AN EVOLVING URBAN FORM
A PARTICULAR IMPERATIVE PURPOSE
AN INDIVIDUAL CUMULATIVE PLACE

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THESIS SUBMITTED TO THE GRADUATE FACULTY OF THE VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARCHITECTURE

ALEXANDRIA, VIRGINIA
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This effort is comprised of three interwoven tasks:

Decipher an evolving urban place, across a range of scales, to establish an informed point of departure for proposing a change.

Attend to the particular imperative purpose of accommodating those among us who are most at risk, and who make their way through life without adequate resources.

Design an individual cumulative form wherein the new architecture incorporates a rejuvenated existing structure, and the entire ensemble contributes something worthwhile to the neighborhood.

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**KEY:** RESPECT / DESTRUCTION / RESPONSIBILITY / ENVELOPE / SOLAR
This is an attempt to understand one street corner, think about how architecture can assist people who really need help, and design a building which asserts its identity even as it fits into its surroundings.

It's one approach to making individual, incremental changes that can accumulate to our collective benefit as we carry on with the transformation of our city.
In 1981 I came to Alexandria to join a local firm as a recently registered architect, and to spend two afternoons each week at the new Washington / Alexandria Center for Architecture as a lecturer.

My daily walk to work circumnavigated the Masonic Memorial to take in the panorama from its entrance, descended the face of the hill on which it stands, passed beneath the railroad bridges and proceeded along King Street toward the river.

In 1983 I entered the Master of Architecture program and designed this project. Walking the city, studying the neighborhood, and working across the street from the site for the previous two years was serendipitous preparation.

I defended the thesis in 1984, went back to work, and failed to produce a book.

Returning to this material in 2018 I find it somewhat disheveled. Nonetheless it prefigures enduring interests of mine as an architect and as a citizen engaged in our community planning endeavors:

• The relationship between existing and new, in terms of scale, material, and character.
• Equitable access to the skydome in pursuit of solar energized architecture, a critical aspect of any solution to the existential threat posed by our climate quandary.
• Walkable, mixed use, transit oriented development of appropriate density and mass, which is the mantra of our current development process.
• The ever decreasing affordability of the diverse enjoyments of urban life, and the vulnerability of those with limited resources.

The project is presented here without expansion or refinement. It turns out that both the design intentions and the sentiments of the younger architect who generated this work are shared by the older one who has now edited it.

It’s been a pleasure, in the course of cutting and pasting this workbook of drawings and photographs, to contemplate the incremental transformation of our city over time.

Stephen Koenig / August 2018
Since enrolling in the College of Architecture and Urban Studies in 1972, I've had the
great good fortune to know an array of dedicated teachers, creative colleagues, and
thoughtful human beings.

Among them are:

James and Jay, with whom I've been learning to see, design, and practice since the
inception of our collaboration as students.

Ray, whose dedication to the power of ideas and their ability to interconnect is manifest in
his own expedition beyond the boundaries of architecture.

Jaan, whose philosophy of architecture is an inspiration, and who suggested gently yet
relentlessly over the years that a book about this particular exploration was worthy of
being in the library.

Susan, whose willingness to become the patron of completion for this exercise was
essential, and whose close reading of the draft is very much appreciated.

Tom, who by example taught me that thinking about the world with calm engagement and
rigorous determination can lead one to some sense of the right thing to do.

Jennifer, who energizes my desire to learn and work. Her faith in me sustains my attempt
to be worthy of it.
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This exploration undertakes to formulate a productive response to these questions:

What is the character and dynamic of this place?
The site is a corner on which a commercial thoroughfare meets a quiet residential street; in a city with complex history, solid civic fundamentals and a substantial impetus to growth; within the capital region of a nation characterized by spectacular advantages and serious challenges; on a planet we are struggling to be worthy of.
The neighborhood is on the threshold of a transition powered by new civic transportation infrastructure, the dynamism of private enterprise, and regulatory opportunity.

To what purpose could we expend our energy and invest our resources?
Safe Shelter and Secure Seniority for everyone are asserted here as basic characteristics of a self respecting society. These are responsibilities to one another which we are not currently fulfilling in their entirety.
Military aircraft silhouettes dispersed throughout the plans bring to mind our gargantuan, perpetual expenditure on systems of destruction. Redirecting a significant portion of these resources would make a meaningful difference.
Human scaled, mixed use architecture carefully inserted into its surroundings is worthy of investment as one component of a comprehensive response to these needs.

