

VIBRANT CITY

MIXED-USE AND TRANSIT-ORIENTED DEVELOPMENT AT VIRGINIA SQUARE

Masters Thesis, May 1998
Rick Harlan Schneider

VIBRANT CITY:
Mixed-use and Transit-oriented Development at Virginia Square
by Rick Harlan Schneider

Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of Master of Architecture. College of Architecture and Urban Studies - Washington Alexandria Architecture Consortium, May 1998.

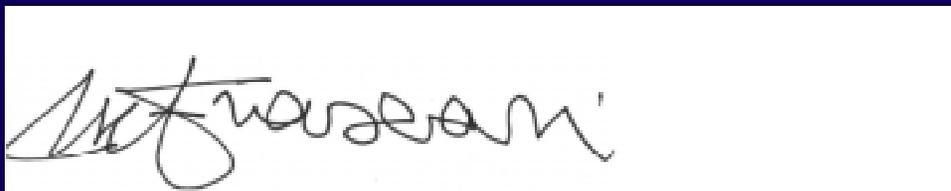
APPROVED:

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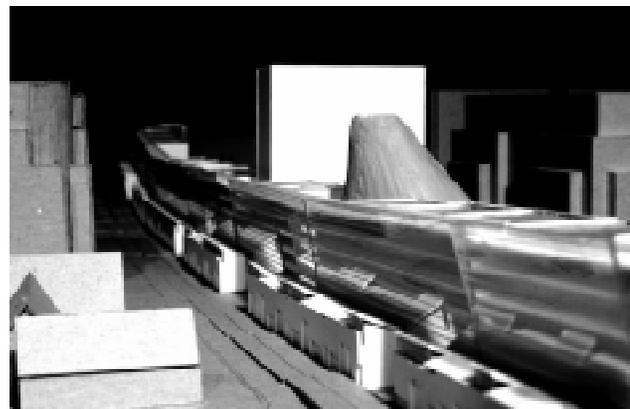
Susan Piedmont-Palladino, Committee chair

A handwritten signature in black ink on a white background. The signature is stylized and reads "Jaan Holt".

Jaan Holt, Committee

A handwritten signature in black ink on a white background. The signature is cursive and reads "Marco Frascari".

Marco Frascari, Committee



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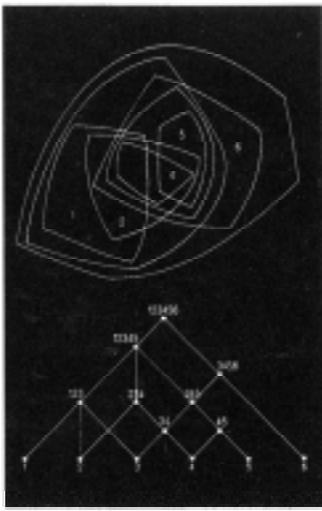
PHILOSOPHY

INTERTWINING

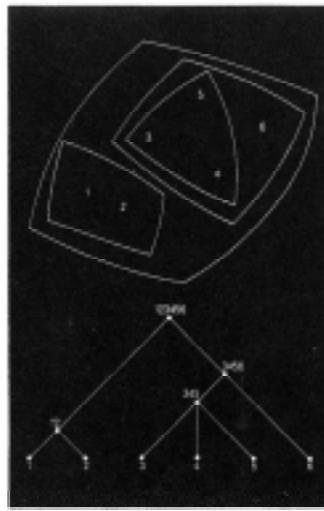
This project has its basis in a philosophy of intertwining and balance as a point of reference for determining successful development. In his essay "A City Is Not A Tree,"¹ Christopher Alexander explores the natural success of historic cities in contrast to the apparent lifeless quality of the planned, modern city. He offers a diagrammatic explanation with mathematical language that expresses the difference in the complexity of the organic development and the oversimplification of the overnight city. The diagram of the "tree" shows a branching system that separates things in truly modernist fashion. It speaks of segregation and lack of overlap of functions. It is tidy, but ultimately does not promote vitality in the human city. The "semi-lattice," on the other hand, is a glorious mess. Just by allowing for overlap with its additional possible combinations of elements, myriad opportunities are opened up. In the everyday city, the semi-lattice is apparent in the overlapping of devices of implementation, of components that make up a city.

¹ Christopher Alexander, "A City is not a Tree," John Thackara, *Design After Modernism* (New York: Thames and Hudson, 1988), pp. 67-84

By striking a balance between rational thought or planning and allowance for the organic nature of growth we promote healthy development and change. There is a democratic quality to the semi-lattice: it is a lateral structure with some hierarchy, embodying the interconnectedness of things and their inherent contradictions. The semi-lattice is apparent in the precedents studied for this project and applied with tools of implementation. This project applies the tools of mixed use development, open building and Transit-oriented Development to provide a vibrant place to live. By promoting community cohesion and by being responsive to certain ideals of sustainable development, fertile ground can be cultivated at the Virginia Square neighborhood.



