownership and control and this can be measured through further investigation.
Studies can also be performed pertaining to the design process and its impact on the residents who participated. Opportunities for efficacy were provided through the design process, but further investigation could be necessary to reveal the degree to which it was successful.

Further studies could also develop a process for working with residents who have never been given the chance to voice their opinions or make decisions about their housing environments. This study gathered information through processes that had already been tested and proven successful with low-income housing residents. Case studies listed methods used to engage the residents in the design process, however, few explained their use and the degree to which they were successful. Therefore, a single reference that compiles not only the types of methods, their use as well as an evaluation of their strengths and weaknesses would be beneficial to those designers interested in using participatory process with low-income residents.

8.3 Evaluation of the Process

This study utilized many different methods such as site analysis, informal interviews, site observations, public meetings, workshops, and a site visit to obtain as much information as possible about the housing residents and the study site. Much time was spent getting to know the residents of Fulton Multifamily Housing development in order to understand their use of the external space around their housing units. The following are my thoughts on the participatory methods selected.

• Public Meeting/Workshop

This method provided valuable information about the needs, problems, and significant issues at the housing site, but residents were not very optimistic about the process and the implementation of a final design. Resident participation was low, even though efforts were made to personally distribute flyers and provide incentives, such as dinner and flowers, to encourage attendance.

Residents who attended actively participated in the brainstorming activities. However, worksheets that were provided to assist with the activities, had to be dispensed with when reading and comprehension difficulties were encountered.

Therefore, understanding the limitations of the client group is essential to the effective implementation of participatory methods such as brainstorming activities and interactive workshops. Reviewing literature on literacy rates in public housing developments or the use of testing in low-income environments could have provided the understanding necessary
to make decisions about the effectiveness of design materials such as worksheets.

• Children’s Workshop

This method provided valuable information about the types of activities performed by the children in the external spaces of the housing development. But the selection of effective methods to use with the children was difficult and time-consuming. I had never worked with children before and therefore, my knowledge of design tools designed specifically for children was limited.

Hence, contacting other design professionals with more experience can provide a range of ideas for activities that can be used with children. Also, reviewing literature, specifically dealing with the design process and its use with children, can provide insight into the types of activities that are best used with children and their rates of success.

• Site Observations

Resident Services Managers restricted access to the site to times that they could provide an escort. Also, tenants and housing authority personnel discouraged me from being on-site after dark for safety reasons. At first, these restrictions made site observations very difficult to perform. But once they were resolved, valuable information was obtained about the residents’ uses and users of space.

Secondary sources were used to obtain information regarding after dark activities and lighting. Therefore, it is important to understand that the use of secondary sources can affect the validity and reliability of results. Primary sources are the best means of collecting information. But if this cannot be done, using more than one secondary source is a valid tool to confirm or refute information not obtained through the primary source.

People being observed may alter their behavior from the norm, and hence, affect the consistency of site observations and reliability of data collected. Therefore, understanding how to use site observations in a particular context, such as a public housing development or a public park, can greatly reduce limitations on the reliability of results.

• Informal Interviews

Informal interviews provided supplemental information to corroborate or refute information gathered during the meet-
ings, workshops, and especially site observations. Since access to the site was restricted after dark, managers, tenants, and maintenance personnel provided information about lighting, safety, and general use when I was not present on-site.

The implications for the use of secondary sources are the same as stated for the site observations. Primary sources are the best means for collecting information first-hand. But if this cannot be done, using more than one secondary source is a valid tool for collecting data.

• Site Visit to Diggs Town

The site visit provided residents with an example of a public housing development that had undergone renovations. Residents had difficulty understanding how the basic design principles applied at the housing site visited could be applied at their housing site. But they enjoyed touring another housing site, meeting with the manager, and seeing the physical design changes that can be done to public housing developments.

The implications for this method are similar to that for the public workshop. It is important to understand the limitations of the client group. By providing visual examples of design such as a site visit or a model, clients may able to understand the basic design principles and how they can be applied to their situation.

