Developing Sustainable Neighborhoods: Cohousing as a Design Strategy

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Introduction

“Urban sprawl” and “suburbia” have become well-known, negative trends within the design community. “Today’s neighborhoods have in large part served to isolate people from one another and encourage alienation from ourselves and our communities”. Our society is at a pivotal moment in time. A time in which the design of emerging neighborhoods could lead to great advancements in developing density and mixed use communities while promoting green technology. However, should we continue to implement current design strategies, our communities will push us deeper into isolation and farther away from a sustainable way of life.

We are seeing the concept of “nuclear family” shrink to a minority, as a wide range of varied family types and structures become prevalent throughout society. As a result, housing structures once appropriate for a majority of people are becoming insufficient to meet the needs of a changing population. Affordable and diverse housing types are needed within cities and near public transit to help limit housing and transportation costs within the family budget. In addition, a density of varied households is only part of the solution when making these new communities functional and sustainable. “Density is about intensity of use, about functions and services supporting the housing component - that it’s more about optimizing land use and about the spatial planning of neighborhoods”. Mixed-use development plays a crucial role in reducing vehicular movement and by extension CO2 emissions.

Unfortunately in many cities, building codes and zoning regulations are in place that prohibit the development of mixed-use areas and make higher housing densities almost impossible. Advancements need to be made within local governments to make way for these smarter-neighborhood
Cohousing as a Neighborhood Strategy

By looking more closely at the history and development of cohousing we can begin to ascertain its appropriateness for different scales and aspects of neighborhood design.

History of Cohousing

Many discussions on sustainability begin or end with the assertion that we, as a society, must change the way we think. Cohousing is by no means a revolutionary concept. Ancient, African communities shared similar structural organization, like communal kitchens and similar mind-sets, evident in the African proverb "it takes a village to raise a child". Simply put, cohousing is an "intentional community" in which notions of working together and neighborhood involvement are resurrected. The modern form of cohousing emerged in Denmark in 1967 and has spread across Europe and into the United States. Cohousing began in Denmark as “a grass-roots movement that grew out of people’s dissatisfaction with existing housing choices”.

The Danish word for the neighborhood model is bofoellesskaber, or living communities, which is a succinct depiction of their existence.

Cohousing communities are born when groups of people come together and create a list of shared goals for a future neighborhood. These goals are not religious or political in nature; rather they typically encompass hopes of community contribution and environmentally conscious living. Together the group purchases land, hires an architect and participates extensively in the design and construction process. Previously constructed developments include infill, new land, rural, suburban, and urban sites. Local government involvement is a norm, as rezoning for increased density or reduced parking is often sought by the community.

The creation of the site plan is a lengthy process and involves substantial back and forth between designer and residents. Cohousing structures are often clustered on the site to allow for preservation of green space and to take advantage of shared heating and cooling strategies. In addition, clustering encourages more community participation. Housing clusters are typically inwardly focused, often fronting a pedestrian street or shared green space. The vehicular traffic is then pushed to the periphery leaving a safer, more open environment for children to play. The housing units often range in size and price and are easily adaptable to provide for different family sizes. This promotes high diversity of ages, incomes and family types within the community.

Shared facilities are another universal trait of cohousing neighborhoods. The common house is a staple of every cohousing development and usually houses a shared kitchen, dining room, laundry room, children’s playroom and other multi-function rooms. This concept of sharing extends to smaller items such as tools, lawn mowers, cars and a common pool of knowledge and skills. Shared resources are one of the many green, lifestyle changes that residents make when becoming part of a cohousing community. Green technology is often implemented at different scales to provide renewable energy and reduced utility bills. "While cohousing projects may not ensure low-impact lifestyle, they certainly enable it".

Sol og Vind Case Study

Located in the country of cohousing’s modern origins, Sol og Vind sits just south of the city of Arhus in Beder, Denmark. The “founding fathers” of this community were three single mothers who were looking for a better housing solution than what was available. In 1976, they placed an ad in the local paper and by 1980 the neighborhood was a reality. Over those four years, the group of potential residents shrunk and expanded at different parts of the process. Heavy participation with the architect, Arkitektgruppen Regnbuen, occurred involving one three hour session each week for five months. The community split into work groups that focused on specific goals for the community including site, fiscal, energy, ecology, architecture, common house and children’s interests. The
Developing Sustainable Neighborhoods

The community’s finalized goals are listed below:

1. Approximately 25 households (with and without children) who will participate in the planning process for the community and their own individual houses.
2. Reasonable house payments to accommodate a diversity of incomes.
3. Two-story houses (to use as little land as possible) situated along pedestrian lanes and squares. Cars parked at the periphery.
4. Minimum energy consumption through planning and design.
5. Use of renewable energy.
6. Relatively small dwellings that can be easily modified and added to as needed.
7. Generous shared facilities and open space to accommodate common activities and encourage social interaction.

