Embracing Thoughtful, Walkable Neighborhoods:

Housing Collapse Reveals Pressing Need for Green Communities

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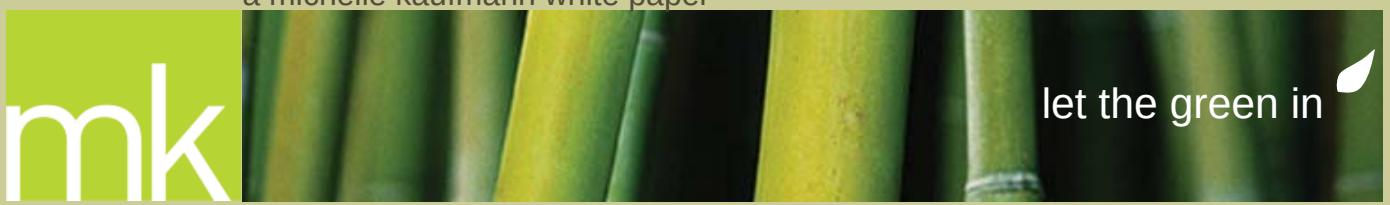
a michelle kaufmann white paper



According to UN estimates, the population of the U.S. will grow to about 400 million by 2050, or about a third larger than it is today. The UN likewise estimates that the global population will grow to roughly 9 billion by the same year, which means nearly fifty percent more people inhabiting the planet than currently do. Yet the collapse of the housing market, the global financial crisis, and growing environmental threats demonstrate how problematic our development patterns have become. With the flaws in our traditional housing model now exposed, we are impelled to adopt an alternative model, a model that can accommodate the coming population growth and a model that our planet can support over the long-term. That means abandoning our predilection for low density suburban development in favor of sustainable communities in or near urban centers.

The collapse of the housing market has more or less put a moratorium on the advance of our most unsustainable mode of developing new housing: suburban sprawl. With banks no longer offering easy credit and no one buying the new homes already flooding the market, there is little reason for developers to start building new ones. However, once the economy begins its inevitable recovery and credit begins flowing again, we must resist the temptation to recommence our sprawl with its associated threats to fiscal, environmental, and societal well-being.

Instead, we should take this opportunity to study the housing collapse and look at the lessons it offers on how and where we went wrong. Now is also the perfect time to reexamine the qualities we value in our neighborhoods and hopefully shift our focus onto those qualities that are conducive to financial, environmental, and sociocultural sustainability. Doing so will be an important step toward choosing more viable development strategies for housing our growing population. By turning to sprawl's alternative, smart growth, we can open the door to a new era in housing development that embraces those qualities and thereby helps secure the health of our communities and our planet.

Facing the Consequences of Unsustainable Habits

The current global financial crisis is a stunning example of just how unsustainable our lives have become. For thousands of years, markets were defined by exchanges that took place on a mostly local level, exchanges that did not often involve credit or did so in a very limited capacity. However, in the period leading up to the financial meltdown, billions of virtual dollars and other currencies were at work producing new wealth in international marketplaces. Americans used many of those virtual dollars, in the form of credit, to purchase things that would otherwise be unaffordable to them, including their houses. After overextending ourselves financially for so many years, the inevitable correction was bound to be severe.

Americans have also overextended themselves ecologically. If everyone in the world lived in a style similar to that of an average American, we would require three Earths to support the demand on our natural resources. Even at current rates of global consumption, human beings will deplete the planet's supply of oil and likely that of natural gas before the end of the century. Thanks in part to the fact that the U.S. is the largest

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[1] Global Footprint Network, *Living Planet Report 2008*

consumer of crude oil in the world, it is also one of the world's biggest carbon emitters, second only to China, and one of the biggest emitters per capita, as well. As we learn more about the environmental impact of these emissions, such as glacial melt, desertification and raising sea-levels, we begin to understand just how unsustainable our lifestyle has become.

Finally, in striving so furiously to achieve an ever higher standard of living, as we Americans are wont to do, we seem to have reached a point where novel amenities are supplanting life's tried-and-true sources of comfort, joy, and fulfillment. We sacrifice inordinate amounts of our time, time that could be spent with family and friends, for the sake of earning more money to buy more material goods packaged with the promise of delivering happiness. Our lives are going online, turning human interaction into an increasingly virtual affair while physical proximity's role in forming a community is diminishing. When once we felt deeply connected to the family and friends in our neighborhoods, we now often find ourselves living many miles from those whom we most cherish and knowing little, if anything about neighbors living just steps away. Only on rare occasion can we satisfy our need to be near the people for whom we care, and doing so is becoming more costly, both financially and environmentally.