• Advisory Committee

The advisory committee was a valuable asset to the process, but not all members attended the meetings and therefore were not totally involved in the progress of the design. Residents and maintenance personnel were fully involved and willing to participate in meetings to provide their input in the process. However, resident managers were at times less than enthusiastic with the process and more interested in seeing the final design.

This suggests that understanding the clients and their expectations is important to the design process, especially in this case since residents and management were both involved. However, explaining the design process in detail to the clients, so that they know what to expect, can alleviate any undue stress imposed to produce the final design prematurely.

In addition to the evaluation of the methods used during the process, there were also six important lessons that I learned through this participatory design process. These are lessons, which are not only appropriate to working with low-income
residents, but can be applied to any group who wants to actively participate in the design process.

- A designer must be sincere and honest in order to gain the trust of the group. A designer must listen, explain, and project realistic outcomes. Participants are asked to open up their homes and their lives, therefore they must feel a sense of trust and commitment.

Working with the residents at the very beginning was rather awkward. There was a sense of skepticism because promises of renovations had previously gone unfulfilled. Therefore, I felt the need to be forthright about the design process and the likelihood that the final design would be implemented. Once this was done, the working relationship improved and a good rapport was built between all parties involved in the process.

- Flexibility provides various opportunities to gather information needed to understand the environment and participants. The designer must wear many hats and be able to shift gears quickly in order to obtain the necessary information.

Throughout the process, there was a need to be flexible with the choice of methods and their implementation. Flexibility enabled me to gather the necessary information, but also caused some stress and frustration because of the limited time for preparation and the comprehension difficulties encountered by the residents. Therefore, meetings were very casual, issues were explained in detail and questions were encouraged to ensure that everyone understood what was happening.

- Objectivity allows a designer to maintain perspective and not lose sight of goals or get caught up in extraneous situations unrelated to the design process.

Working in an atmosphere where control and efficacy are limited, it was easy to get caught up in the social or bureaucratic aspects of the situation. There are many problems in public housing that cannot be directly addressed through the design process and it is important to set sights on those goals and objectives that can be achieved and not the ones that cannot.

- Teamwork allows people to work together in a coherent fashion so that everyone can voice their opinions free of censure.
This is probably the only thing that I would have done differently. Instead of starting the process with a joint meeting between the residents and the housing authority personnel, I would have an initial meeting with just the housing authority personnel who directly work with the residents at the site. This meeting would be used to explain the process and how the residents would be involved. By doing this first, I think many of the problems encountered during the residential meetings and site observations could have been avoided.

- Good communication stresses understanding, listening, honesty, realistic outcomes, problem solving and process.

This in addition to lesson one was the most crucial aspect of the process. Communication was difficult at times because the residents and housing authority personnel were not versed in the knowledge of design. Therefore, it was necessary to simplify the process and find other ways of explaining design ideas other than the traditional ones used in academia.

Models, slides, drawings, and a site visit to another public housing development were used to explain design ideas. These visual tools helped residents and housing authority personnel better understand the design concepts and principles presented during the process.

- Persistence shows that a designer is committed to the task and wants to maintain contact and inform.

The travel time between the housing site in Richmond and my home in Blacksburg played a significant role in the method of contacting the residents and housing authority personnel for meetings and site visits. Many faxes were sent and telephone calls were placed and left unreturned. Therefore, I continued to call and leave messages to inform them of my progress and to show that I was sincere in my efforts.

8.4 Conclusion

The study's use of participatory methods allowed me to gather as much information as possible from the residents, housing authority personnel, and community members. The techniques were adaptable to each situation, allowing me to make modifications when necessary. However, the selection and preparation time was time-consuming, especially since I was working alone. The techniques were experimental and were not always successful in providing the types of informa-
tion that I needed. This was especially true when doing the site observations. Therefore, I felt the need to be prepared to select alternate methods, such as informal interviews, that would provide additional information pertinent to the study.

