# Are You Linked?

## The Role of Wireless Linkages In Real Estate

BY SEAN HEATH

The listing agent thought of everything…the grass had been mowed, the hedges had been trimmed, and the house had just been painted. All that was left was to plant the "For Sale" sign in the front yard. She took out the sign and stuck it in the lawn, making sure it was secure. At the bottom of the sign, below the agent's name and phone number, was something new. A few words, written in blue and underlined: needahouse@grafedia.net. The agent, hoping this link would lure curious eyes, smiled and walked away.

Linkages, or the movement of people and/or services between clusters of land uses, can be an important valuation tool for an appraiser or right of way professional. For example, a study of the physical linkage between a suburb and a central business district may highlight increased traffic-commute times, and how this increase impacts the occupancy level of downtown office space. After a while, if enough downtown office workers get tired of rush-hour traffic, they may decide to telecommute from the comfort of their living rooms, leaving their corner offices vacant.

Or perhaps another linkage study might examine the role of downtown redevelopment, such as how the construction of a new ballpark or civic center can act as a magnet, drawing in new consumer activity and new life to a rundown area.

If supply and demand is the yin and yang of property value, then the study of linkages would be analogous to the current that flows between these two halves. Could it be possible that wireless linkages between land-use clusters could also have an impact on value?

In 1945, Chauncy Harris and Edward Ullman wrote a seminal paper entitled "The Nature of Cities." At that time, Harris and Ullman realized that the growth of many cities across the country could not be explained by two prevailing land-use theories: the concentric-zone model and the sector model. Cities of greater size were developing substantial suburban areas. Some suburbs, having reached significant size, were functioning like smaller business districts. These smaller business districts acted like nodes, or nuclei, of activity, around which land-use patterns formed. While Harris and Ullman still saw the central business district as the major center of commerce, they suggested that specialized cells of activity would develop according to specific requirements of certain activities.

Today, many neighborhoods have been designed based on Harris and Ullman's theory of multiple nuclei, or nodes, of activity. Commercial uses are clustered around a commercial core, office uses around an office core, and so on. However, Harris and Ullman could not have foreseen how their model would be influenced by technology, and how this influence would affect the manner in which we do business and communicate with each other.

For example, consider the activities of a typical appraiser. On a typical weekday morning, she might shuttle back and forth between her office, various properties she is appraising, a real-estate agent's office and home. Maybe she squeezes in time to stop off at the store, or to school to pick up the kids on her way home from work. Within the context of her daily life, each of these stops would constitute a nucleus or node (the home as part of a residential node, the office as part of a business node, and so on). Within each node, our harried appraiser would be able to interact with others of similar interests as she goes about her day. But with technology, her day becomes more streamlined.

**Now, let's see what happens when technology is sprinkled across each node.**

With a cell phone or Internet connection, this same appraiser can now interact with others in a nucleus that she has not physically visited: pulling up a weblist of sale comparables for her next inspection the following morning, calling the kids on their cell phones to see what time they will be home, shopping online and having the products delivered, logging onto a "nanny-cam" web site to check on her toddler at day care.. Upstairs, her kids are forming nodes of their own, firing off instant messages to their friends on their Blackberries, or getting together in chat rooms to talk about a video game.

Harris and Ullman's model assumes that nodes develop around a shared activity or interest, but does not go far enough to explain how nodes can be free-forming, and can form hubs and spokes and higher levels of networked order.

An example of a free-forming network would be an airline-routing map, or a map of the Internet. If you were looking at a map of Southwest's flights, for example, you might notice that larger cities have more connections to and from them than others; they act more like "hubs" while smaller cities are like "spokes." You can

also see by tracing your finger across the spaghetti lines of routes arcing across the country how you could travel from city to city depending on which route you took.