Deep and shocking as they are, the global financial crisis and our domestic economic recession are rife with evidence that now is a time for change, something many Americans are beginning to comprehend. Somewhat belatedly, we are realizing that simply because we have access to something desirable does not necessarily mean that it is worth pursuing, especially when gaining that access involves borrowing beyond our means. Even if the object of our desire is monetarily within our grasp, the potential indirect costs of possessing it – health risks, environmental degradation, time spent away from loved ones – can quickly diminish its value. In this way, the worsening recession is revealing the flaws in certain practices that led to it, particularly with regard to the housing industry.

Recoiling from Sprawl

The housing bubble, like all economic bubbles, was defined by a high volume of trade at inflated prices, prices that did not reflect the intrinsic or fundamental value of housing in the U.S. It was born from years of low interest rates that combined with large inflows of foreign cash to create easy credit conditions. Such easy credit made debt-financed home purchases commonplace, swelling the demand for houses and sending prices temporarily skyward. Until 1994, the rate of homeownership had remained at about 64 percent, but then began a steady ascent to a record high of 69.2 percent in 2004[2]. To meet the mounting demand generated by the boom as quickly and profitably as possible, new sub-

[2] U.S. Census Bureau, *Census Bureau Report on Residential Vacancies and Homeownership, October 26, 2007*

urban housing developments went reaching out into the rural lands surrounding metropolitan centers.

Characterized by low density land use, single-use zoning, and automobile dependence, these developments are only hastening the depletion of natural resources and exacerbating the symptoms of that depletion, such carbon emissions and ecosystem destruction. In the four decades between 1950 and 1990, a population increase of 92.4 percent in the nation's 34 metropolitan areas with over a million people was met with a 245 percent increase in the amount of urbanized land[3]. Every year, suburban sprawl destroys more than two million acres of parks, farms and open space[4]. Besides its continual encroachment on once undisturbed lands, sprawl also results in higher levels of fossil fuel use and water pollution per capita as compared to residential areas closer to or within cities.

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Because homes in these suburban developments are built many miles from urban job centers and rarely have access to public transit, most residents must commute via automobile to get to work and shopping areas. As a result of the growing number of such developments, the average American commute is getting longer. Between 1969 and 2001, the number of vehicle miles traveled for commuting jumped from 4,180 to 5,720. Commute times rose by 40 seconds in the 1980s and almost a minute and a half in the 1990s[5]. Today the average American driver spends what amounts to 55 eight-hour workdays behind the wheel every year[6].

Long commutes are primarily responsible for the findings of several studies that show an indirect relationship between the density of a development and its annual oil consumption. The studies demonstrate that the more spread out people are from each other, the more oil they are likely to use than those living in closer quarters. All that driving also contributes to higher levels of carbon emissions and other pollutants.

With individual residences spread so widely apart, suburban developments necessarily possess a high quantity of road and other impervious surface areas such as rooftop, driveways, walkways, and patios. Once a surface is rendered

[3] U.S. Environmental Protection Agency
[4] Sierra Club
[5] U.S. Department of Transportation
[6] Sierra Club

impervious, it blocks rainwater from entering directly into the soil. Rather, rainwater washes over these paved surfaces, picking up collected pollutants such as motor oil, pesticides, and fertilizers. Pollutant laden water is then likely to enter directly into local water supplies instead of first going through the ground where it can undergo a sort of cleansing process while seeping through the soil. Runoff is not only a major contributor to water pollution and the degradation of aquatic ecosystems but also interferes will the natural replenishment of ground water aquifers.

In addition to its harmful environmental effects, low density suburban developments have been fingered for many other costly and damaging societal changes. Because suburban sprawl has spawned an unprecedented reliance on cars, its impact on public health has been an increased incidence of traffic-related fatalities and escalating levels of obesity. That dependence also raises infrastructure costs as new highways become necessary in order to connect far flung developments and relieve congestion.

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Municipalities must also pay (with taxpayer dollars) to build other public services such as electric, water, and sewage infrastructure in order to accommodate the sprawl. As its tax base sprawls further out, a municipality's economic resources are increasingly spread thin, putting older neighborhoods in jeopardy of degradation. For the same reasons, suburban sprawl often contributes to higher taxes, not just for those living in the suburban neighborhoods, but for their urban counterparts, as well.