The study was effective in determining the uses and users of space and involving participants who were interested in making improvements to their housing development. Residents and housing authority personnel learned more about the design of the external environment as a result of the participatory process. But encouraging individuals to gather and work together in order to make decisions that directly affect their community is difficult. This is especially true in public housing environments, due to the apathetic nature of residents who feel powerless to effect change. The participatory methods in this study allowed residents to become involved and interact with one another. Furthermore, the final design reflects design decisions gathered from the residents that provide opportunities to foster a sense of ownership and control of the external spaces by the residents.

Change can only happen if the residents want it to happen. But, if change is to occur in this public housing environment, it must take on social and educational forms to be truly successful. Advisory committee members have already begun discussions on how to empower the residents at the study site. Resident subgroups were suggested to monitor and enforce maintenance of semi-public spaces. Educational programs, such as the Master Gardeners, were recommended to provide residents with information regarding plant care and lawn maintenance. In addition, tenant screening would be considered in order to determine if new residents are willing to take on more responsibility for the maintenance of the semi-public and semi-private outdoor spaces adjacent to the units.

Pertinent information is provided in this document that can assist the housing authority in understanding the physical conditions of the external spaces as well as the social implications, regarding resident use and responsibility. However, physical design changes will not be successful at this study site without social and educational programs as support.
APPENDICES
APPENDIX A

The following page contains the typical floor plans for the housing development. Each two-story unit consists of 2, 3, 4, or 5 bedrooms. Two and three bedroom units are also provided for the physically challenged residents.
The following page includes a representative list of questions used during site visits to evaluate housing developments at five Virginia housing agencies. These questions provide a general background about the housing developments in order to make comparisons and assist final site selection.
Site Visit Questions

1) What are the physical characteristics of the site? construction timeline? density? number of units?

2) What is the demographic make-up of the residents? length of residence?

3) How safe is the housing development? neighborhood? frequency and type of crime? police involvement?

4) What is the extent of involvement by the residents? tenant organization? support programs? outside organizations e.g. church?

5) What is the relationship between the following - resident/resident; resident/housing authority; resident/community?

6) What are the logistics of the maintenance personnel? on-site? off-site? What are the policies and restrictions with regards to maintenance? How are funds available?

7) What types of spaces are identifiable at the housing site - public? semi-public? semi-private? private?

8) Has the housing authority staff participated with residents in any other projects to improve their housing development? participatory involvement?

9) What is the impact of HOPE VI funding on improvements to the housing developments? status of application, if applying?

10) What are the general impressions of welfare reform and the movement to improve public housing through landscaping and support programs? (public housing agencies only)

11) What are the researchers immediate impressions of the grounds and potential issues that can be addressed by a landscape architect?
APPENDIX C

The following page contains a general list of issues discussed at the first meeting of the advisory committee. These key participants provided a wide range of information that assisted in determining future meetings as well as best methods to gather information.
Issues Discussed at the First Advisory Committee Meeting

• Introduction of all participants
• Identity of the development to its residents as well as the community
• Community involvement - neighborhood associations/organizations to contact
• Adjacent property and ownership
• Environmental issues on-site
• History of the property - date built
• Past redevelopment and future plans
• Needs/wants of the residents
• Incentives to encourage resident participation and involvement
• Best day and time to meet with participants
• Strategies to approach the residents
• Structure of the housing authority and determining key players
• Methods for working with the residents and housing authority
• Where to obtain information development i.e. demographics, topographic maps, crime statistics, and community programs
APPENDIX D

The following pages include a representative agenda and activity sheets used for the first public meeting and workshop. The intent of the meeting was two-fold: 1) to explain the purpose of the study to the participants and 2) to gather information regarding problems, concerns, needs, and wishes.

The agenda shows the breakdown of the introduction and activities providing time limits for each. It was prepared to provide structure to the meeting and to inform the residents of what to expect. Worksheets were handed out before each activity and used to allow participants to jot down their thoughts during the brainstorming activities.

