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Suburban Retrofits, Demographics, and Sustainability

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By 2050 the Census Bureau expects the U.S. population to increase by half again what it was in 2000. Where will this additional population live and work? Can this growth be directed to where it both contributes to economic development and inflicts the least environmental damage?

If present trends continue, most of this growth will likely be accommodated in new sprawl development extending out from the exurban fringe. This has been the dominant trend in the U.S. for the last one hundred years, and it only accelerated during the last quarter of the twentieth century.¹ In 2000, for the first time, the U.S. suburban population exceeded that of rural and urban areas combined.

The reasons for suburbia's popularity are many, but its expansion has created many problems. As overall densities have been reduced, automobile use has increased, causing great environmental harm. Leapfrog development has also caused many bypassed, existing settlements to decline. Even in the newest, booming sprawlscapes, the demands of incessant mobility have cut into leisure time, family life, and communal interaction.

Will the next half century continue this pattern of decentralization? Or can new growth serve as a catalyst for change, allowing existing suburbs to evolve into more urban, sustainable places?

Why “Retrofit”?

American legal and cultural attitudes have long accepted the idea that cities are dynamic and should be expected to grow. Less obvious is the corollary that suburbs were not supposed to change. Gradually, however, suburban leaders are beginning to recognize that change has come to them.

Most regional economies no longer operate according to monocentric, core-periphery models. Indeed, competition between suburbs for jobs, tax base, and infrastructure expenditures is now more heated than between the suburbs and the central city.² In such circumstances, physical change may be vital to older suburbs, where aging, outmoded buildings no longer accommodate contemporary tastes and needs.³ But even in newer communities, change may be unavoidable, as residents grow increasingly frustrated with traffic, inadequate affordable housing, and loss of open space.⁴

In thinking about ways to create greater social, economic, and environmental sustainability in such situations, it is important to recognize the particular difficulties created by suburban development. In a city, infill and redevelopment may augment positive attributes—for example, increasing support for services, from transit to restaurants. But in a suburban location, every addition only tends to increase traffic, stress the social infrastructure (including schools), and reduce prized open space.

In other words, ordinary infill and redevelopment projects normally detract from a suburb's most desirable and marketable qualities—one reason they tend to be so fiercely resisted by existing residents. Such NIMBY (not-in-my-back-yard) attitudes in turn become an important factor propelling continued patterns of land consumption. By contrast, “retrofits” are projects that seek to improve the sustainability of the system as a whole. By seeking to create the basis for change beyond their immediate property lines, such projects offer the best chance to overcome entrenched resistance and help suburbs evolve to meet changing needs.

A growing number of successful retrofits across a range of conditions have now raised public awareness of the possibilities. For example, both older suburban towns and younger “edge” and “edgeless” cities are inserting mixed-use residential pockets and town centers—some with significant public amenities—between existing office parks, malls and subdivisions.⁵ Such projects are helping improve connectivity and the sense of place, meet affordable housing needs, and mitigate congestion. In bypassed first-ring suburbs an even more pronounced trend has seen the redevelopment of once-vibrant but now hard-pressed malls, commercial corridors, office parks, park-n-rides, and residential subdivisions.

Do such individual projects imply the possibility of an even more ambitious effort to retrofit the very systems that produce sprawl? There is every reason to approach such a vision with caution. However, emerging social and economic trends may be working in favor of just such an outcome.

New Markets and Opportunities

Three significant demographic trends indicate how promising retrofitting may be as a means to increase the economic, social and environmental sustainability of American suburbs: the aging of the baby-boom generation; the growth of single and nonfamily households; and the nation's growing ethnic diversity.

As the largest demographic group in U.S. history, baby-boomers have been a target market their whole lives; soon they will become the largest and wealthiest group of retirees ever. The American Association of Retired Persons reports that the majority of baby boomers would like to “age in place.”⁶ Yet, the auto-dependent nature of

A Retrofit Gallery

suburbia hardly makes this an ideal alternative. Already, more than half of nondrivers aged 65 and older stay home because their transportation choices are limited. Not surprisingly, 71 percent of older households would prefer to live within walking distance of transit.⁷

With the departure of their grown children, many baby-boomers are leaving the suburbs and moving to more urban areas. But such active, elderly people, in their prime spending years, might also be housed in mixed-use transit-served communities in existing suburbs. Already, projects such as Mizner Park, Downtown Kendall, and Upper Rock are playing to this “empty-nester” market by providing condominiums and rentals that enable downsizing seniors to remain in areas otherwise dominated by single-family houses.