Interconnected and a bit messy:
Diagram of a Semi-lattice



Tidy and segregated:
Diagram of a Tree

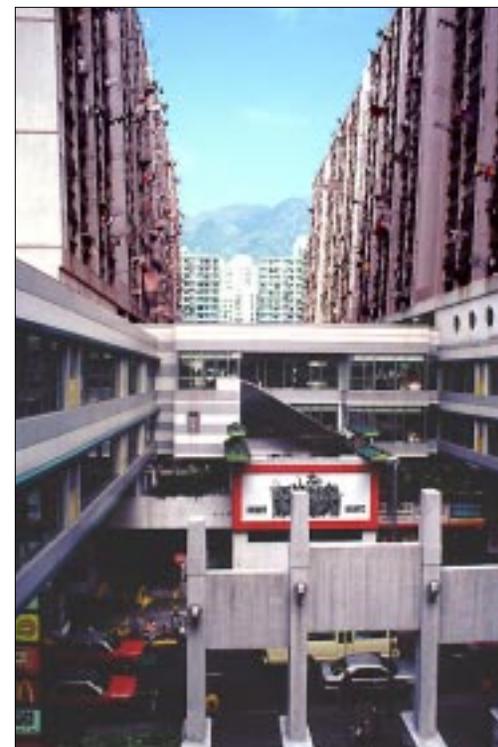
This enormously greater variety is an index of the great structural complexity a semi-lattice can have when compared with the simplicity of a tree. It is this lack of structural complexity, characteristic of trees, which is crippling our conceptions of the city.
- Alexander, p. 70

Mix of uses and building types: Virginia Square/GMU metro station



Ours is a brand new world of all-at-oneness. 'Time' has ceased, 'space' has vanished. We now live in a global village... a simultaneous happening.
- Marshall McLuhan

Lok Fu town center, outlying TOD of Hong Kong



MODELS

Existing high density versions of the TOD model can be seen at stops along the MTR outside downtown Hong Kong. Public housing estates typically surround a very active autos, taxis and light rail all interconnect. Washington, DC is another model. The downtown and Federal Triangle are the peak of a density that steps down as one travels residential concentrated along a major thoroughfare, tapering to mid-rise and attached/detached in the adjacent neighborhoods. Concentrations of mixed-use can be seen the Rosslyn-Ballston Corridor plan for development by Arlington County along the Orange Line metro has a tapered concentration reflected in zoning along Fairfax Dr. and Ballston, municipal at Courthouse, and residential at the Virginia Square metro area.³

³ Arlington County Department of Community Planning, Housing and Development, "General Land Use Plan," 1996

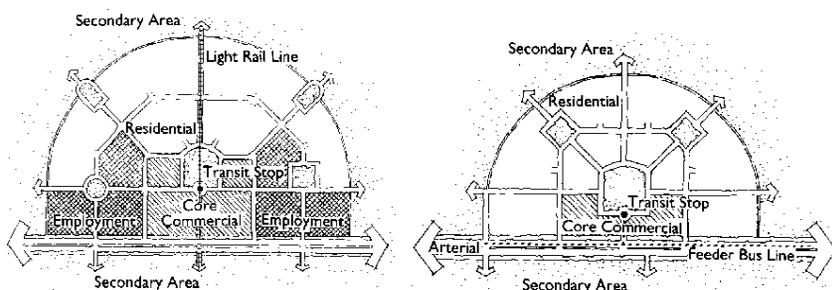


Providing focus and stitching together disparate parts: Spiroid Sectors, a study for Dallas/Fort Worth, Texas by Steven Holl

Defining development and community involvement: Byker Wall, Tynesdale, England



PRECEDENT



Focused planning and proximity to alternative transportation: Calthorpe's Transit-oriented Development

HOUSING BAR

Mixed use development takes on an interesting shape in Tynesdale, England. The Byker Wall is a housing project designed by Ralph Erskine, with direct input from the community, in the early 1970's that winds its way through the existing town. It provides a focus, albeit linear, which has drawn development up to it in the form of shops, open spaces and other community services. Instead of being a divider as the name implies, it has served as a magnet and connector, stitching together disparate parts of the locality. In similar fashion Steven Holl's Spiroid Sectors propose to stitch together suburban housing developments and open land outside of Dallas/Fort Worth.