A ranking system was employed for the brainstorming activities. An example of the ranking system was provided to the participants to avoid confusion. Also, a sign up sheet was provided for participants interested in further meetings.
PUBLIC MEETING/ADULT WORKSHOP

1) **Introduction** - (total time = 30 minutes)
   - Welcome
   - Introduction -
     Explanation of process
     Tentative timeline
     Slide show
   - Questions/concerns

2) **Brainstorming Activities** - (total time = 45 minutes)

   **Activity 1** - (time limit - 15 minutes)
   Discuss and record the responses to the following questions -
   What is it that you **like** about the spaces around your housing units?
   What is it that you **dislike** about the spaces around your housing units?

   **Activity 2** - (time limit - 15 minutes)
   Working independently - Use the attached site plan (map) to locate and circle your housing unit
   Identify unwanted activities and/or problem areas around your housing units making
   note of each type

   **Activity 3** - (time limit - 10 minutes)
   Discuss and record responses to the following question
   What improvements, within reason, are needed for the external spaces around your
   housing units? (Wish List)

   **Activity 4** - (time limit - 5 minutes)
   Rank the **top 3** overall responses to Activity 3 question in order of importance (refer to ranking
   chart)

3) **End Meeting** - (total time = 15 minutes)

   - Group presentations (if necessary)
   - Comments
   - Sign-up sheets for those interested in meeting individually or in special focus groups

   **THANK YOU FOR YOUR PARTICIPATION!**
ACTIVITY 1

DISCUSS AND RECORD THE RESPONSES TO THE FOLLOWING QUESTIONS

What is it that you **like** about the spaces around your housing units?  
What is it that you **dislike** about the spaces around your housing units?
ACTIVITY 2

USE THE FOLLOWING SITE PLAN (MAP):

- TO LOCATE AND CIRCLE YOUR HOUSING UNIT
- TO LOCATE UNWANTED ACTIVITIES AND/OR PROBLEMS AROUND YOUR HOUSING UNIT AND RECORD A NUMBER AND NOTE EACH TYPE

For example -

# 1 - STANDING WATER/DRAIN CLOGGED
# 2 - LOITERING
# 3 - TREE ROOTS PUSHING UP SIDEWALK
ACTIVITY 3

DISCUSS AND RECORD RESPONSES TO THE FOLLOWING QUESTION

What improvements, within reason, are needed for the external spaces around your housing units?
(Wish List)
RANKING

USE **COLORED DOTS** TO RANK THE **TOP 3** RESPONSES FOR ACTIVITY 3

RED ......................... 3

BLUE ............................ 2

YELLOW ......................... 1
Please **SIGN-UP** if you are interested in a *special focus group* or an *individual* meeting

<table>
<thead>
<tr>
<th>Name and Phone Number</th>
<th>Issues/Concerns</th>
<th>Best Time To Call/Meet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
APPENDIX E

The following pages include a representative agenda for a Children’s Workshop. This workshop was used as an extension of the adult public meeting/workshop in order to explore the types of uses that occur in the external spaces as well as gather information regarding types of activities and equipment for outdoor play areas. Various activities such as drawing and modeling were employed. Time limits were only approximations.
Agenda for Children’s Workshop

1) Introduction -

Explain the study and what it entails
Use a model to explain the relationship between buildings and space, putting this into its proper context
Interact with children, asks questions
Explain why it is important to be concerned with the spaces around and between buildings
Remember -
   To maintain focus on spaces with the development
   Use model as a frame of reference
   Listen as well as guide activities
   Assist kids during activities to stimulate idea generation
   Provide examples for each activity

2) Activities

1. Sketch/Draw - (time limit = 10 minutes)
   draw at least 3 of your favorite things to do when you are outside
   • children use newprint and pencil and/or crayons
   • quick drawings, people are not necessary, don’t have to fill up entire sheet, must be readable, can clarify by writing name of activity along with drawing
   • give/show examples: e.g. playing basketball, jumping rope, planting flowers

2. Choose Your Favorite Outdoor Activity - (time limit = 5 minutes)
   select the most favorite thing you like to do out of your drawings
   • researcher records responses on newsprint

