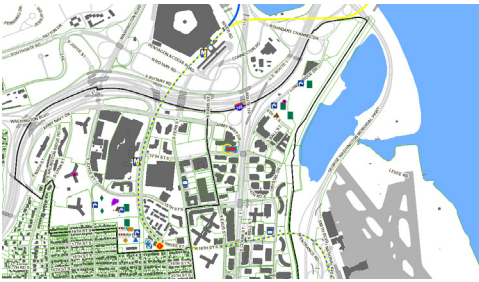
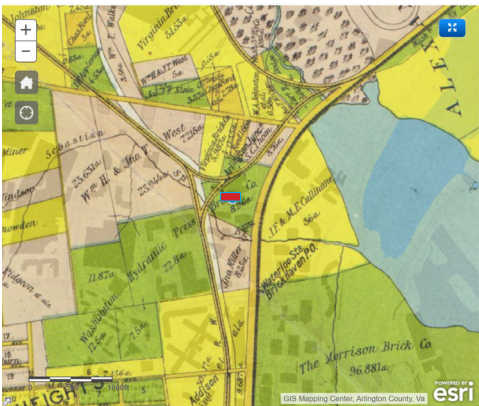


# ULI Health Leaders - Home Base Wellbeing Evaluation: The Good, the Bad, and the Ugly

Lida Lewis, ASID, WELL AP + Faculty, LEED AP ID+C, Fitwel Ambassador



Current land use plan



Map showing 1900s land use overlaid on current condition



Aerial view of immediate neighborhood, including adjacent site for future Amazon HQ2 buildings



View from Crystal City neighborhood, including local low rise residential neighborhood and commercial/residential Crystal Drive corridor, Regan Airport, and road system looking toward downtown DC

*My current home in Arlington Virginia* is an apartment building equidistantly located between the Pentagon and Regan National Airport. Close to the Potomac River, the site is 2.0 miles from the center cross point of the National Mall in Washington, DC. It lies on the border of two informal neighborhood areas—one to the west known as “Pentagon City” (for obvious reasons), and the other south and east known as “Crystal City”. The Crystal City neighborhood has, for many years, been owned by Vornado (now JBG Smith) and has a fairly well deserved reputation for a lack in pedestrian vibrancy and mix of use types. This has kept residential rents reasonable relative to the greater metro area, and for a time caused some issue in maintaining low commercial vacancy rates—which has slowly changed over time. A site with many advantages, it will shortly undergo dramatic socioeconomic and environmental changes as one of the new homes of Amazon’s HQ2.

For my evaluation, I’ve turned to the WELL Community and Building Standard for a framework, and my own history as a salutogenically focused designer.



## AIR

**Macro Scale:** Existing at the juncture of multiple highways, as well as in close proximity to a major domestic airport, this site’s hazards for air quality are myriad. While industrial uses are not in close enough proximity to generate an immediate threat, congested traffic leading into the city undoubtedly generates high levels of particulate matter pollution. Arlington additionally currently has no restriction against the length of time over which vehicles may idle. All of these activities have been shown by research to contribute to respiratory issues and compromised mental function.

**Micro Scale:** Signs are posted restricting the use of tobacco smoke to 25’ from the building, but are not enforced.



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Contamination from first and secondhand smoke is probable, particularly given my unit's proximity to the building entry. Lease renewals, as they come due, are currently being updated with restrictions against smoking in any unit. However, this cycle is not complete, and in addition, the history of permitting smoking in units makes exposure to thirdhand smoke emissions probable. Each unit has an individual HVAC system, however filtration media is of a rating inferior to most construction. Ventilation rates are excellent, as they are controllable by unit through operable windows. Regular operations inspections for mold and mildew are not conducted, though pest management has switched from spray forms to inert solids. Maintenance schedule for cooling coil cleaning, and maintenance of common area systems, are unknown.



### WATER

**Macro Scale:** The nearby Potomac River is currently not considered a body of water safe for swimming and other forms of recreational interaction. However, local attention by multiple environmental groups and the myriad of jurisdictional bodies intersecting between MD, DC, and VA have prioritized the correction of multiple stormwater and wastewater contamination contributions. The restoration of the overall health of the Chesapeake Bay Watershed has progressed to the point that meaningful progress in this area is underway. Dolphins, once seen as far north as DC itself in the 1800s, have been spotted in the last several years only an hour south of Georgetown.