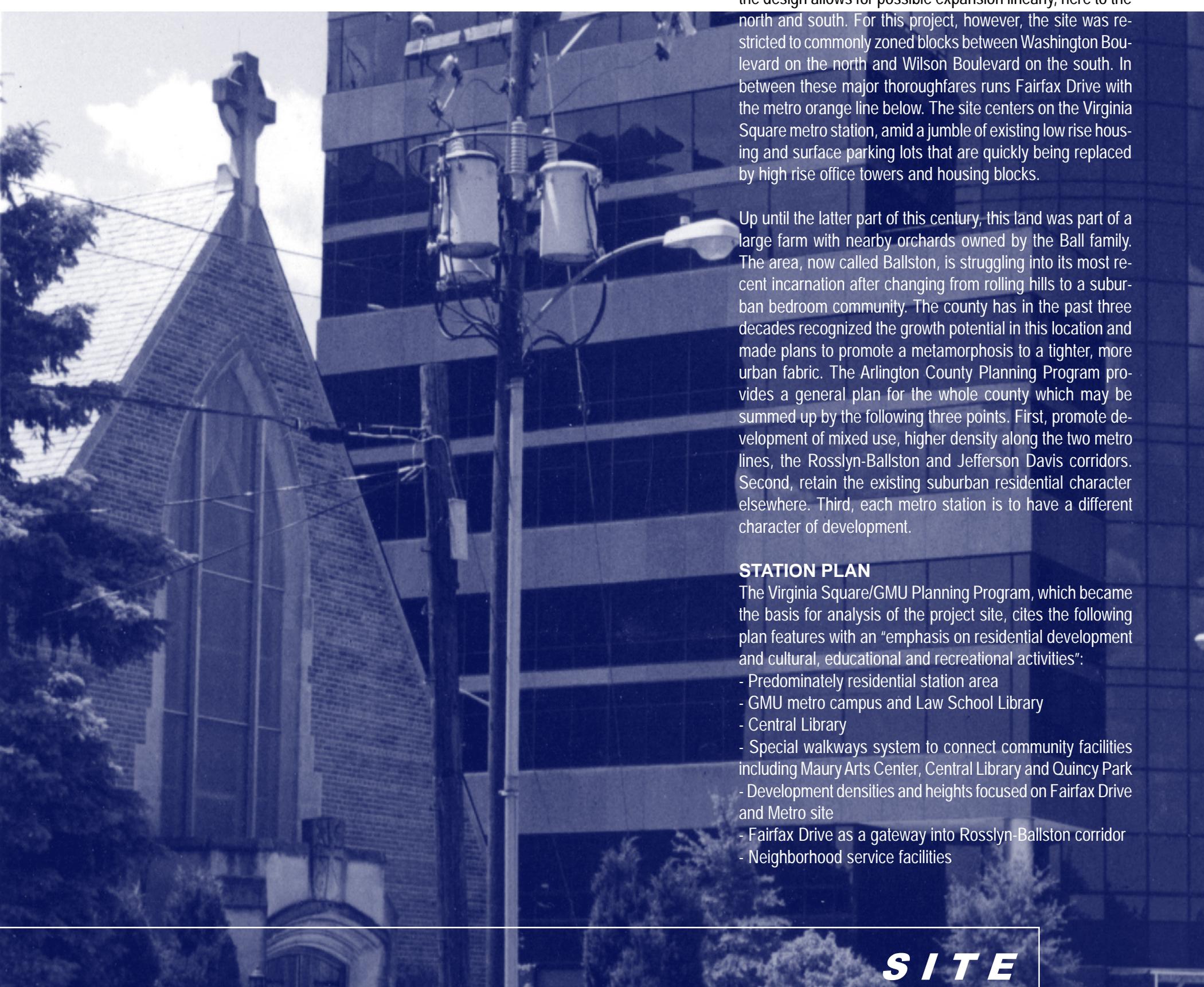
This form of residential "bar" has its precedent in the German Siedlung, a long narrow worker housing often surrounding a factory, typified by the housing at Siemenstadt, Germany. The Siemenstadt Siedlung by Scharoun, Gropius and others(1929-31) is a series of long four- and five-story blocks near a U-bahn (mass transit) station. Because they provide a certain density of development and access to transportation other than the auto, this type of development offers alternatives to suburban sprawl with its now recognized inherent negative impact on the environment and society. The Siedlung is easily and often combined with the concept of "Open Building," a strategy of design which provides for the base building without determining the layout of residential units. When opened up to include uses other than residential, the level of possibility for different configurations is high, characteristic of the semi-lattice.

TRANSIT-ORIENTED DEVELOPMENT

Peter Calthorpe in his study of the American metropolis addresses the issue of suburbia very succinctly when he states that "the alternative to sprawl is simple and timely: neighborhoods of housing, parks and schools placed within walking distance of shops, civic services, jobs and transit..."² The model he has proposed, the TOD or Transit-oriented Development, builds on many traditions and theories from the City Beautiful movement to the work of Duany and Plater-Zybeck to provide a focused development at transportation nodes in outlying metropolitan areas. While there is segregation of use in the concepts reminiscent of the tree diagram, the simple idea of proximity approaches the philosophy of intertwining underlying this project. Other characteristics of Calthorpe's model, particularly the 'Urban TOD', which have relevance to this project are the 'Core Commercial' located at the transit stop, 'Mix of Uses,' and the priority given to pedestrians and bicyclists. The results of this type of focused development are: potential for community identity and definition, with greater ability for orientation, and the financial benefit of traffic.

² Peter Calthorpe, *The Next American Metropolis: Ecology, Community, and the American Dream* New York: Princeton Architectural Press, 1993), p. 16

town center that stacks housing, offices and civic services over wet and dry goods markets adjacent to the transit station. The station itself is a crossroads where buses, away from the center and then up again toward focused development at *transit nodes* and *corridors*. The Connecticut Avenue corridor in cross-section shows high-rise at metro stations such as Woodley Park, Cleveland Park and Van Ness in a form of transit village, not unlike the model for transit-oriented development. In similar fashion, Wilson Blvd. There are concentrations of mixed-use again at metro stations, with a different character at each station. The plan provides for commercial development at



COUNTY PLAN

The site is a strip of blocks in the heart of Arlington County, Virginia, bounded by Monroe and Nelson Streets on the east and west. Because it is a prototype for mixed use housing, the design allows for possible expansion linearly, here to the north and south. For this project, however, the site was restricted to commonly zoned blocks between Washington Boulevard on the north and Wilson Boulevard on the south. In between these major thoroughfares runs Fairfax Drive with the metro orange line below. The site centers on the Virginia Square metro station, amid a jumble of existing low rise housing and surface parking lots that are quickly being replaced by high rise office towers and housing blocks.

Up until the latter part of this century, this land was part of a large farm with nearby orchards owned by the Ball family. The area, now called Ballston, is struggling into its most recent incarnation after changing from rolling hills to a suburban bedroom community. The county has in the past three decades recognized the growth potential in this location and made plans to promote a metamorphosis to a tighter, more urban fabric. The Arlington County Planning Program provides a general plan for the whole county which may be summed up by the following three points. First, promote development of mixed use, higher density along the two metro lines, the Rosslyn-Ballston and Jefferson Davis corridors. Second, retain the existing suburban residential character elsewhere. Third, each metro station is to have a different character of development.