The aging of Americans is also contributing to the second significant demographic trend, the rise in single and nonfamily households. Suburbs originally targeted a market composed of married couples where one parent stayed at home with the children. But such nuclear families now account for only 7 percent of U.S. households.⁸ Indeed, in 2000, married couples with children accounted for only 23.5 percent of the total (down from 40.3 percent in 1970); and even in the suburbs, 65 percent of households did not have children.⁹

As the number of households without children continues to grow, will this fuel demand for new multiunit projects? Real estate trends would seem to indicate so. In 2003 the National Association of Realtors reported that not only were condominium sales booming, but they were becoming a more lucrative market segment than single-family homes.¹⁰

And aging baby-boomers are not

Many factors drive suburban retrofits including age, demographics, land costs, and economics, but one of the most significant is the proliferation of dead or dying malls. Of all suburban buildings, retail stores have the shortest life span. The strip malls and shopping centers of the fifties and sixties, the regional malls of the seventies and eighties, and the power centers, outlet malls, and big boxes of the nineties are all aging. None were built to endure, and most have seen their obsolescence accelerated by a system that cannibalizes itself in search of market share.

In its February 2001 “Greyfield Regional Mall Study,” PricewaterhouseCoopers reported that nearly 20 percent of America’s regional malls were dead or dying.¹ This is in addition to the thousand or more “ghost-boxes” (former big-box stores) now present in the U.S. While these empty or declining structures may once have been the pride of the municipalities in which they were built—providing significant tax revenue, jobs, and consumer choice—today they lower property values, spread blight, and diminish opportunities. It is not a coincidence that the majority of suburban retrofits to date have been on dead-mall sites.

Three of the earliest and best-known suburban retrofits took place on dead mall sites: Mashpee Commons on Cape Cod, Mizner Park in Boca Raton, and The Crossings in Silicon Valley. Collectively, they illustrate the opportunities of retrofitting, especially when public/private tools such as tax-increment financing are used. Such sites generally also offer an abundance of parking. They can be developed to the new higher densities justified by transit service, higher land costs, and new markets for apartments and condominiums (especially for the elderly). And synergies can be gained through mixed-use, mixed-income, urban building types oriented around new public spaces and streets.

More recent suburban retrofits, also illustrated in these pages, apply similar strategies to urbanize office parks, edge cities, commercial corridors, residential subdivisions, and park-n-rides. Each case responds to unique local conditions. Sometimes a dying mall or office park may trigger redevelopment; other times it may be the arrival of transit. However, all share a robust optimism that urban uses can find a place in the suburbs.

Note

1. Of the approximately 2000 regional centers with more than 350,000 sq.ft., 140 were already greyfields (defined in the study as malls where average sales/sq.ft. had dropped to less than \$150, or one-third the rate of a successful mall). An additional 200-250 were approaching greyfield status. The fate of many of these places is being tracked at www.deadmalls.com.

From shopping center to mixed-use village: Mashpee Commons, Duany, Plater-Zyberk & Company



There are now many examples of adaptive reuse of older supermarkets and shopping centers: K-Marts have been turned into classroom buildings; an abandoned mini-mall in Los Angeles was transformed into a private elementary school; and a supermarket in Savannah, Georgia, has now become a Women’s Health Clinic, reusing the heavy voltage wiring of the frozen foods section for the MRI machines. However, the first shopping center retrofit to mix uses and alter street patterns is also the oldest, Mashpee Commons in Massachusetts.

This project replaced a 140-acre 1960s-era family-owned shopping center, surrounded by parking, with several blocks of one- and two-story buildings on tree-lined streets. Modeled after a traditional New England village, with wide sidewalks and on-street parking, it was a deliberate reaction to the malling of Cape Cod and to regulations that no longer permitted mixed-use neighborhoods or the zero setbacks of traditional urban streets.

The design for the initial village center and the zoning variances to build it emerged from a 1988 charrette. The retail area was occupied by both chain stores and local retail. A library, post office, boys & girls club, theater, senior center, elderly housing, and thirteen apartments were also included. In subsequent years, many of the chain stores reported their highest sales/sq.ft., proving that decades of shopping in air-conditioned malls had not inured Americans to the pleasures of streets and sidewalks. The even bigger surprise was that all of the apartments rented in one month.

Despite this success, it took the owners sixteen years and a second charrette in 2002 to get permission to build Phase 2. This now includes adjacent, walkable, live-work neighborhoods.