Smartest Growth: Green Communities

Smart growth is a new and growing development philosophy, a philosophy predicated on the belief that current development patterns, namely sprawl, are not in our individual nor our planet's long-term interests. The principles of smart growth focus on fostering more sustainable living environments that offer more financially, ecologically, and socially sound solutions for our growing population. These principles can be applied to existing neighborhoods by investing time, attention, and resources in restoring vitality to center cities and older suburbs. They can likewise be applied to new developments. Of all the methods for marrying smart growth principles to new developments, perhaps the most ideal is to plan and build green communities within or near urban centers.

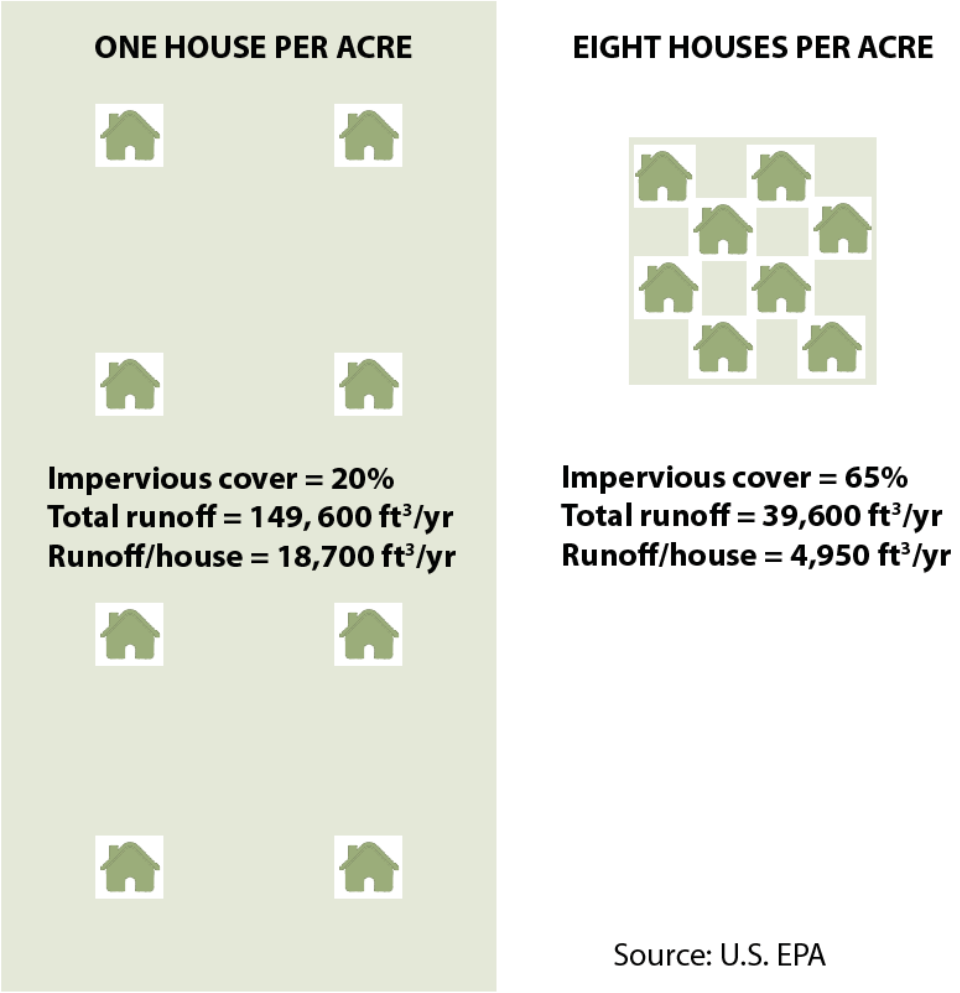
Because they tend to be more densely populated and closer to job centers, urban communities are inherently more sustainable than sprawling suburban

developments. Residents are more likely to walk, bike, or take public transportation to work and shops. Not only does this help reduce the cost of commuting, but can also, in some cases, make car ownership unnecessary. Residents' quality of life might also improve as living closer to work and being able to multitask while commuting (getting work done on the train, exercising while walking or biking) gives them more free time. Freed from their dependence on automobiles, residents will consume less oil and cause fewer carbon emissions.