STATION PLAN

The Virginia Square/GMU Planning Program, which became the basis for analysis of the project site, cites the following plan features with an "emphasis on residential development and cultural, educational and recreational activities":

- Predominately residential station area
- GMU metro campus and Law School Library
- Central Library
- Special walkways system to connect community facilities including Maury Arts Center, Central Library and Quincy Park
- Development densities and heights focused on Fairfax Drive and Metro site
- Fairfax Drive as a gateway into Rosslyn-Ballston corridor
- Neighborhood service facilities

SITE

West end of the Rosslyn-Ballston corridor: Virginia Square site.



Ideal site for development with a philosophy of intertwining: Virginia Square/GMU metro station area



ISSUES

While the plan focuses on these positive aspects of the neighborhood, there are other features that give this site a certain peculiarity. An alternate list of features with which to reckon includes:

- A metro station with no visible presence
- Large new office buildings, which exhibit contrast in scale
- An above ground VEPCO power station, which exhibits contrasting interest and use in a residential area
- Intertwining travel routes which can confuse visitors to the Rosslyn-Ballston corridor
- High volume roads that disconnect the neighborhood and discourage pedestrians

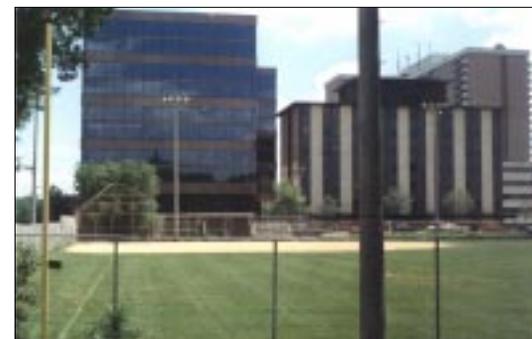
These interesting contrasts offer a challenging site: an ideal place to further develop the philosophy of intertwining and balance. However, this place also runs the risk of becoming a jumble of disparate elements in a bleak landscape, the embodiment of the tree diagram. This project proposes to weave the pieces together and further the creation of a thriving neighborhood, a model of the semi-lattice. It takes the form of a residential mixed-use "Housing Bar" with special use "Plug-ins".

Whenever we have a tree structure, it means that within this structure no piece of any unit is ever connected to the other units, except through the medium of that unit as a whole.

- Alexander, p. 75



Neighborhood service facilities and low residential scale: St. George Episcopal Church, Nelson Street and Fairfax Drive.



Interesting contrast in scale and use: Quincy ballfield and nearby office buildings, 10th and Nelson Streets.



Conflict of interest in a residential neighborhood?: VEPCO transformer yard on Monroe Street.



Neighborhood service on a large scale: Giant Food supermarket and parking lot on Monroe Street.



High density and pedestrian walkways at the GMU campus: FDIC office complex at the corner of Fairfax Drive and Monroe Street.



Residential character, but where is the metro?: Garden apartments on Nelson Street at Wilson Boulevard.



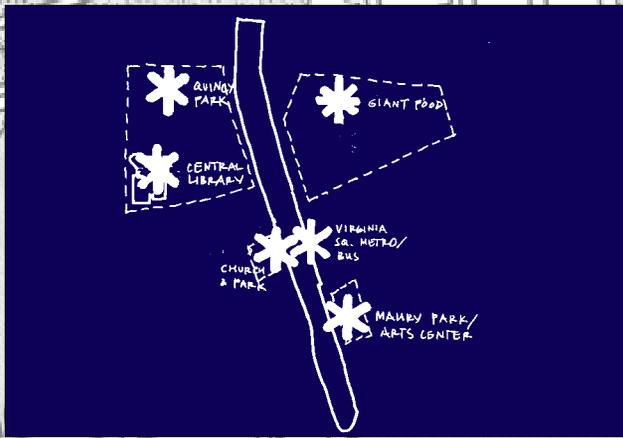
PROXIMITY

Neighborhood services of Virginia Square are shown in their adjacency to the development site. The area plan calls for support of and access to these and other services to promote the growth of a healthy community.

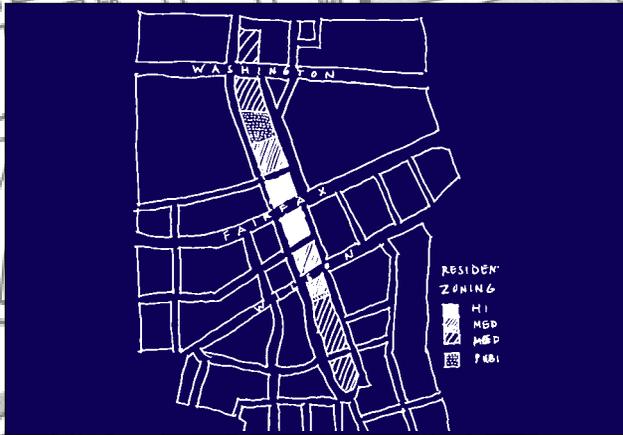
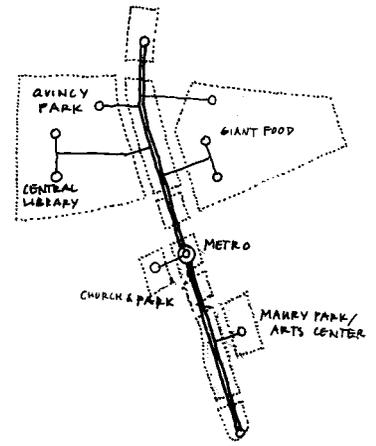
DENSITY/ZONING

Common zoning of the site blocks includes residential and mixed use. Density is focused on Fairfax Drive and tapers down into the more dispersed residential areas to the north and south of the corridor.