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the only demographic group contributing to this trend. Born between 1979 and 1994, 60 million children of baby-boomers are also beginning to shape real estate demand.¹¹ These young people may have very different expectations than their parents: one in three is not Caucasian; one in four grew up in a single-parent household; and three in four had working mothers. “America might be on the cusp of a new period of civic renewal,” Harvard sociologist Robert Putnam has suggested, “especially if [their] youthful volunteerism persists into adulthood and begins to expand beyond individual care giving to broader engagement with social and political issues.”¹²

The first wave of this “echo boom” has already contributed to urban revitalization by moving into higher risk, lower-rent areas.¹³ Raised with the Internet, many are digitally savvy knowledge workers of interest to high-tech employers. As Richard Florida has reported, areas wanting to attract such employers will need to develop the mixed-use, 24-hour, culturally diverse environments attractive to this new creative generation.¹⁴

Ethnic diversity is the third demographic trend that may be expected to expand markets for walkable, transit-served areas in the suburbs. Immigrants and racial and ethnic minorities now make up more than a quarter of the suburban population, up from 19 percent in 1990.¹⁵

One study in particular has supported the view that such groups are influenced by a different set of environmental values than that of the mostly white populations suburbs have traditionally been built to serve. Conducted for the American Association of Realtors and Smart Growth America, The 2004 American Community Survey found that

From dead mall to new downtown: Mizner Park, Cooper Carry Architects

African Americans were more than three times as likely to pick a “smart-growth” community over one with larger lots (78 percent to 22 percent). Hispanics made the same choice 57 percent of the time, while Caucasians were split 50/50.¹⁶ These choices were reinforced by the priority each group gave to a home close to transit: 77 percent, 67 percent, and 38 percent.

The survey also yielded information about trade-offs Americans are willing to make. Men (55 percent) and Caucasians (54 percent) were more likely to select a bigger lot. Women (51 percent), African Americans (59 percent), and people who may buy a house in the near future (52 percent) were more likely to opt for a community with a shorter commute.¹⁷ In all, the survey found that 48 percent of the housing market is looking for shorter commutes than existing suburban locations offer. Furthermore, the dominant demographic groups seeking this alternative are those expected to grow most in coming decades.

Improving Sustainability

The notion of sustainability is notoriously difficult to quantify. But there is general recognition that redirecting growth toward underperforming suburban locations may help conserve open space, reuse existing infrastructure, and strengthen existing communities.

Evidence of the economic sustainability of suburban retrofits is no longer difficult to find. Retail sales per square foot at Mashpee Commons, Mizner Park, and Reston Town Center have been well above national averages, and the market for residential units has been much stronger than many expected.¹⁸ Retail REIT analysts view mall-redevel-



Faced with a failed regional mall on 29 acres in the middle of town, the City of Boca Raton, Florida, invested \$50 million in infrastructure improvements and created a community redevelopment agency which eventually used a \$68 million revenue and tax-increment bond, to acquire the site, keep two-thirds as public space, and lease one-third for redevelopment as a mixed-use art and cultural center.

After demolition of the windowless, stand-alone mall, the new design followed city guidelines calling for use of Addison Mizner’s original 1920s tropical colors and style. Mizner Park’s arcades, balconies, terraced setbacks, and palm-lined sidewalks now center on the Plaza Real, a lushly planted boulevard that also functions as a public park. Three- and five-story buildings with office space and apartments over ground-floor retail flank the plaza. Later phases added a nine-story of luxury apartment tower and a seven-story class-A office building. The Boca Raton Museum, an International Museum of Cartoon Art, an 1,800-seat concert hall, and an amphitheater serve as cultural anchors. However

The project has been criticized for its lack of integration with its surroundings. The plaza runs parallel to a highway, and is largely screened from view. Nonetheless, the project has spurred redevelopment of adjacent blocks and proven the marketability of attractive urban public space conducive to communal events and socializing. The edges of the site’s former parking lot are now also lined with townhouses that mask parking garages and make a graceful transition to the adjacent residential neighborhoods. But even more significantly, residents routinely refer to Mizner Park as the city’s “downtown.”

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From mall to transit-served university and office tower: Surrey Central City, British Columbia, Bing Thom Architects



Forty minutes drive outside Vancouver, Surrey Central City has involved the retrofit of a dated-but-not-dead mall into a new high-tech university. At a new stop on regional light-rail “Skytrain” system, the public-private development also includes a new 25-story office tower.

Construction involved some creative sequencing. While the mall remained open, a five-story “galleria” was built over it, while the office building was constructed next door. When the galleria was complete, the roof of the old enclosed mall was torn away, creating a five-story atrium, flooded with natural light and linked to the office tower by bridges. The lower floor of the mall retains commercial uses, but a former department store and all the upper floors of the galleria now house a new campus of Simon Fraser University campuses, whose focus on emerging technologies is intended to spin off incubator business opportunities that could be supported in the office tower.

The tight grouping of the new buildings and the visibility of the high-rise celebrate urban density and synergy between integrated uses. In contrast to the old, windowless mall, the new components make extensive use of glass, intensifying the sense of urban interaction. And in keeping with the recycling of the mall itself, fir peeler cores, a local waste product, were used to construct the dramatic wood space-frame over the atrium and provide a connection to the materials and building traditions of western Canada.