Of greater concern, and lesser progress, is the water infrastructure. Though DC's water treatment plant is internationally known for its innovations and advancements, and VA's treatment authorities are similarly excellent, as with much of the country many elements of the delivery infrastructure are substandard. Some elements of this infrastructure date back as far as the civil war, and to estimate that this system is not compromised would be naive at best. While water conditions typically do remain within current regulations, the levels of contaminants (such as, for example, hexavalent chromium) are not within the scientific community's recommended limits for safe exposure—as is unfortunately the case in many communities nationwide.

**Micro Scale:** The building has installed no water treatment elements to date, does not engage in regular water testing, and does not permit alteration of tenant spaces to accommodate filtration units. Because I am unable to alter the system, I have not conducted any regular water testing of my own—as a problem, if found, is not correctable, at least in terms of inorganic contamination, which would require a Kinetic Degredation or Reverse Osmosis system. However, I have purchased and use for consumption a “pitcher” water filtration system which filters for the maximum amount of organic contaminants currently commercially available.

### NOURISHMENT

**Macro Scale:** Throughout the term of my residency in the neighborhood, multiple grocery stores have been easily accessible within a mile's walking distance. Additionally, there is a seasonal farmer's market near the Crystal

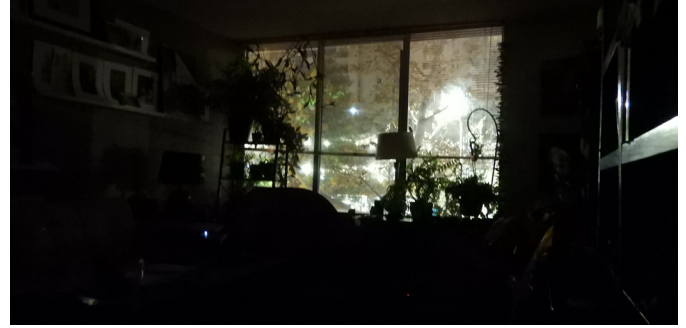
City metro station on Thursdays in the spring, summer, and fall within walking distance. Within the past year, a Whole Foods market opened up within the block, as well as multiple restaurants with healthy food options, greatly increasing access to even more nutritious options. Cooking classes are available within a mile at a local Sur La Table—though somewhat costly. Community gardening and options to engage in direct food production, however, are not available at any nearby sites.



**Micro Scale:** No space is provided on site for food production, and no community gardening options have been offered or are planned for the building. Food options provided at building events are typically of quite poor nutritional value. However, my own refrigerator is stocked with almost more produce than I can manage to consume, and my pantry stores boast a far less than typical share of processed foods. I brew water kefir at home for a probiotic boost, and continue to make valiant efforts to make basil happy on my windowsill.

## LIGHT

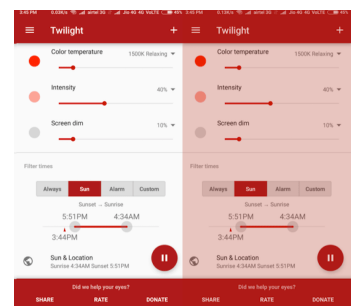
**Macro Scale:** No community restrictions on light pollution, trespass, and cutoff are present in the Crystal and Pentagon City areas. Street lighting, exterior lighting on private properties, and lighting in the nearby Long Bridge Park on athletic fields project onto neighboring properties and into the night sky throughout the night. This is of concern for human health, as there are a fair number of residential buildings and hotels in the surrounding neighborhood.



Right of way lighting is not well maintained, and poorly lit areas often result from damaged streetlights—individual, but also often whole blocks. Mass transit lighting in the Metro station facilities, however, has been improved in recent years to greatly increase visibility.

**Micro Scale:** Unfortunately, the lack of community control of lighting trespass has a direct result on my own living space. The lights from the adjacent streetlights, and (perhaps more so) lights from the parking garage across the street, are extraordinarily bright and easily and thoroughly illuminate my own apartment.