In addition, it took numerous arguments with local planning authorities to acquire a building permit. Among other issues, “the planning department could not imagine that the residents would not want to drive to their own front doors. But when the authorities questioned the car-free access roads, the residents rebutted, ‘we can drive our cars to the door if it is essential, but it’s more important to have a safe environment for the kids’.”

Comprised of 30 units and a 5,920 square foot common house, the site clusters homes to allow space for pedestrian walkways, public green space, a soccer field and a vegetable garden. To ensure a diversity of residents and maintain affordability the core of each home is standardized and can be added to or subtracted from to accommodate different family
types. Another method that allowed savings on construction costs was to have the community help complete interior finishes such as painting and flooring. While all the homes are positioned to face the pedestrian street, considerations were made for the maintaining of public and private spaces within the neighborhood. There is a hierarchy of spaces, as one moves away from the central shared street, into the privacy of their individual unit. Other design considerations extended to maintaining local identity and place. “The houses themselves are proportionally tall to allow maximum use of solar energy and to conserve heat, but they also echo the colors and human scale of the old quarters of the nearby seaport town.”

Production and use of renewable energy was also a priority of the Sol og Vind community. The 7,000 square feet of liquid filled solar panels, coupled with an off-site windmill, provide 40 percent of the energy needed to supply the neighborhood. In May of 1979, the community received a 59,000 dollar grant from the Danish government to implement their renewable energy systems. The one stipulation was that they install a monitoring system to determine the buildings’ energy savings. Finally, a community garden provides a shared food source and helps to reduce grocery bills in the neighborhood.

**Boulder, Colorado Case Study**

A newly constructed development in the United States offers valuable insight into smart neighborhood strategies.

**Holiday Neighborhood**

The high-density, mixed-use Holiday neighborhood in Boulder, Colorado not only houses a cohousing community on site, but also showcases successful ways of bringing cohousing concepts to the rest of the development. Completed in 2007, the Holiday neighborhood consists of 330 homes on 27 acres with 50,000 square feet given to commercial space. The primary developers of the site were Boulder Housing Partners (BHP), and because of their position as a public entity they were able to achieve some impressive results. BHP was able to withhold a large amount of land for public, green space. In addition, they sold lots to private developers at discounted rates, in return for a higher percentage of affordable housing units. More than 40% of the entire neighborhood is affordable housing. In order to achieve these results,
BHP brought several zoning issues to the city. First, the existing, allowable density for the site was ten units per acre. BHP requested and received double that amount, changing the site's density to twenty units per acre. This allows the site to not only increase housing density but decrease the needed amount of land, infrastructure and roadways. Next, the vision for the site included a large amount of mixed-use development which the site was not zoned for. After the developers pointed out numerous benefits including reduced traffic congestion, the city finally granted the ordinance change. A final code change sought by BHP was smaller setbacks and “bulk” requirements. This would allow for a more vibrant streetscape and smaller, more diverse lots.

“We’ve always wanted streetscapes at Holiday that are varied, like those that evolved in many older Colorado towns.” By hiring a team of the region’s most forward-looking developers (rather than just one), the city and BHP arranged diversity by design.” Through this design diversity the developers were also able to appeal to diverse incomes and ages. The housing types offered on the site include transitional housing, subsidized rentals, for-sale units, live/work studios, condos and single family homes. Another design aspect that enhances the streetscape is the relocating of cars to “the periphery”. A series of alleyways allow for more vehicular movement to occur out of sight from front porches and high pedestrian traffic.

This pedestrian movement is furthered by the unifying walkways and green corridors throughout the neighborhood. The central, two acre park serves as both public green space and as storm water detention and filtering by employing a sand filter bed. Many of the sustainable ideas embedded within the neighborhood’s design are due to the work of the Sustainable Futures Society (SFS). This organization received a grant from the EPA to work with the Holiday developers and help “green” the neighborhood. Developers were required to participate in the green points system, achieving specific rankings dependent upon the size and function of the structure. Due largely to SFS and BHP’s efforts, Holiday residents are expected to drive 30% less, pay 50% less on utility bills and use 40% less water.

Wild Sage Cohousing

The cohousing development within the Holiday neighborhood sits centrally on the 27 acre site. Composed of 34 units, the Wild Sage cohousing community is seeking zero emissions as one of their neighborhood’s goals. They have salvaged solar panels for use on their roofs and are taking advantage of the housing clusters by using radiant heating from centralized group boilers. Their community also brought a request in front of the city, asking for reduced parking space requirements. The city agreed and instead of supplying the standard 2 spaces per unit, the community only had to provide 1.1 spaces per unit. The final result meant only needing land for 38 spaces rather than 68. Any hesitation the community may have had about the reduced spaces has been obliterated by the Holiday neighborhood’s policy of each resident being issued a city bus pass, funded through the neighborhood’s HOA dues.