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opment projects favorably, as do investment advisor services such as PricewaterhouseCoopers.¹⁹ Municipalities are also beginning to recognize the savings of compact versus low-density development.²⁰

Less recognized are the tradeoffs individuals make between housing and transportation costs. On average, American households spent one third of their income on housing in 2001 (double what they spent thirty years ago), and 19 percent for transportation (more than food and clothing combined—up from 14 percent in 1960.)²¹ However, transportation costs vary significantly with density, and the savings gained from purchasing a more distant house may be eaten up in travel expenses.²² Conversely, the higher rents or ownership expenses of in-town neighborhoods may mask relatively lower transportation costs. Living in a transit-served location also allows a household to concentrate its wealth in real estate, which is likely to appreciate, rather than in automobiles, which depreciate.

Suburban retrofits further contribute to economic sustainability by reversing the blight associated with vacant properties, especially dead malls. This prospect has often led local governments to play an active role in their redevelopment. Among other things, municipalities have established community redevelopment agencies, supported business improvement districts, used tax-increment financing (TIF), sought out “patient capital” for landbanking, created new or overlay zoning districts, invoked eminent domain, and fought for transit systems. Most existing suburban retrofits could not have succeeded without some such level of public-private partnership. But the rewards in terms of increased tax revenues may be great.

From edge city to suburban downtown: Downtown Kendall, Dover, Kohl & Partners Town Planning and Duany, Plater-Zyberk & Company

While such economic benefits may be quantified, there is less consensus about what constitutes cultural or social sustainability. Nonetheless, it is widely accepted that the inclusion of a broader range of housing options (including rental units) can make an area more accessible to a wider range of groups and help address regional jobs/housing imbalances.

The inclusion of public space is also an important means of promoting community-building. Suburban retrofits routinely emphasize the design of public space to improve pedestrian connections and encourage higher-density living. Networks of streets and squares typically replace superblocks; parks replace parking lots; and city halls, libraries, schools, and performing arts venues provide spaces for civic interaction (an aspect of life that may be increasingly important in diverse communities with large numbers of single households). Such spaces may also give a positive identity to previously amorphous suburban municipalities.

Interest in the development of suburban “town centers” has been particularly strong recently—both as the latest retail format and as a way to respond to the creation of new public spaces in existing urban areas and in New Urbanist projects. This kind of placemaking provides important opportunities for promoting social equity and cultural sustainability. Unfortunately, the overuse of default designs for “village greens” and Bradford Pear-lined sidewalks threatens to replace one set of generic standards with another. Designers would benefit more from respect for local culture and attention to emerging social patterns.

Even if the vast majority of suburban buildings do not merit preservation, more effort could also be



When the Dadeland Mall was built in 1962, Kendall was the rural edge of metropolitan Miami. Today it is closer to downtown than to the western or southern edges of the metro area. Meanwhile the 324-acre area around the mall with an adjacent mid-rise office park constitutes an emerging edge city. A mid-1990s regional plan and the construction of commuter-rail stops at either end of the site made it a prime target for retrofitting. Today, the goal is to transform the entire area into a mixed-use, transit-oriented downtown for suburban Kendall’s 400,000 residents.

A charrette in 1999 resulted in replacement of the old zoning for the site and codified many of the desired characteristics that would allow creation of an attractive public realm over time. As with many retrofits, the plan also breaks up the superblock with tree-lined streets, enhance walkability, and provide infill building sites. In addition, liner buildings were proposed around the mall’s blank exteriors, and a new street grid was aligned to its food court and interior corridor system to encourage pedestrian connectivity and open the possibility of a future open-air conversion. Meanwhile, new buildings were proposed to face an existing, neglected canal, and transform it into a public park that celebrates the local landscape.

The plan allows for the patchwork development of parcels, and build-out is expected to take two to three decades. Construction has begun on seven mid-rise projects in the “downtown” and on a 25-story building with condominiums and offices.

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From office park to mixed-use neighborhood: Upper Rock, Duany, Plater-Zyberk & Company, 2004



Much like their retail counterparts, suburban office parks from the seventies and eighties are losing value. But so are even newer office parks in places like Silicon Valley since the bust of the tech boom. Not only do the buildings need new wiring, but a new digitally savvy generation does not find them attractive, creative places to work. As a result employers seeking a recruiting edge are looking for mixed-use business districts with more amenities and a higher quality of life. At the same time many employees seeking to reduce their commute are looking for near-by housing. And many cities would like to upgrade aging facilities located prominently along major highways and arterials.