1 **Energy Efficiency:** Solar panels generate power and double as rooftop shading
2 **Water Conservation:** Rooftop garden absorbs runoff during storms
3 **Smart Design:** Vertical garden creates park space in an otherwise urban setting
4 **Healthy Environment:** Integrating gardens on buildings helps improve air quality
5 **Eco Materials:** Weathering steel siding is low maintenance
6 **Smart Location:** Urban infill puts residents in walking distance of work and shops

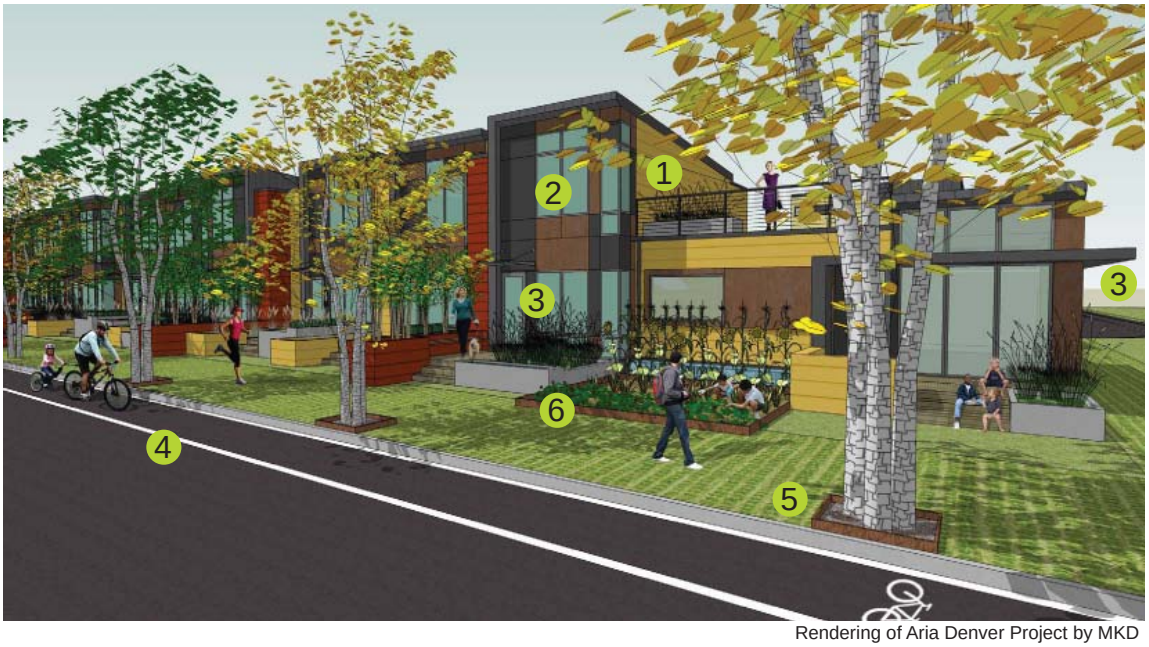
Higher density also benefits the health of local watersheds. EPA research has found that a one house per acre development creates just 20 percent impervious cover compared to 65 percent in an eight house per acre development. However, the per capita runoff in the former is 18,700 ft^3/yr versus 4,950 ft^3/yr in the later, which is a 74 percent savings per unit. Over time, as the two developments build out, those differences begin to add up. The denser development

will consume just an eighth of the watershed resources that the sparser development consumes. So if each were to expand to 10,000 houses, the denser development would span 1,250 acres and consume only 1/8 of its watershed while the other would span 10,000 acres and consume its entire watershed.



Source: U.S. EPA

Well planned, thoughtfully designed communities also hold incredible potential when it comes to cultivating healthy social cohesion. A range of housing opportunities and choices invites a mix of household composition, income levels, and cultural diversity. Incorporating shared outdoor spaces like parks, walking paths, community gardens, and recreation areas brings neighbors face to face and engenders a greater sense of community. Mixed land use creates connections between residents and members of the local commercial sector while making it easier for people who cannot drive to still access shops and services.