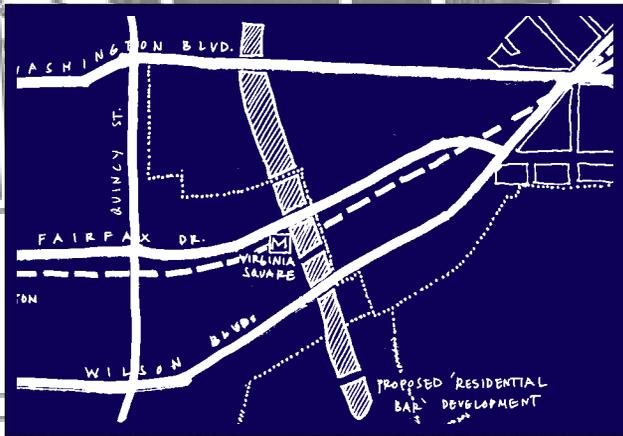
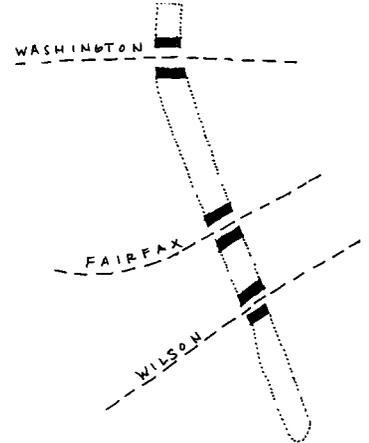
ANALYSIS



CONNECTION
 Development of the "Housing Bar" forms a spine through the middle of the neighborhood. Along this axis pedestrians are given priority of accessibility in an effort to balance the strong force of vehicular traffic.

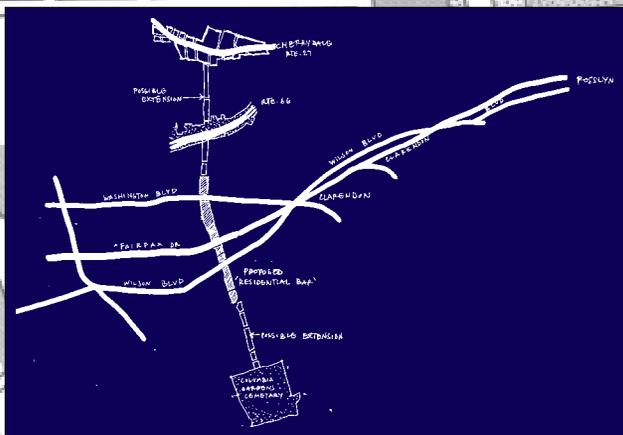


GATEWAY
 Development of the "Housing Bar" includes incidents of higher density and building height. These are focused at the intersection of forms of transportation and signify entry to the Rosslyn-Ballston corridor.



TRANSPORTATION
 Three major roads cut through the site. Virginia Square metro lies in the center, on Fairfax Drive. Bike paths and a planned pedestrian walkway converge at this point on the proposed "Housing Bar".

Transportation requirements will be considered in terms of their impact on overall energy consumption. Pedestrians and bicyclists should have priority. Mass transit should be efficient and available, and private automobiles should be discouraged.
 - McDonough, p.9



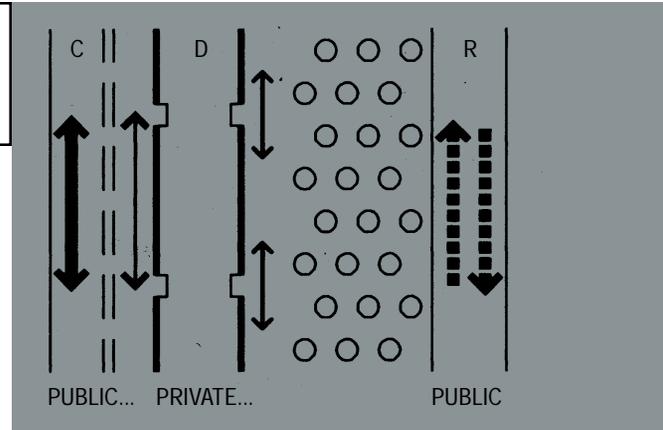
SYSTEM
 The "Housing Bar" and "Plug-in" concept can be modified and applied in other developing areas to aid in stitching together a more urban fabric. As an open system, it can easily be expanded.