This project in Rockville, Maryland, began with a public charrette for the site, which resulted in a number of requests. Among these were that developers incorporate public space, follow the principles of green architecture, and build an environmentally friendly and artistic sound wall along the Interstate. They were also asked to convert the remaining office building to lofts, add senior housing, build a telework center, and supply incubator-market space, retail stores, and structured parking.

Two of the original office buildings on this site have already been torn down, while a new LEED silver-rated office building is nearing completion in the center of the site. The conversion of the remaining office building to residential lofts will add a “hip” urban housing option to the larger area, and facilitate development of a better mix of uses.

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made to adaptively reuse the better-designed and better-built examples. Joel Garreau speculated in 1995 that dead K-Mart stores might one day be appropriated by artists. Then, as suburban loft-living became chic, a new generation of lawyers would displace the artists and rename them “The Estates at Place K.”²³ Today, the more futuristic aspects of this vision may not have been realized, but department stores at Eastgate Mall, Winter Park, and Surrey Center have been converted to offices, residential lofts, and classrooms.

In other cases, a local community may be better served by simply maintaining an older facility and retrofitting the areas around it. As Jane Jacobs pointed out long ago, older buildings are far more likely to allow the low rents needed by immigrant businesses, nonprofit cultural groups, and health clinics. Although large suburban retrofits rarely displace such tenants, many older strip malls do provide space for such community-oriented tenants. Moreover, not all retrofits are oriented to upscale markets. In Atlanta, The Windjammer, one of many 1970s suburban apartment complexes for “swinging singles,” is today consolidating many of its one-bedroom units into larger apartments for immigrant households.

Retrofitting may also be used to improve the environmental performance of an area. When a shopping center failed in Phalen, outside Minneapolis, a creek paved over for a parking lot was restored, and the rest of the site was rebuilt as a lake and wetlands area. And in Houston, when severe flooding resulted from poor enforcement of rainwater-retention standards, legal action by homeowners in a downstream subdivision forced the city to buy and demolish their homes, even when no plans for

From uniform residential subdivision to traditional neighborhood district: Laurel Bay, Duany, Plater-Zyberk & Company, 2004

the future use of the area were clear.²⁴

Such wholesale regreenings are rare, but most suburban retrofits improve environmental quality through a reduction of impervious surfaces and the inclusion of trees, parks and greens. A mix of uses within a walkable distance of one another can also improve environmental sustainability by reducing automobile use.²⁵ Where transit has prompted retrofitting, as in Arlington County and Twinbrook Commons, higher-density developments have usually resulting in even greater land conservation.

The Opportunities

Can suburban retrofits actually make a difference? Or, in the words of Michael Sorkin, is fiddling with the same limited set of suburban typologies tantamount to rearranging the deck chairs on the Titanic?²⁶

The answer may have to do with the number of deck chairs. Chris Nelson, Senior Fellow with Virginia Tech's Metropolitan Institute, has argued that by 2030, half of all buildings in existence in the U.S. will have been built since 2000.²⁷ All this new construction provides an opportunity to rebuild America; an opportunity to make up the 20-30 percent tax base gap that exists between older and newer suburbs; an opportunity to help existing suburbs better meet the needs and interests of the aging boomers and diversity-inclined echo-boomers.

Most significantly, if agglomerated in dense nodes at reasonable distances on appropriate corridors, new building might provide an opportunity to introduce mass transit into sprawl—with all its economic, environmental, and social benefits. As Surrey Center, Downtown Kendall, and Twinbrook Commons demonstrate, construc-



The least prevalent retrofits are those of residential subdivisions. There have been a few hypothetical connect-the-cul-de-sacs projects, but the great number of owners involved in residential retrofitting normally makes either approval or parcel-acquisition difficult. Nevertheless, older residential subdivisions are just as much in need of updating as other development types. Despite smaller households, increasing demands for privacy and additional square footage mean that most postwar suburban houses are considered too small by today's standards. In addition, older ranch houses are out of style in a market where 90 percent of new homes are two-story buildings. Older subdivisions are also less likely to have the kind of communal recreation facilities that their newer competitors offer.

DPZ have addressed these problems in several different, as yet unbuilt, retrofits in Florida. In Northern Hillsborough County, they proposed connecting the cul-de-sacs to improve walkability and accommodate affordable housing; they also proposed replacing landscaped subdivision entry gates with small public greens lined with retail. At Apollo Beach they developed several prototypes for front-yard additions to ranch houses which would expand living space, mask garages, and urbanize the street.

Their plan for Laurel Bay on Parris Island in South Carolina attempts to convert a monocultural subdivision to support the more mixed-incomes, mixed-building types, and public spaces (if not mix of uses) of a traditional neighborhood development.