With the Internet, it's the same thing. A few mouse clicks will quickly bring you to a major Internet "hub" like Google or Yahoo or AOL. From there, you could go off in any number of directions—provided that your destination is somehow connected to a hub so that you could find it. For example, "trivia.com" might be a great web site for esoteric tidbits, but if you did not know where it was or how to get there, then its value would be lost.

In Howard Rheingold's novel Smart Mobs, sociologist Barry Wellman states that wireless connectivity has loosened our former connections between work and home, and has also required us to take a different look at our definitions of "place and "community." After all, with the help of cell phones and wireless laptops, our community now includes not just those physically around us with whom we share social interaction, but others around the globe—bridging both the far and near with the press of a Send button.

"The shift to a personalized, wireless world affords networked individualism, with each person switching between ties and networks. People remain connected, but as individuals rather than being rooted in the home bases of work unit and household. Individuals switch rapidly between their social networks. Each person separately operates his networks to obtain information, collaboration, orders, support, sociability, and a sense of belonging."

Conventional land-use planning was based on the mindset that businesses had to be in a fixed location in order to attract customers, and that a clustering of businesses together would have a synergistic effect, drawing more potential customers in and encouraging further interaction.

Yet, the increased role of the Internet in society has encouraged consumers to seek other avenues of commerce—instead of walking down a conventional lane of brick-and-mortar stores, one can mouse-click with a wireless laptop from anywhere.

Now it is true that location is still the hallmark of property valuation. Consider a dry-cleaning operation that has set up shop next to a new subdivision. The owner of the business reads the newspaper and learns that the builder of this new tract is offering high-speed Internet connections as a standard feature with every home. The business owner reads further and learns that a number of young families are buying homes in this new tract. He knows that young families often have computers, and combined with the builder's high-speed connections in each house means that some member of each family will be spending a lot of time on the computer.

So, the business owner decides to create a web page for his dry-cleaning service, complete with an online order form. He hires a couple of local high-school kids to drive through the subdivision, picking up orders to be filled, and dropping off completed ones. He also distributes mouse pads with the name of his business silk-screened on top to every new homeowner as a welcome gift.

The dry cleaner's neighbor, a pizza maker, sees the success of his associate and decides to emulate him. He too, drives through this same subdivision, passing out menus with his new web site printed on them (www.pizzastogo.com). As an added incentive, the pizza maker hands out coupons that offer a free pizza for every five pizzas ordered online.

From a physical standpoint, let's say the dry cleaner and the pizza maker aren't in the most ideal locations. Perhaps they are in a small strip center, with no anchor tenants or recognizable names to draw in customers. Maybe the access road in front of the center is divided, forcing customers to drive past the center and U-turn before they could pull into the parking lot. Or, perhaps the parking lot itself is too small in relation to the number of stores it serves. From a valuation standpoint, these signs of physical linkage between the stores and the subdivision could be seen as a detriment. Yet, both business owners were able to take advantage of a different linkage to stay successful.

Graffiti may become another link of communication between businesses and their customers. Or, at least that is the idea of John Geraci, a graduate student at NYU. A New York Times article written by Ethan Todras-Whitehill, examples how this might work.

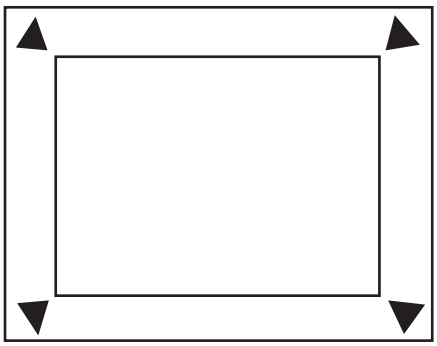
"The East Village neighborhood in Manhattan is no stranger to grafitti. In the morass of cryptic tags, stickers, and drawings however, one piece doesn't quite fit. It is scrawled on the base of a park bench and reads 'heystranger,' with both words written in blue and underlined (see photo below). 'Heystranger' is an example of grafedia, a new and growing form of street art that brings together the wireless and physical worlds.