CONCEPT

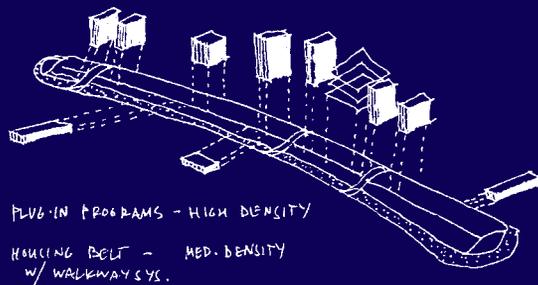
- OPEN SPACE
- MIXED USE/ DEVELOPMENT
- HIGH DENSITY RESIDENTIAL
- APARTMENT/ COMMERCIAL
- APARTMENT/ TOWNHOUSE
- LOWER DENSITY RESIDENTIAL
- VEHICULAR
- PEDESTRIAN

CONCEPT

Progression of spaces from public to private:
Longitudinal movement along the housing bar

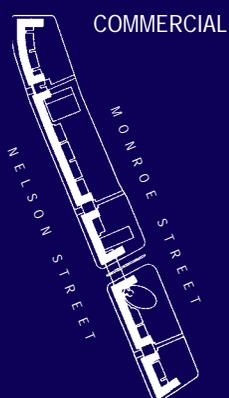
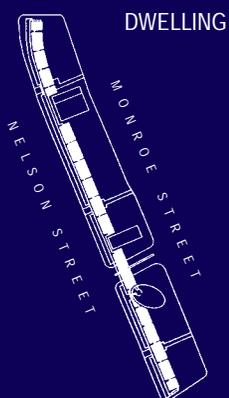
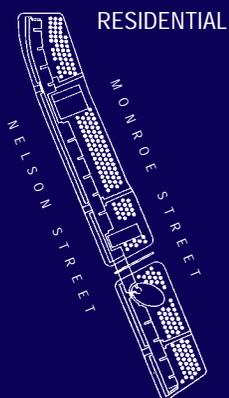
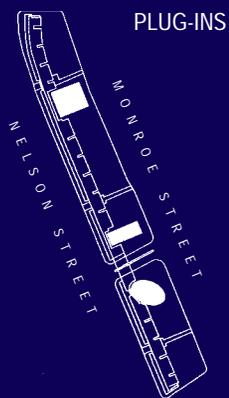


"If we examine some of the social systems which exist for the people in such a neighborhood, do the physical units defined by these various social systems all define the same spatial neighborhood?"
- Alexander, p. 76



INCIDENCE AND CONTINUITY

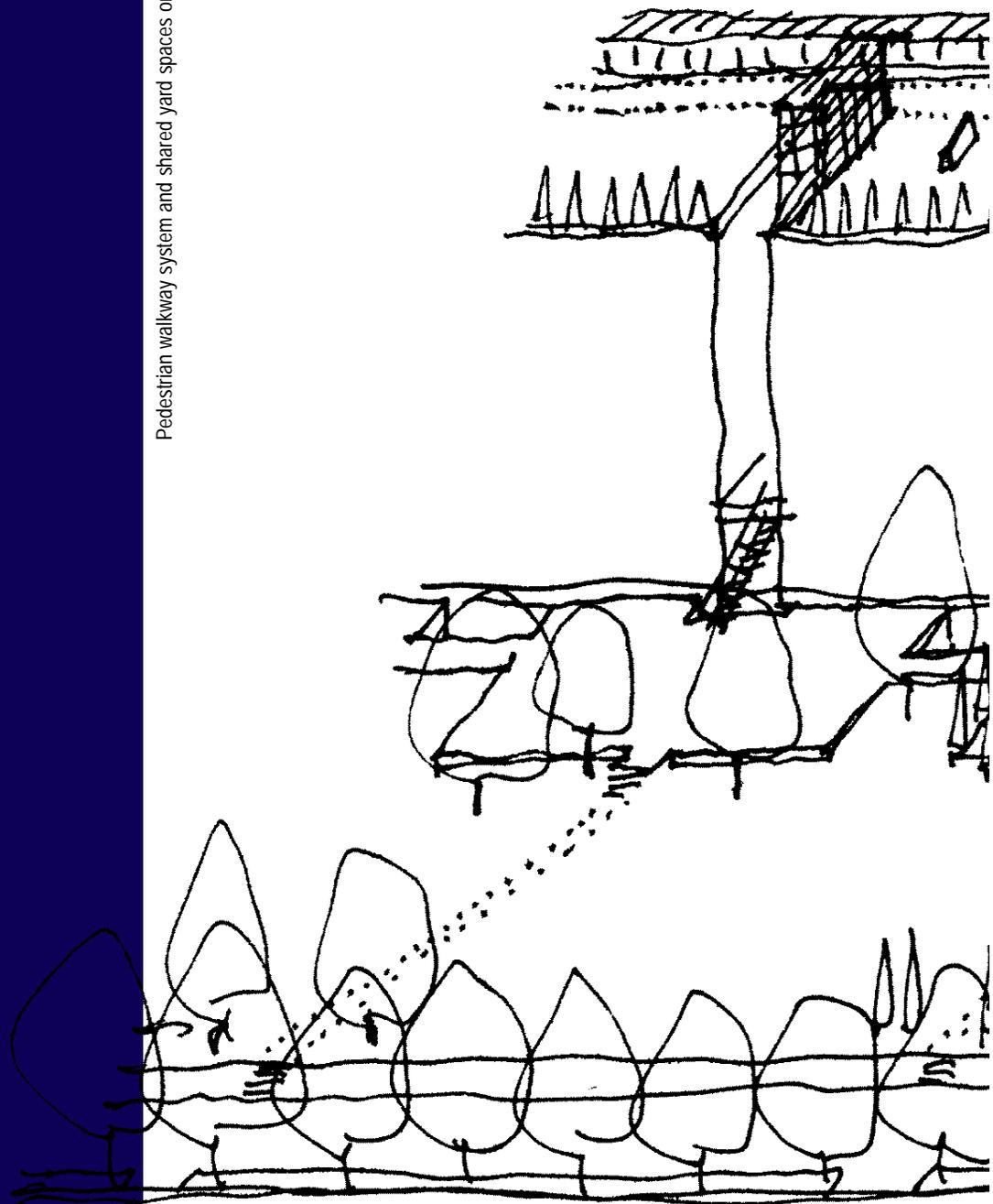
Development along this site takes on a figure/ground quality. Points of interest (incidents) act in contrast to the base line (continuity) and serve to give identity to particular locations, as well as facilitating orientation. One can say, "my apartment is located next to the concrete volcano," or "I'm across from the tower." Here, the *Housing bar* - with its regular neighborhood services - is the constant. Larger functions are incidents of program along that continuum which differ from site to site. They are the *Plug-ins*.