In addition to adding a new neighborhood, they propose buying and demolishing 300 homes to allow construction of a new cross street from the entry of the subdivision down to a new communal park at the water's edge. By improving access to the site's most defining feature, the new street would improve walkability, communal interaction, and the sense of place. It would be lined with 1200 new townhouse and apartment units, many of them facing onto new common greens.

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From park-n-ride to transit-oriented destination: Twinbrook Commons, Torti-Gallas CHK



In a 2002 report for the Brookings Institute, Dena Belzer and Gerald Autler of Strategic Economics argued that most so-called transit-oriented-development projects (TODs) are really only transit-related. A true TOD must balance its role as a node in a regional network (with plenty of structured parking and significant amounts of office space) with its role as a local place, designed for residents. This proposal for a dramatic retrofit of a suburban park-n-ride station in Rockville, Maryland, on the Washington Metro attempts to accomplish these goals and assist efforts to promote TODs as a standard real estate product.

The 26-acre project aims to build mid-rise, mixed-use office and residential buildings around a new public green and along several new “Main Streets.” Its edges are located within a five-minute walk of the Metro station and connect at multiple points with surrounding neighborhoods.

In keeping with Maryland’s smart-growth policies, it is expected such a project will transform the station area from primarily serving commuters headed to jobs elsewhere, into a destination in its own right. It would thus use transit to develop a high-density node, and use a high-density node to attract more riders to transit. It will also allow Metro commuters using the station as a park-n-ride to shop and dine before driving home, increasing social interaction and decreasing air pollution.

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tion of new transit lines can trigger individual good developments. But there is also a need to, quite literally, connect the dots to effect systemic change.

The prospects for transit in suburbia are not quite as farfetched as they may sound. One study has suggested that over the next 25 years, at least a quarter of all new households will be looking for housing in transit zones, more than doubling current numbers.²⁸

The biggest obstacle to such new forms of development may not be consumer demand so much as political and regulatory opposition based on an outdated view of suburbs as domestic retreats from Dickensian cities. As already noted, contemporary suburbs are major players in today’s polycentric regional economies. They are increasingly home to most of the office space in their regions.²⁹ At the same time, they are increasingly finding themselves faced with so-called urban problems of drug crime, gangs, and poverty. In other words, suburbs are increasingly behaving like cities.

As players within a larger system, retrofits would provide them a way to make their presence more visible. Similarly, a polycentric transit system could provide a basis for strengthening suburban alliances through regional cooperation.

The vision of a polycentric future of dense nodes in retrofitted suburbs overlaid with transit corridors is extremely alluring. But what is truly surprising is that if the bulk of new growth for the next 25 years were to be absorbed in existing places, retrofitted to accommodate higher densities and environmentally sensitive open spaces, the rest of the landscape would hardly change. This may come as a disappointment to those

From suburban codes to urban codes: Boulder’s zoning for incremental urban infill development and retrofits, Boulder Planning Department and Van Meter Williams Pollak

interested in retrofitting sprawl itself. But it should also be a comfort to existing communities to realize that densifying nodes in an existing pattern doesn’t change the pattern.

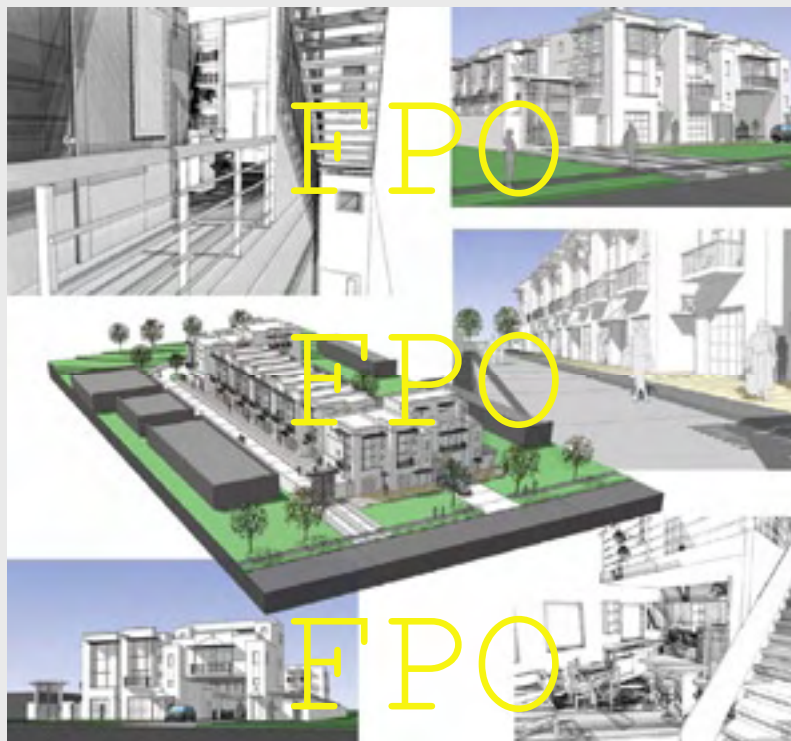
Of course, there are ways to begin thinking of changing the pattern, too. One would be to insert transit and park systems not along existing transportation corridors, but through the residual areas between subdivisions.