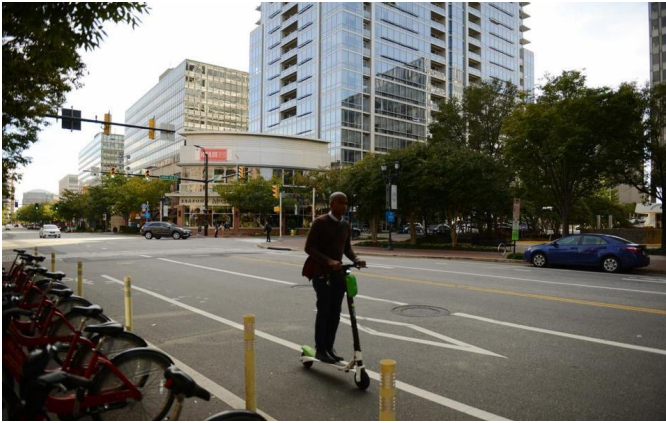
Elements under my control, however, include my own lighting fixtures and lighting exposure. I have installed a HealthE Good Night light by Lighting Science in my bedside lamps, which is color corrected to eliminate blue spectrum light and therefore reduces sources for circadian stimulation in my bedroom. Additionally, I have installed the Twilight App for Android on my cell phone, which I also use as a Kindle Device, to maximize dimming of the backlighting and color correct the blue light emitted by the screen. (While I've not conducted any rigorous study, I have noticed a decrease in the time to sleep since starting to use both of these methods.) Additionally, the southern exposure of my windows increase my exposure to blue spectrum light in daylight hours.





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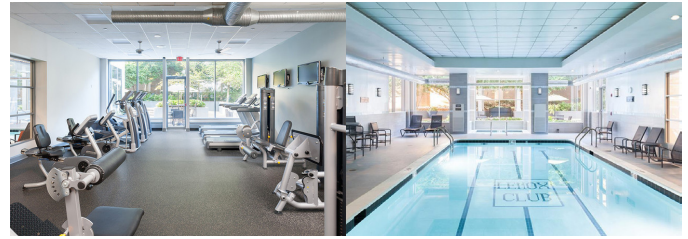


### MOVEMENT

**Macro Scale:** Though the Crystal City neighborhood is still lacking a robust mixed use makeup to encourage walkability, it is a very connected neighborhood for more than just cars. Bike lanes are not protected but are minimally separated from the main flow of traffic. The Mt. Vernon Trail leads directly past the airport to the 14th street bridge and city beyond. For those without their own bike, bikeshare stations are myriad. Amtrak, the VRE, and Metro Trains are accessible through multiple nearby stations. A local yoga group offers weekly free yoga sessions—though only seasonally, and unfortunately not at a convenient time for commuters to attend. Long Bridge Park, developed in its first phase a few years ago, sports multiple accessible walking paths of different pitches and direction, playgrounds, and athletic fields.



**Micro Scale:** The typical fitness facility and an indoor pool are available on site, along with free exercise classes twice a week in the onsite activity room. Limited area is provided for pets, with a small astroturf area, seldom cleaned, behind the rear entry. Stairs are accessible for exiting, but are not accessible for entry, and are not enhanced with any features (artwork, natural light, enhanced finishes, etc.) to encourage use.



### THERMAL COMFORT

**Macro Scale:** There are several small parklets and green areas in the neighborhood, including a small “water park” with water features which mitigate some of the local urban heat island effect. However, between the lack of green roofs, the nearby airport, and extensive surface parking at the Pentagon, this cannot wholly offset the heat load gained by these areas. There are not any cooling or heating refuge zones established for those who are homeless in the area. At the “water park”, contact with the water is discouraged, and the Potomac, as previously mentioned, is not currently approved for recreational use (a water quality issue).



**Micro Scale:** The building employs an overhead forced air system for thermal variation, rather than a radiant or displacement ventilation system. A two-pipe delivery means that the system may supply only heat or cooling, not both, at any time and switching from one mode to another is controlled by state regulations which are set by calendar dates rather than outside temperature—a date which often does not reflect the heat/cooling need, particularly in light of climate change alterations of seasonal temperatures. Each unit has control over the amount of heating or cooling delivered, though no humidity controls are available.

## SOUND

**Macro Scale:** I am unaware of any sound mapping or planning by the Crystal City community for sound hazards and source mitigation. There are regulations surrounding the air traffic for Regan Airport which limits flight paths and times, though this still results in sound pollution entering the neighborhood. No buffers are provided for the multiple major arterial roads surrounding and passing through the area. Metro railways are elevated/exposed for much of their passage through Crystal City, and limited sound buffering is available. Myriad parades and public events are held on the streets and byways in the neighborhood, with start times and amplified music or announcements and drastic increases in traffic and general activity which are highly disruptive to residents. Some events (most notably the “Rolling Thunder” motorcycle event) draws hundreds of vehicles and visitors into the area even during the pre-dawn timeframe.