3. Wish list - (time limit = 10-15 minutes)
   what types of activities and/or equipment would you like to see in the outdoor spaces of the housing development
   • maintain focus; researcher records responses on newsprint
   • provide examples, if necessary: e.g. another basketball court, children’s garden, community garden, more play equipment (specify)
3) **Other Activity** - time permitting

*Design with Leggos* - (time limit = 30-45 minutes)

- use leggos to redesign a play area
- work in groups of 5 (max.)
- each group works together on an idea and uses the leggos to build it
- each group will present their design
APPENDIX F

The following pages include a representative map and diary log as well as the activity categories and age ranges used for the on-site observation exercise. Observation was used to determine what general types of activities occurred in the external spaces of the housing development. General activities and the best day and time to observe the most number of residents were determined through pretesting.

Maps were used to diagram the location of activities based upon sex (M/F) and age range. Diaries were used to provide additional comments/notes, weather conditions, and the actual date and time of observation.
# OBSERVATION CATEGORIES AND AGE RANGES

## USES OF SPACE

<table>
<thead>
<tr>
<th>General Activities</th>
<th>UPPERCASE - FEMALE</th>
<th>lowercase - male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>A</td>
<td>a</td>
</tr>
<tr>
<td>Standing</td>
<td>B</td>
<td>b</td>
</tr>
<tr>
<td>Sitting</td>
<td>D</td>
<td>d</td>
</tr>
<tr>
<td>Sports Activity</td>
<td>E</td>
<td>e</td>
</tr>
<tr>
<td>Watching</td>
<td>F</td>
<td>f</td>
</tr>
<tr>
<td>Playing (play areas)</td>
<td>G</td>
<td>g</td>
</tr>
<tr>
<td>Playing (other)</td>
<td>H</td>
<td>h</td>
</tr>
<tr>
<td>Reading</td>
<td>M</td>
<td>m</td>
</tr>
<tr>
<td>Talking</td>
<td>N</td>
<td>n</td>
</tr>
<tr>
<td>Working</td>
<td>Q</td>
<td>q</td>
</tr>
<tr>
<td>Cleaning/Laundry</td>
<td>R</td>
<td>r</td>
</tr>
<tr>
<td>Barbecuing</td>
<td>T</td>
<td>t</td>
</tr>
<tr>
<td>Eating/Drinking</td>
<td>W</td>
<td>w</td>
</tr>
<tr>
<td>Other Activity</td>
<td>Z</td>
<td>z</td>
</tr>
</tbody>
</table>

## AGE RANGE

- **Children 0-12 years**
- **Teens 13-17 years**
- **Young Adults 18-33 years**
- **Middle-aged Adults 34-50 years**
- **Older Adults 50+**
## OBSERVATION DIARY

<table>
<thead>
<tr>
<th>Observations</th>
<th>Comments</th>
</tr>
</thead>
</table>

*Date* ______________________________________________________________________

*Time* ______________________________________________________________________

*Weather Conditions* ______________________________________________________________________
APPENDIX G

The following page includes a representative map used for the site analysis exercised performed at the housing development. Site analysis was performed to understand the characteristics and issues of the housing site such as the spatial quality, relationship of public to private space, environmental issues as well as the perceptual and safety issues.

A map was used to record the existing physical conditions as well as problems and potentials for each issue examined.
APPENDIX H

The following page contains other issues discussed at the public meeting and adult workshop that could not be directly addressed through this study. It is the recommendation of this study that the housing authority address these issues due to their importance to the residents as well as the image of the development.
Other Issues that Should Be Considered by the Housing Authority

- Longer clothes line for each unit
- Extermination of insects on the exterior of the housing units
- Trash cans (Super Cans) for each unit
- New screen doors
- Larger no trespassing sign
- Rear parking restrictions
- Assigned front parking
- Enlarging the Boys and Girls Club
APPENDIX I

The following page contains a list of recommended trees, shrubs, perennials, and groundcovers that are suitable for growing at the housing site. Recommendations of these plant materials are based on their ease of maintenance, adaptability to urban growing conditions as well as safety and aesthetic considerations.