Austin, Texas Case Studies

In order to better understand how existing strategies can be applied in Austin, it is worthwhile to look at two new developments underway within the city.

Mueller Neighborhood

This 711 acre, brownfield site located just east of downtown Austin is currently being redeveloped into a bustling, mixed-use development based on sustainable new urbanism principles. Eventually offering 4,600 homes to more than 10,000 residents, the Mueller neighborhood is hoping to maintain 25% in affordable housing. A vision that began in 1996, the Mueller community finished its first phase of residential construction at the end of 2007. Many involved saw this project as “an alternative to land-consumptive and automobile-dependent development patterns throughout the region that could influence the form and pattern of growth within Austin”. The Catellus Development Corporation, who served as the neighborhood’s primary developer, were able to leave 20% of the site as public green space and keep 25% as affordable housing through tax increment financing (TIF). A “town center” and other mixed-use areas will promote locally-owned businesses and provide employment hubs within the neighborhood.

Seeking to achieve diversity within the Mueller population, numerous developers are at work providing a variety of housing types. These types include yard houses, garden courts that arrange 4 or more yard
houses around a common green, row houses, shop houses that provide live/work conditions, Mueller houses which appear as large single family homes but include four to six units within the structure, and mixed-use buildings with apartments above. To ensure efficient land use and encourage walkable neighborhoods, the Mueller design guidelines for each of these housing types are rigorous. They promote diversity while requiring specificity for height, percentage of impervious cover and setbacks. While visiting the site the success of the neighborhood’s street hierarchy became immediately apparent. The alleyway system successfully orients vehicular movement to the rear of homes and pedestrian and bicycle traffic is promoted along front-porch lined streets. The neighborhood also boasts community-shared facilities such as a pool complex, sports courts and green space.

140 acres of parks and greenways contribute to the neighborhoods ability to filter pollution and provide for public space. Five miles of hike and bike paths will add to the neighborhood’s public amenities. Other sustainable advancements made in the community include a “purple pipe” reclaimed water system for site irrigation, a district cooling system supplying the Dell Children’s Medical Center and the commercial and multi-family buildings on site, and 100% control of storm water runoff through various methods around the neighborhood. Finally, every commercial and residential building must get approval from the Austin green building agency, meeting specific ratings based on building size and type.

Kaleidoscope Village

In addition to the precedents being set by the Mueller neighborhood, Austin now has its first cohousing community. The group’s first meeting in 2000 occurred not long after the Mueller project had begun to gain recognition. Their first instinct was to develop a community within the new neighborhood, much like Wild Sage cohousing on the Holiday site. However, a lottery system for residential lots was to be implemented at Mueller which could not guarantee the cohousing group adjacent lots. The potential for scattered lots does not work well when designing a cohousing neighborhood and thus, the search for land began.

The site that will become home to
the Austin cohousing community sits two miles east of the new Mueller development. Near the intersection of Martin Luther King Boulevard and highway 183, the six acre lot boasts a twenty minute bike ride to downtown, bus service, nearby Discovery and Montessori schools, and connection to a future hike and bike trail. Though 37 clustered units and a 4,000 square foot common house will eventually be built, the Austin cohousing residents are determined to keep a large amount of the site wooded green space. The northern half of the site in which a natural dry creek bed resides will remain untouched. Drawing from the Texas vernacular for both aesthetic and functional purposes, the buildings will employ metal roofs and deep overhangs to counter the intense Texas sun. In order to use the land efficiently, all units will be duplexes in nature, grouping both town homes and flats together. These units will also be smaller in size, ranging from 750-1,450 square feet. In addition, all homes will be five-star green build.

Like many communities before it, Austin cohousing has asserted that sustainable practices are a high priority. Pedestrian walks and a central green space, in addition to permacultural landscape techniques, will be implemented around site. Permacultural landscaping uses mostly edible and usable plants to design. The community began with the hopes of employing numerous scales of green technology, but the process of receiving approval from the city has halted production and eliminated some ideas from the design scheme. After speaking with a resident of the new community, frustrations with the approval process were palpable.

"Despite Austin’s stated green intentions, getting any sort of green feature through the city approval process is extremely challenging (and has been another source of long delays). Our grey water collection system was dismissed outright by the city. Our rainwater collection plans became cost-prohibitive because of the requirement that the water be made potable, even though we were going to use it for irrigation. Quotes for geothermal heating and cooling were outrageously high. Some modest use of solar is still a possibility, depending on what subsidies are in effect over the next year." Though attempts are being made to educate officials on the benefits of these sustainable technologies, some are reluctant to sign off on the plans.