What is a worthwhile form of architecture here?
Accommodating new development in a larger format, within an older and smaller scale urban fabric, is a central challenge.
Rejuvenating an existing structure offers the opportunity to sustain continuity with our past, inform the design of new elements, and generate a coherent whole which is appropriate in scale as well as congenial in character to the neighborhood.
Designing an architectural organism whose physiology is integrated into both the natural and urban environments is a primary intention.
AN EVOLVING URBAN PLACE
An exquisite planet now dominated by a problematic species.

Ingenious and Dangerous

We are creative explorers and remarkable engineers who’ve left the surface in a quest to see ever farther, and to study at a galactic scale. In doing so we’ve revealed to ourselves the delicate finiteness of our world.

Creating cultures and inventing science, we’ve learned to live with one another and to gradually decipher the intricate dynamism of the natural realm in which we are immersed.

We’re also aggressive, violent and excruciatingly small minded.

Despite deepening comprehension of our interactive role in the global environment, we now threaten ourselves with the inexorable submersion of our coastal urban civilization.

Despite millennia of episodic self destruction, we continue to threaten ourselves with a virtually instantaneous thermonuclear cataclysm.

The obviousness of all this does not reduce the necessity to act on our knowledge, and to rise to the occasion.

As a resilient biosphere, the earth will certainly survive our tenure.

Will we?
Is America . . .

. . . a dynamic and diverse culture offering freedom and opportunity to all?
. . . a flexible, ingenious body politic, deciphering complex societal changes and responding creatively?
. . . a self indulgent, simple minded body politic, willfully ignoring imperatives of survival in order to preserve existing comforts?
. . . a spellbound partner with other nations in a degenerative symbiosis of mutual fear and militarism, a pathological choreography which risks collective annihilation?

You Bet.

Will we Americans . . .

. . . continue to offer one another the risks and satisfactions inherent in individual freedom of thought and action?
. . . dedicate ourselves to, and propagate by example, non-violent means of allocating resources, resolving conflicts and exercising power?
. . . at long last master our obsessive pursuit of technology for destruction, and neutralize its obvious synergy with the human impulse to warfare?

Perhaps we will.
Across the Potomac from the nation's capital, Alexandria is a city evolving from its historic riverfront nucleus and densifying within its fixed boundary. It is firmly embedded within a larger metropolitan matrix.
1. The Potomac River bounds the eastern edge of the city and delineates a waterfront in purposeful transition from industry to mixed use and public access.

2. The Masonic Memorial occupies a substantial promontory overlooking the city and offers a line of sight across the river to the monumental core of the nation's capital.

3. Rail and subway stations are a portal to the regional transit network. The project site is on King Street, an axis of movement and commerce which connects all three.
1. Potomac River at the eastern terminus of King Street.
2. Masonic Memorial ~ A vantage point from which to observe the city.
3. Union Station ~ Commuter rail to surrounding communities and Amtrak to the entire east coast.
4. King Street Station ~ Access to the Metro regional rail and bus network.

Project Site
This is a place waiting for something to happen.

A low density neighborhood, it is characterized by auto-centric businesses and impervious surfaces. Intermittent unbuilt lots interrupt the continuity of the architectural street faces.

1. The new Metro Station is complete but not yet operational. Existing structures are 2. local services, 3. vehicle sales and repair, or 4. vacant. 5. Established residential blocks are single family homes.
This is a place where regional transport access is now changing the dynamic, and a new phase is beginning. 1 The Metro Station is operational, thousands are passing through the turnstiles daily.

2 The first mid-rise office building fully utilizes the allowable zoning envelope. 3 Consolidated parcels are appropriate for larger footprints 4 Low-rise commercial is available for renovation or replacement.

5 Single family residential neighborhoods are proximate to progressively intensifying commercial activity. 6 A vacant existing structure is displaced 100' westward, creating a larger project site.
The Masonic Memorial visually terminates King Street. The private dwelling at the end of the Harvard Street rowhouse block, directly adjacent to the new project. An existing residential / commercial mixed use structure, dormant but not dead, to be integrated into the new work. The proposed site occupies the corner, and fronts onto both King and Harvard Streets.
1. An unoccupied building available for adaptive re-use.
2. Occupied existing homes dating from the early 20th century.
3. Active and economically viable local businesses.
4. Footprint of a recently extinct movie theater.
5. Existing low-rise commercial buildings.
6. Silhouette lengths: Stratofortress @ 159' / Harrier @ 48'
A vacant structure to be thoroughly documented, its advantages and limitations identified, and a scenario for re-activation formulated. Active and economically viable local businesses to remain.

Existing homes to be respected when shaping the mass and scale of new work. Candidates for renovation or redevelopment. Falcon silhouette length @ 47'.

Project site of approximately 40,000 square feet, subsequent to a 100' westward displacement of the existing unoccupied structure and inclusive of its footprint.
1. Reanimate this modest, long serving building with both creativity and pragmatism, so that it might continue to serve the community as an integral part of a new entity.