Deciduous and evergreen trees and shrubs are recommended which provide good fall color and interesting bark characteristics, but also drought resistance and minimal pruning. Evergreen species are highly suggested due to their minimal maintenance considerations. Columnar or pyramidal trees are also recommended to provide screening for privacy as well as opportunities for surveillance.

Low-growing perennials and groundcovers suggested provide interesting color, erosion control, and easy maintenance. Some of the groundcovers can be used as a substitute for lawns providing coverage for shady areas, which are unsuitable for grass growth.
Deciduous Trees

*Acer buergeranum* - Trident Maple

*Acer griseum* - Paperbark Maple

*Koelreuteria paniculata* ‘Fastigiata’ - Goldenraintree ♦

*Nyssa sylvatica* - Black Gum

*Cercidiphyllum japonicum* - KatsurTREE

*Zelkova serrata* - Japanese Zelkova

Evergreen Trees

*Chamaecyparis lawsoniana* - Lawson Falsecypress ♦

*Thuja plicata* ‘Fastigiata’ - Western Arborvitae ♦

*Ilex vomitoria* - Yaupon ♦

*Pinus taeda* - Loblolly Pine

Shrubs

*Lagerstroemia indica* - Crape Myrtle

*Berberis candidula* - Paleleaf Barberry ♣

*Euonymous alatus* - Winged Euonymus

*Cotoneaster horizontalis* - Rock Cotoneaster

*Pinus mugo* (Dwarf sp.) - Mugo Pine

*Rosmarinus officinalis* - Rosemary *

*Viburnum carlesii* - Koreanspice Viburnum - Cultivar - “Compactum”

*Abelia x grandiflora* - Glossy Abelia
Perennials

Hosta species - Hosta or Plantain Lily

Liriope species - Lilyturf

Hemerocallis species - Daylilies *

Lavandula angustifolia - English Lavander

Coreopsis tinctoria - Tickweed *

Rudbeckia hirta - Black-eyed Susan *

Achillea species - Yarrow *

********

Groundcovers

Vinca minor - Common Periwinkle +

Hedera helix - English Ivy +

Juniperus procumbens - Japgarden Juniper

Pachysandra terminalis - Japanese pachysandra +

Hypericum calycinum - Aaronsbeard St Johnsworth

Sedum species - Stonecrop *

♣ Thorns

+ Lawn substitutes

* Best in full sun

♦ Pyramidal or columnar growth habit
BIBLIOGRAPHY
BIBLIOGRAPHY

Public Housing Issues


Design Issues


**Methodological Issues**


Sharon Dendy was born in Washington, D.C. on August 17, 1960. As a child growing up in the nation’s capital, she enjoyed visiting the monuments, museums, and other amenities offered by a major metropolitan area. In 1978, Sharon enrolled as an undergraduate at Marquette University and graduated with a Bachelor of Science degree in Medical Technology in 1984.

For six years, Sharon worked as a Medical Technologist in the District of Columbia and Maryland. During this time, she developed an appreciation for the outdoor environment while gardening in her parents’ backyard. Sharon’s enjoyment of the outdoor spaces and love of plants relieved the day-to-day stresses of a waning career, but more importantly, provided a new challenge.

In 1990, Sharon moved to Charlottesville, VA and it was there that her appreciation for the landscape was enhanced. Her travels throughout Virginia and especially in the Western and Southwestern parts of the United States gave her a new perspective on the environment.

In August 1994, Sharon quit her job at UVA and moved to Blacksburg, VA. Because of her love for plants, Sharon enrolled in the undergraduate Horticulture program at Virginia Polytechnic Institute and State University, specializing in landscape contracting. Realizing her ties to urban life and a growing interest in urban design, Sharon transferred to the graduate program in Landscape Architecture. In June 1998, she received her Master’s degree in Landscape Architecture.