By making the land that current development “backs” on to a front-facing destination, new interconnections might be possible across station stops and parks. Points of disconnection would then be transformed into neighborhood-scale connections. This is essentially the strategy of Atlanta’s proposed Belt Line, which would reuse abandoned rail lines between neighborhoods to create a new necklace of green space and transit-oriented development.

Next Steps

As Alex Krieger has pointed out, the benefits of suburbia have largely accrued to individuals, while the costs have been born collectively.³⁰ However, this situation no longer holds once a dead mall triggers a decline, or a new transit line triggers an increase, in property values. Suddenly, it becomes the interest of the individual property owner as well as the community to support a successful retrofit. While many existing suburbs will be able to retain value and avoid change, many others are already feeling the need to pursue the kind of projects illustrated here.

As researchers and practitioners face this future, many questions remain unanswered. How much more sustainable are polycentric systems? What are the best measures of sustainability at the scale of a metropolis, suburb or neighborhood? How



While the most visible retrofits tend to be individual, named, and easily photographed projects, the largest systemic impacts occur through changes to infrastructure and zoning.

As part of a commitment to smart-growth principles, the planning department in Boulder, Colorado, has been engaged in one of the most successful ongoing efforts to trigger suburban retrofits. A ten-year series of plans, corridor improvements, mixed-use rezonings, and diagrams of acceptable prototype developments (an early example of form-based zoning) has resulted in numerous urban infill projects by various owners. It has also allowed construction of pedestrian-oriented streetscaping along both North Broadway and 28th Street, Boulder’s major auto-dominated commercial strip.

Gradually, Boulder’s suburban greyfields and corridors are transforming into urban, stylistically diverse, mixed-use, pedestrian-friendly neighborhoods with a high percentage of affordable housing. As part of this effort, former City Planning Commissioner Will fleissig (now an infill and greyfield developer with Continuum Partners) developed the North Boulder Sub-Community Plan in the mid-1990s. Van Meter Williams Pollak produced the visual diagrams, as well as the prototype guides that accompanied the 1999 Boulder Valley Comprehensive Plan.

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much can existing travel behaviors be modified by connecting neighborhoods on formerly isolated super-blocks?

Answers to such questions could provide support for smart-growth policies and help in the development of tools to implement them. For example, can the transfer of development rights be used to retrofit commercial corridors, downzoning between nodes and upzoning at intersections? Can the redevelopment and densification of central locations be linked to land conservation in more outlying parts of a region?

Difficult realities also remain. How can one “design-in” opportunities for places to evolve and become more diverse while working within the constraints of existing master-plan laws? While using financing that requires “credible” (chain-store) tenants? And while involving stakeholder groups whose common-denominator preferences extend only to familiar precedents? Can small property owners be encouraged to engage in retrofitting, despite the perception that large parcels must be assembled to deal with setback and parking issues?

Finally, how can suburban retrofits be made better places? The retrofit movement has to some extent allowed architectural thinking and place-making skills to be reintroduced to the suburbs. Now, as suburbs continue to evolve into settings for the twenty-first century, what are the architectural, as opposed to urbanistic questions that such projects should address?