2. Attend respectfully to the scale of these residents’ homes, in the course of maintaining their solar access and preserving the character of their street.

3. Build something of identifiable individuality on this site that will contribute to the vitality and viability of the neighborhood into the future.
A PARTICULAR IMPERATIVE

PURPOSE
Private enterprise has been a powerful engine in expanding access to the means of sustenance and security for most people.
The ethic of profit making has proven to be generally compatible with individual freedom and our representative democracy.
These are significant accomplishments.
Yet certain aspects of life escape formulation as economically profitable activity.
Providing people in need with the wherewithal to make ends meet remains a collective community endeavor.
Safe Shelter and Secure Seniority are basic indicators of the quality of our society.
For a wealthy and well organized nation, fulfilling such fundamental responsibilities should be a zero tolerance requirement.
We are adequately self aware to do this.
Architecture has anatomy, metabolism, and a life span. Individual buildings, composed of select materials assembled in a specific way, proceed to breathe the atmosphere, transform energy, and facilitate human activity. They age with use and unrelenting exposure to the elements. At some point they die. Architects have a role to play at the end as well as at the beginning.

With an architectural inventory extending back to its founding in 1749, Alexandria is a city in which existing structures are carefully considered at each point of transition. The feasibility of renovation or adaption is analyzed before demolition is entertained. Rejuvenation can:

- continue to utilize the energy, materials and resources previously invested.
- extend the span during which a building embodies a facet of history, and contributes to the nature of its place.
- creatively revamp an obsolete configuration to a new purpose.
- become an integral aspect of generating the design for a new, larger whole.

If a critical mass of these attributes is no longer attainable, then destruction proceeds from a serious evaluation, rather than from a default presumption.

In this particular case the building is an excellent candidate for reactivation. In addition to imparting a live-over-work vitality to the neighborhood for many decades, it has:

- a comfortable human scale and a congenial street presence.
- a sound structure with a reparable exterior envelope.
- a plan form amenable to the prospective next use.

Another productive era of work is plausible for this particular architecture.

### RESPECTFUL REJUVENATION

A coordinated array of functions serving two groups of people with specific characteristics and overlapping needs.

**SHELTER** ~ Short term accommodations for those with no fixed address.
- Gathering Room
  - day space with a view to the street / meals / meetings / flex furnishings / restrooms
- Dormitory ~ Women + Children
  - capacity for 15 on Level 2
  - private rooms / shared restroom / showers / laundry
- Dormitory ~ Men
  - capacity for 25 on Level 3
  - semi-private alcoves / shared restroom / showers / laundry
- Greenhouse ~ Solar Array ~ Terrace

**EXISTING:** 20,000 sf

**RESIDENCE** ~ Independent living for elderly persons with very limited resources.
- Single Occupancy ~ Efficiency
  - 18 units on Levels 2 + 3 + 4
- Single Occupancy ~ One Bedroom
  - 12 units on Levels 1 + 2 + 3
- Double Occupancy ~ Two Bedroom
  - 6 units on Levels 1 + 2
- Greenhouse ~ Solar Array ~ Terrace

**NEW:** 95,000 sf

**Gross Area TOTAL:** 115,000 sf

**PROGRAM of USE**

A coordinated array of functions serving two groups of people with specific characteristics and overlapping needs.

**SHELTER** ~ Short term accommodations for those with no fixed address.
- Gathering Room
  - day space with a view to the street / meals / meetings / flex furnishings / restrooms
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**NEW:** 95,000 sf

**Gross Area TOTAL:** 115,000 sf
Private sector development is energized by the vitality of King Street and the proximity of Metro. The density and scale of potential transformations are bounded by the zoning ordinance.

1. Existing low-rise commercial and residential buildings generally range from 15 to 35 feet tall.  
2. New construction is permitted to rise to 77 feet at the roof deck.  
3. The proposed massing profile endeavors to utilize the larger envelope with restraint.  

The project site includes an existing three-storey structure.
This study maps the dynamic geometry of the sun's movements onto the specific orientation and configuration of this site, in order to define a three dimensional container for new development.

Morning and afternoon cutoffs are delineated at 1 the winter solstice and 2 the summer solstice.