**Micro Scale:** The building does not have any established decibel standards for disruption of neighbors between units. However, as a concrete structure, with slab construction horizontally, and thick masonry walls between units, many sounds are minimized through this massing. Doors to units are unfortunately poorly gasketed, however, making corridors a source of sound disturbance, and windows are not of high acoustic value.

## MATERIALS

**Macro Scale:** Much of the Crystal City area in the 1900s was used for industry, and it is

unclear whether contaminants from this period have been fully remediated or encapsulated. Pesticides and herbicides, as well as chemical snow removal treatments, are in widespread use and warnings are often advertizing their use. Advance notice for spraying and application of said treatments, or hazard potential and chemical makeup of the same, is not available to residents.

**Micro Scale:** While I of course control materials which enter my unit and may reduce VOCs, flame retardants, pthalate, etc. chemical exposures for those materials –the building does not employ material precautions. Renovation work, when conducted, results in noticeable paint and adhesive fumes. Waste management is provided through trash chutes for landfill items, however for recycling residents must access the loading dock area which is not always accessible. Recycling bins are often full to overflowing, and this coupled with their intermittent accessibility cuts down on potential landfill diversion rates. Cleaning products are not screened for reduction in pathogen exposure, and material transparency is not provided to residents for materials employed in for use in building maintenance.

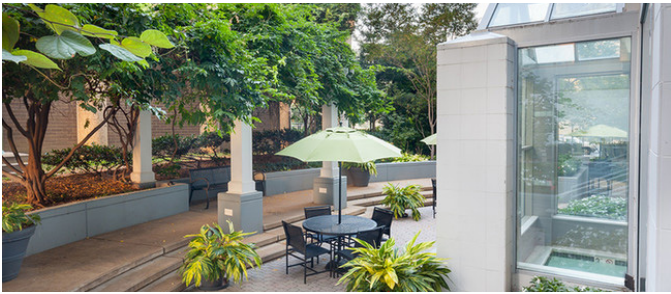
## MIND

**Macro Scale:** Arlington’s CIT (Crisis Intervention Team) program empowers officers with the skills to interact with mentally ill individuals and individuals in crisis safely and effectively. Projects in Assistance for Transition from Homelessness (PATH) services include community-based outreach, mental health, substance abuse, case management and other support services, as well as a limited set of housing services. Program of Assertive Community Treatment (PACT) provides intensive, comprehensive and community-based services to adults with serious mental illness. Outdoor child play spaces are provided at Long Bridge Park and the Water Park. Several small local “parklets”, Long Bridge Park, and some green spaces in commercial areas provide restorative green spaces.



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**Micro Scale:** There is a small, well maintained patio area with good tree cover in a small building side area which does provide an area of restorative green space. However, this is the only area provided, and biophilic design has not been a driving factor in any building renovations. Mental health and stress support or education, or any sort of restorative programming, is not provided by the building. In my own unit I have finally (mostly) mastered the art of plant selection and care, resulting in a relatively large number of overly enthusiastic plants for biophilic enhancement. In my design of the interior, color, texture, etc. are interwoven throughout the space, and I regularly use recorded sounds of nature for its restorative and calming effects.

## COMMUNITY

**Macro Scale:** While Crystal City and nearby Pentagon City exist as named neighborhoods, there are very few planned community or civic engagement event opportunities. This is part of what has created some resistance in many living in nearby DC, Old Town, or the Blue and Orange line corridors of Arlington to living in the neighborhood—but has also kept rents more approachable. Housing affordability in this area is better, relatively speaking, than nearby neighborhoods, though still high for the region and certainly relative to national housing rates. A fairly robust attempt at increasing public art has improved some of the dead pedestrian zone areas, enlivening many underused and heavily concrete areas adjacent to buildings and highway overpasses.

**Micro Scale:** Relative to the building scale, few community engagement opportunities are available here as well. “Resident” activity

events, when planned, are often scheduled for times when most residents are not present. Occupants are not often surveyed for evaluation for the experience and self-reported health and wellbeing of occupants. The building is, however, fully accessible to those of limited physical ability, and health services are easily accessed through the local urgent care facility.