The housing bar has two faces, each of which responds to different neighborhood character. The east side along Monroe Street faces a hotel, office complex and future residential high rises. The scale here is big. The housing bar is pushed back away from the large buildings to provide proportional open space, similar to setbacks that govern heights across the river in the District. Here the earth slopes up to cover parking and give walk-out access to the second floor units. This *Residential* side is where shared patios are shaded by the apple orchard which extends the length of the site. Paths provide bikers and pedestrians with a main circulation spine that connects major neighborhood features as planned by the county.

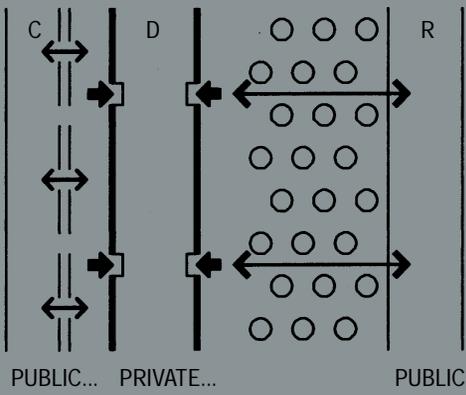
The *Commercial* side along Nelson Street faces west southwest. Along this street and around the corners at each cross road shops front the sidewalk. They form a tighter scale with existing low-rise buildings such as the church and nearby garden apartments. Here a neighborhood main street mixes stores, offices, and walk-up entries. Above the street, set back from the two-story commercial spaces are six floors of *Dwelling* space. Choosing to live here offers the opportunities of open building and the convenience of alternative forms of transportation. The lifestyle is one where driving is relegated to those necessities other than the daily living routine and commute because the metro is central and foot travel is given precedence. Efforts toward sustainability combine with those of building community to create a place of vitality.

Pedestrian walkway system and shared yard spaces on the east: The residential side of the development bar along Monroe Street