Convergence of the resultant intersecting ridges and hips defines an envelope which maintains solar access to adjacent properties from 0930-1430 during winter, and from 0730-1630 during summer.
Architecture which would occupy this corner must reconcile its opportunity for prominence on a commercial thoroughfare with its responsibility as the terminus of a low rise residential street. This endeavor will be facilitated by a site specific buildable envelope which 1 takes advantage of the maximum height allowed by zoning, 2 bends down to meet the smaller buildings on King Street, and 3 respects the scale of, and maintains solar access to, the homes on Harvard Street.
This is an exercise to design a building that is both:

- Substantial enough to accommodate a broad coalition of uses, and to take its place on a commercial thoroughfare.
- Restrained enough to be comfortable at the scale of individual humans, and to be congenial in proximity to modest dwellings.

Its primary form characteristic is a high surface-to-volume ratio. Each interior space is proximate to an exterior surface, facilitating natural illumination inbound and a multiplicity of views outbound. The energy utilization profile is dominated by skin loads so daylighting, shaded apertures, natural ventilation, and rooftop energy generation are all effective.

The physical equation:

A maximum Floor Area Ratio of 2.5 applied to the 40,000 square foot site determines an allowable Net Area of 100,000 square feet. At an 85% efficiency rate this generates a Gross Area of 115,000 square feet.

A note on cost:

The articulated volume, substantial materials, extensive glazing, roof terraces and convenience to Metro indicate that this would be an expensive project on valuable ground. A prosperous benefactor or significant public subsidy would be required. More likely would be simpler design and less expensive construction in another location. In a potential future we might choose to determine that these users are as worthy as any others of an investment for solid architecture in a thriving part of the city.
CONTRIBUTE SOME VITALITY  REJUVENATE EXISTING ARCHITECTURE (IF FEASIBLE)  OPTIMIZE (RATHER THAN MAXIMIZE) DENSITY  RESPECT THE NEIGHBORS
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For anyone who has made it this far, the following is a selection of related digressions that may be of interest.
Combat aircraft images are embedded throughout these illustrations to visualize scale in counterpoint to the familiar form language of architecture. Brilliant conceptualization, excellent engineering, and sophisticated production endow these machines with spectacular performance. Fascinating artifacts of hyper-functional design, on occasion they attain a certain beauty. They are nonetheless powerful weapons, an integral part of the system by which we keep ourselves perpetually at risk. The enormity of monetary, institutional, and creative resources unavailable for other endeavors represents a value judgment we make about the hierarchy of human needs. The collective treasure sunk over past decades is irretrievable, and the ongoing opportunity cost is exorbitant. We should rethink our system of national defense, and reclaim a portion of the resources we lavish upon it. We could then make a more meaningful contribution, for instance, to the achievement of Safe Shelter and Secure Seniority.
A mixed use project by Cooper Carry Architects comprised of a 124 key hotel, office, and restaurant, over parking. Complete information is available in City of Alexandria public record DSUP 2016-0024.

This exploration of a future for Alexandria's Union Station maps a fiber optic network onto railroad rights of way, launching a new transformational technology by utilizing the infrastructure of a previous one. As it establishes a headquarters and revitalizes the station, this new corporate entity pursues an identity for its enterprise and an icon for its place, all within the long tradition of ambitious railway architecture.

A Master of Architecture thesis designed by James S. Walker, this project was created contemporaneously with, and in the same neighborhood as, Place / Purpose / Form.
An exercise in coming to grips with the scale of the site and its context.

A planning scheme antithetical to Alexandria’s long established pattern of blocks and street faces, it represents a design approach not taken.
The Masonic Memorial occupies a substantial promontory overlooking the city and offers a line of sight across the river to the monumental core of the nation's capital.

A train arrival at Union Station is visible in the right foreground.
Mrs. K’s home of 40 years. Compact and comfortable functionality for the entirety of daily living, it provides a sense of individuality and the reality of independence, in a neighborhood of similar dwellings. For older citizens intimately familiar with such a personal environment, the transition to a higher density, less self-sufficient living situation can be a serious challenge.
A massive urban infrastructure installation, Potomac Yard served as an essential regional transport node for most of the 20th century. It wound down in the 1980s, freeing hundreds of acres for transformation.

1983 characteristics:
1. Vehicular bridge with pedestrian stair from the roadbed down to the tracks.
2. Staging yard bounded on the east by the Potomac and on the west by Jefferson Davis Highway.
3. The control and maintenance complex of which there are unfortunately no remaining physical traces.
4. Rail bridges over Four Mile Run at the Alexandria / Arlington boundary.
An extended community conversation generated a walkable plan, which has morphed from predominantly low rise residential (2018) into a higher density mix of uses (2033) adjacent to a new Metro Station.

2018: A neighborhood of 2,000± dwellings is integrated into the city's network of blocks, streets and parks, while development of commercial sites awaits construction of the new metro station.

2033: A transit focused ensemble of larger buildings will be interconnected with active open spaces, and bounded by a continuous linear park which links the Braddock Road Metro to Four Mile Run.