Application of Neighborhood Strategies in Austin, Texas
Austin Population Trends

In order to understand how the city of Austin could benefit from smarter neighborhoods design strategies, it is helpful to highlight current population trends within the area. Austin’s population has doubled over the past seventeen years increasing from a population of 846,227 in 1990 to 1,598,161 in 2007. The percentage of families within the urban core has decreased from 32% to 14% over the past 30 years.15 Middle and upper class residents are taking wealth outside the city, while working class families remain in the urban core. The city of Austin is no stranger to sprawl, largely due to the lack of land and building constraints outside of the city. A final trend to highlight is the increase in single-parent population, especially single mothers, in the eastern half of the city. As Austin continues its rapid development of land east of interstate 35, it is important to consider those in the area who would benefit from community-reviving neighborhood structures.

Existing Agencies and Neighborhood Guidelines

The involvement of local government and agencies is imperative to the development of sustainable neighborhoods, as is evident from the case studies previously described. Both nationally and within Austin, agencies and codes exist that can be extremely helpful to the development process. Nationally, the concepts and codes behind Smart Growth are well-known. The principles of smart growth, which originated in the state of Colorado, were adopted by the EPA in 1996 and have become staples of new urbanism. The ten principles are listed as follows.

1. Create a range of housing opportunities and choices.
2. Create walkable neighborhoods.
3. Encourage community and stakeholder collaboration.
4. Foster distinctive, attractive places with a strong sense of place.
5. Make development decisions predictable, fair, and cost-effective.
6. Mix land uses.
7. Preserve open space, farmland, natural beauty, and critical environmental areas.
8. Provide a variety of transportation choices.
9. Strengthen and direct development toward existing communities.
10. Take advantage of compact building design.

Smart Code is an integrated land development ordinance that spans multiple scales and can be applied and customized to any city. As a form-based code, smart code has...
the ability to look beyond traditional zoning methods and see plots of land for their mix-use and density potential. This code has been adopted by numerous cities in both optional and mandatory forms, however, Austin is not one of them. Other national movements to be aware of are the Green Community criteria and Greenfield Development. Both are concerned with monitoring the creation of new sustainable neighborhoods.

Locally, Austin has several agencies in place that could play an integral role in the development of new communities. The Neighborhood Housing and Community Development agency (NHCD) provides housing and community outreach to help residents find livable neighborhoods. The Austin Housing Finance Corporation (AHFC) is a public, non-profit corporation that is responsible for the production of housing. Austin’s S.M.A.R.T. housing program also has the potential to be extremely influential in the development of affordable, sustainable housing. This is an incentive program, adopted by the AHFC, that works with developers and builders to help produce affordable housing that meets green building standards.

Conclusion

Smart neighborhood development will have a significant impact on the direction our cities take in the future. Whether we continue down our unsustainable, sprawling path or redirect ourselves towards more dense, mixed-use communities, the decision will be up to us as designers, developers, governments and residents. It is everyone’s responsibility to contribute to the creation of these new neighborhoods. Designers need to encourage new technologies and green strategies. Developers should facilitate affordable housing and minimize land use. Local governments must revise outdated regulations that hinder form-based code and the adoption of green technology. Residents need to make their voices heard. Citizens must attend community design meetings and show local agencies and designers that there is a demand for sustainable communities and housing. Most importantly, cities need to list, prioritize, and meet their sustainable goals. Developing sustainable neighborhoods is a complicated process that requires input at multiple scales, it is only through intense collaboration that we can make these green ideas a reality.

Notes

5 McCamant 52.
6 McCamant 57.
7 McCamant 50.
11 Wann, Designing 1.
12 Wann, Making 167.
14 Austin cohousing resident. Received August 10, 2009.

Figures

Figure 02: Sol og Vind site plan. Cohousing: A Contemporary Approach to Housing Ourselves. p. 56
Figure 03: Holiday Neighborhood site plan. Sustainable Urbanism: Urban Design with Nature. p. 223
Figure 04: Mueller Neighborhood site plan. http://www.muelleraubinstonline.com/CommDirectory/CommDocs/FINAL_Sec_4_lot_map.pdf
Figure 05: Mueller alleyway. Photograph taken by Erin Stark on August 1, 2009.
Figure 06: Kaleidoscope Village site plan. http://www.austincohousing.org/KV.htm
Figure 07: Kaleidoscope Village perspective of pedestrian street. http://www.austincohousing.org/KV.htm
Figure 08: Kaleidoscope Village perspective of central green space. http://www.austincohousing.org/KV.htm
Figure 09: Single mother head households in Austin in 2000. http://www.ci.austin.tx.us/demographics/images/msa_chor06.pdf
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