Rendering of Aria Denver Project by MKD

1 **Eco Materials:** Cement board with integral color is low maintenance
2 **Smart Design:** Large windows allow for natural daylighting indoors
3 **Energy Efficiency:** Trellises and overhangs provide seasonal sun shading
4 **Smart Location:** Residents able to bike to work and shops
5 **Water Conservation:** Permeable grasscrete used as sidewalk alternative
6 **Shared Resources:** Community gardens can be used to grow food locally

For these and other reasons, demand for mixed use, walkable communities in or near urban areas is growing, especially among the members of Generation X and Y, who are entering the housing market in large numbers each year. A 2004 survey conducted by the National Association of Realtors found that Americans' number one priority when selecting a place to live is the associated commute time. Their third priority, according to the same survey, is having sidewalks and places to walk. The majority of Gen X and Gen Y members indicate they are willing to live on a smaller lot if it means being able to walk to work[7].

10 EcoPrinciples for Communities

To meet that demand sustainably, more city planners, developers, architects, and builders will need to turn their focus toward green communities. That is why, in our own work at Michelle Kaufmann Designs, communities have become a growing portion of our scope of work. We appreciate both the innate green character of communities as well as their potential to open up new price points

[7] RCLCO Consumer Research

that make green living far more accessible. Recognizing that a myriad of elements can be incorporated into a community to make it even more sustainable, we created a list of our Top 10 strategies for designing and building our own community projects in order to make them truly green. The following are our 10 EcoPrinciples for communities.

1. Smart Design:

Design to use less, to collaborate with the landscape, and for longevity as well as flexibility by:

- Utilizing solar shading
- Maximizing natural breezes
- Creating visual calm
- Building every home to be live/work
- Incorporating double function
- Allowing for future flexibility
- Making structures and grounds low-maintenance
- Applying timeless design

2. Energy Efficiency:

Reduce the need for energy and supply remaining demand via renewable sources by:

- Lighting outdoor and indoor spaces with CFLs or LEDs
- Harnessing alternative energy sources
- Employing passive solar layouts
- Sealing building envelopes with super efficient insulation and glass
- Installing energy efficient heating, cooling, and electrical systems

3. Water Conservation:

Save and reuse water while reducing runoff by:

- Xeriscaping
- Making water “challenges” into water “features”
- Sculpting bioswales into the land
- Irrigating with rainwater catchment systems
- Capturing and reusing grey water
- Paving with only pervious ground surfaces
- Installing only low-flow plumbing fixtures

4. Reduce Waste: Funnel traditional sources of waste to facilities that allow for new and productive uses for refuse by:

- Designing easy to access, easy to use recycling centers
- Integrating on-site composting
- Facilitating “living machines” (engineered waste treatment system designed to process a building’s sanitary drainage on-site)

5. Healthy Environment: Create a clean, healthful living environment for residents by:

- Ensuring healthy air quality
- Making exercise easy
- Encouraging cooking classes
- Establishing on-site food production
- Incorporating only non-offgassing materials and finishes

6. Diversity: Forge a healthy mix of residents from different backgrounds and at various points in their lives by:

- Appealing to all ages and generations
- Welcoming members of all cultures and ethnicities
- Offering both market and affordable rate housing options

7. Smart Location: Build someplace and design in a way that offers environmental, social, and economic benefits by:

- Allowing easy access to mass transit
- Choosing areas near sources of quality food
- Taking advantage of mix land for employment opportunities within the community

8. Respect the Land: Protect a site’s existing landscape and ecology by:

- Adopting functional, comfortable density
- Minimizing site disturbance
- Protecting biodiversity by maintaining native ecosystem

9. Smart Auto Strategy: Lessen the intrusion and impact of automobiles by:

- Implementing smart parking requirements
- Separating parking streets from pedestrian streets
- Designing car spaces to become future living space

10. Shared Resources: Help cultivate unity, collaboration, and reciprocity by:

- Introducing resource sharing (bikes, cars, tools, garden equipment, child care)
- Building playgrounds, parks, athletic fields, picnic areas, etc.
- Educating residents through the built environment
- Encouraging resident groups to discuss and improve community
- Establishing community gardens

Toward a Sustainable American Dream

Haunted by the blow of the housing market collapse and plagued by ongoing financial insecurity, many Americans, willingly or not, are beginning to turn their backs on the idea that a huge house atop a huge lot on the outskirts of town is finally a tenable dream. Besides the financial obstacles to owning such a home, which we now realize are far greater than we once thought, the related environmental and sociocultural costs are becoming better understood and appreciated. Fortunately, growing awareness of these costs is broadening the appeal of alternatives like walkable green communities. With their more sustainable approach to constructing a built environment, smart growth communities hold the promise of future economic, environmental, and societal strength and security.

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Graphic work by Cristina Perdomo and Tuanh Ta