"Here is how it works: the person posting the piece of grafedia uploads an image to the grafedia site (www.grafedia.net) and chooses a word to associate with it ("heystranger"). That person then writes the word in a public place (street, print media, Internet) and underlines it in blue (the mark that distinguishes grafedia from graffiti; a full e-mail address is also a tip-off.). On the other end, when people see the writing and recognize it as grafedia, they send a text message or e-mail note to the appropriate e-mail address, and are sent the image or service. Interested homebuyers emailing to needahome@grafedia.net as mentioned at the beginning of the article for example, would receive a color flier describing the home's amenities, plus a virtual slide show of various rooms.

There may even come a time in the near future when "connectivity" becomes an important factor in the design of new retail space. Even now, consumers are reacting against the traditional land-use patterns of sprawl and strip malls, and are reacting more favorably to pedestrian-centered village centers.

One idea based on this new trend would actually be a new twist on a very old idea. Cities in Europe and Mexico have square "plazas" which act as natural hubs: streets in the area are laid out so they feed into the plaza, retail stores are established along the outer perimeter of the plaza, leaving the inner courtyard free for high-tech restaurants and Internet cafes, where consumers could interact with each other.

The following is a crude diagram of such a modern plaza.



The triangles in each corner of the plaza represent small cell sites, or "picocells" as they are sometimes called in the industry. These antennas, a little larger than a deck of cards, are designed to serve small spaces with high call volumes—like retail malls or airport concourses.

By incorporating picocells in this plaza design, consumers would be able to realize the benefits of Harris and Ullman's multiple-nuclei model, while at the same time, being able to enjoy the benefits of wireless linkages.

Some land-use planning advocates are pioneering the development of free-forming networks through public-access wireless LANs. One of these is BAWUG (the Bay Area Wireless Users Group, or www.bawug.org), who offers a list of available public wireless access points in the San Francisco area. Another is NYC Wireless (www.nycwireless.com). Rheingold profiles this group in his book Smart Mobs. "NYC Wireless is building alliances with community groups and developing an infrastructure," he writes, "built around certain core values: community-oriented, low barrier to entry, privacy-conscious and secure, utilize social contracts and social expectations, and provide common ground for interactions."

Finding these free hotspots will be even easier in the future, thanks to online directories like www.jiwire.com providing listings for 64,799 locations in 99 countries. Jiwire's directory also lets users know where the free hotspots are in their local areas. The following is Jiwire's list of top cities in terms of the number of Wi-Fi locations.

| City | # of Hotspots |
|---|---|
| London | 1,201 |
| Tokyo | 1,035 |
| Paris | 769 |
| Singapore | 613 |
| Hong Kong | 594 |
| New York | 529 |
| Sao Paolo | 464 |
| Berlin | 416 |
| Chicago | 416 |
| San Francisco | 395 |
| San Diego | 237 |

With more and more retail businesses taking advantage of wireless links, there may come a time when a device like this (see photo) will become a necessary appraisal tool. Devices like these sniff out wireless hotspots, and display the signal strength of these hotspots in the form of blinking LEDs. Four solid green lights would mean that you've found a hotspot, and that the wireless lanes of commerce (as in our dry-cleaner example) are humming.


In an article written by Annalee Lewis published on SFGate.com, Clay Shirky, a well-known open source pundit and partner with New York investment firm Accelerator Group, muses about the public availability of wireless networks. If hotspots like those at the local Starbucks encourage public interaction and communication, then should they be offered for free — as if they were a municipal utility?

"Wireless technology is easier to provide to a group than to individuals, so the question is whether businesses and municipalities should go into providing 802.11b networks. In New York, we have laws that give zoning variances for skyscrapers in return for creating public spaces. These public spaces could easily include 802.11b networks."

Of course, he warns, you can't expect things to stay this way forever. "It's nice to think of wireless as being free anywhere, but soon you're going to see it getting more and more commercialized." And it will probably be more secure, too.