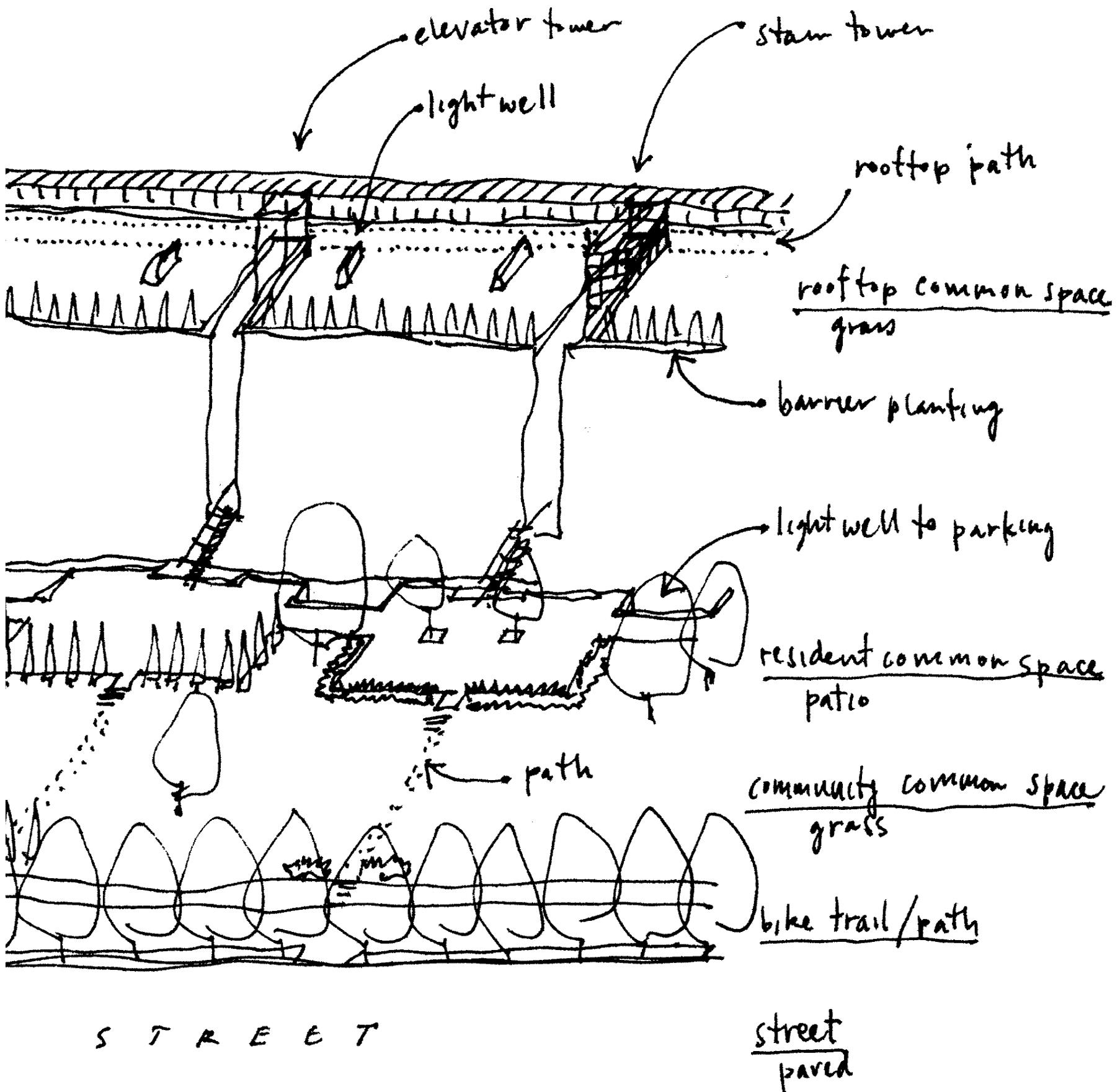
M O N R O E

Points of overlap in the transition between zones:
 Latitudinal movement across the housing bar



LAYERS OF SPACE

The overlap of uses resulting from adjacency and layers of public and private space provide the kind of living conditions people need. On the Residential side the progression from public to private takes place over half a block and gentle slope. On the Commercial side it is characteristically more condensed, taking place vertically in shorter distance. Zones that overlap here yield hybrid spaces and in-between places. For example, the public realm of the street is overlapped with the private realm of the dwelling creating a zone made up of semi-public walk-up entries and semi-private interior walkways. Further overlapping of dwelling and semi-private walkways creates the front entry vestibule, which marks out a territory that belongs to the tenant and at the same time is building common space. Overlapping vertically helps the building meet the sky. Housing blocks give way to roof yards that create semi-private space above and outside.

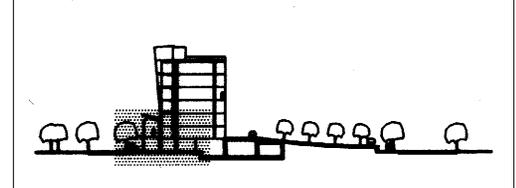
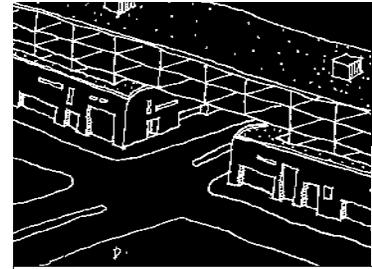




Places of activity in Hong Kong and Arlington County:
Ground floor commercial spaces below offices and apartments

The tendency is toward related communities in the city - communities whose activities are confined within certain areas whose traffic does not need to travel distant streets to collect supplies and orders.

- Raymond Hood, New York City planner



STOREFRONT

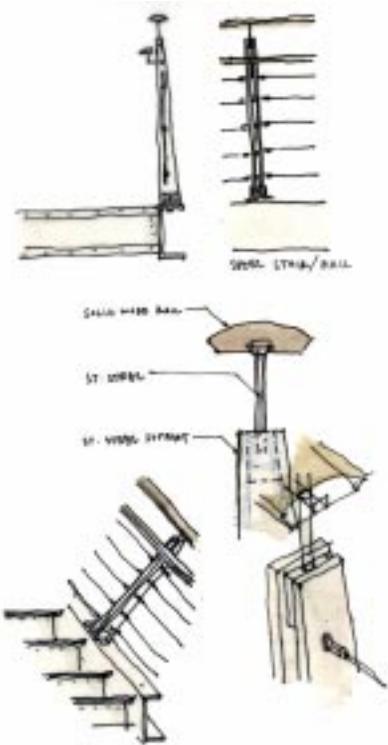
Along the Commercial side of the bar development are spaces for many necessary services on the neighborhood scale: cafe, deli, dry cleaner, post office, hardware, grocer, computer supply, bookstore, newstand, liquor store, bar, etc. The sidewalk is a promenade beneath the shade trees, wide enough for people to pass, meet, or sit at an outdoor table. Alongside the storefronts are shared entries for walkup units and offices on the upper floors. This is a place with activity.

VERTICAL CIRCULATION

Because of its linear character, the bar development has stairs and elevators spaced along its length at regular intervals as opposed to centrally located clusters. Tenants and visitors can enter and exit the building from the street at points every 80 feet. Metal stairs with wood rails and treads are enclosed in glass towers between housing blocks, affording views of the Residential side of the bar. They alternate with elevators that have windows at each floor for a similar view, and allow access to the roof.

HORIZONTAL CIRCULATION

Walkways are stacked along the west side of the bar development above the commercial spaces. They form a permeable membrane through which tenants and visitors pass from public space (the street) to private space (residential units). These walkways are cantilevered off the concrete base structure and supported with the help of metal-clad fins. They support a curtain wall system that includes integral sunscreens and responds to different conditions along the length. Typically, the space is enclosed with glass, but opens up to reveal plug-in elements. Across from the ballfields the curtain wall is open - a perfect vantage point for spectators. The curtain wall becomes a sunscreen and arbor on the roof to shade the outdoor walkway there. During the day, glazed portions exhibit a sparkling opacity. At night, this translucent zone glows and displays the comings and goings in the community.



Celebration of the transition between above and below:
Details and metal and wood stairs for America Online by Ai architects