Notes

1. Some 75 percent of development in the last quarter of the twentieth century was suburban. See Ellen Dunham-Jones, “Seventy-five Percent,” *Harvard Design Magazine* (Fall 2000). The American Farmland Trust has estimated that 1.2 million acres of farmland were converted to developed land each year between 1992 and 1997, at a rate 51 percent higher than between 1982 and 1992 (see “Farming on the Edge,” available at www.farmland.org).
2. See Robert E. Lang, *Edgeless Cities* (Washington D.C., Brookings Institution Press, 2003). Lang describes current discourse on metropolitan form as divided between polycentrists like Chris Leinberger, and post-polycentrists like Robert fishman and himself.
3. For a detailed discussion of problems faced by older suburbs and proposals for regional tax-base sharing, see Myron Orfield, *Metropolitics: A Regional Agenda to Community and Stability* (Washington, D.C.: Brookings Institution, 1997 revised ed.).
4. See two studies by the Institute for Metropolitan Affairs, Roosevelt University: “Exploring Edge Cities, Report of a Survey of Senior Planners,” May 2002; and Woody Carter, Robert Frolick, Tim Frye, James Lewis, and Kathleen Kane-Willis, “Edge Cities or Edge Suburbs?” November 22, 2002.
5. Examples include “The Crossings” in Mountain View, CA; Santana Row in San Jose; “Tukwila Urban Center” in Tukwila, WA; “The Commons” in Tysons Corner, VA; Reston Town Center in Virginia; “Town Center” in Sugarland in Houston; and “Perimeter Place” at Perimeter Center, and Market Village at Smyrna in Atlanta.
6. Roper Starch Worldwide Inc., prepared for AARP, “The Baby Boomers Envision Their Retirement: A Segmentation Analysis,” February 1999, available at www.aarp.org.
7. Linda Bailey, “Aging Americans Stranded Without Options,” April, 2004, *Surface Transportation Policy Project*, available at www.transact.org; and Jennifer Dorn, Administrator, Federal Transit Administration, presentation at Rail-Volution Conference, September 22, 2004, citing an AARP report from 1999, available at www.reconnectingamerica.org/pdfs/DornSpeech.pdf
8. AmeriStat Staff, “Traditional Families Account for only 7 Percent of U.S. Households,” March 2003 report, available from the Population Reference

- Bureau at www.prb.org. Among married-couple households, about 13 percent consisted of families with children in which only the husband worked; 31 percent were dual-income with children, and 25 percent were dual-income with no children.
9. William H. Frey and Alan Berube, “City Families and Suburban Singles: An Emerging Household Story From Census 2000,” *The Brookings Institution, Census 2000 Series*, available at www.brookings.edu.
 10. Thomas A. Fogarty, “Condo Sales Outrun a Fast Market,” *USA Today*, February 17, 2004.
 11. Estimates of the size of this generation vary. These numbers and characteristics were cited by Ellen Neuborne and Kathleen Kerwin in “Generation Y,” *Business Week* (February 15, 1999).
 12. Robert Putnam, *Bowling Alone* (New York: Simon & Shuster, 2000), p. 133.
 13. Laurie Volk and Todd Zimmerman, “American Households on (and off) the Urban-to-Rural Transect,” *Journal of Urban Design*, Vol.7 No.3 (2002), pp. 341-52.
 14. Richard Florida, *The Rise of the Creative Class and How It's Transforming Work, Leisure, Community, and Everyday Life* (New York: Basic Books, 2002).
 15. Bruce Katz, Andy Altman, “An Urban Age in a Suburban Nation?” February 25, 2005, presentation at the Urban Age Conference, available at www.brook.edu/views/speeches/katz/20050225_urbanage.htm
 16. Belden Russonello & Stewart, “2004 American Community Survey,” available at www.realtor.org and www.smartgrowthamerica.org. The survey also found a general dissatisfaction with current development trends. “[M]ore Americans want their state governments to improve existing communities including cities and older suburbs rather than give incentives to developers to build in the countryside. They complain that there is too much housing being built for high income families and not enough for families of moderate and low income.... Nearly nine in ten Americans (86%) want their states to fund improvements in existing communities over incentives for new development in the countryside (12%), with a majority (49%) saying they strongly prefer funding for improvements in existing communities” (p. 16).
 17. *Ibid.*, p. 10.
 18. See Lee Sobel, *Greyfields Into Goldfields* (San Francisco: Congress for the New Urbanism, 2002); and Bradford McKee, “Shopping on 1, Sleeping on 2:

Life Over a Big-Box Store," *New York Times*, August 19, 2004.

19. According to Matt Ostrower, a REIT analyst for Morgan Stanley Dean Witter: "I generally view it (mall overhauls) as a lower risk than new development, and redevelopment provides higher returns.... If executed properly, a redevelopment project can produce returns ranging from 12% to 15%." From Matt Valley, "The Remaking of America," *National Real Estate Investor*, May 1, 2002. According to PricewaterhouseCoopers, *Emerging Trends in Real Estate*, 2001: "Subcities—our new term for suburban locations that are urbanizing and taking on 24-hour market characteristics—show particular promise for investors."

20. In a 2003 report for the Brookings Institution, Mark Muro and Robert Puentes concluded that "rational use of more compact development patterns from 2000 to 2025 promise the following sorts of savings for governments nationwide: 11 percent, or \$110 billion, from 25-year road-building costs; 6 percent, or \$12.6 billion, from 25-year water and sewer costs; and roughly 3 percent, or \$4 billion, for annual operations and service delivery. School-construction savings are somewhat less." From "Investing in a Better Future: A Review of the fiscal and Competitive Advantages of Smarter Growth Development Patterns," available at www.brookings.edu/metro/publications/200403_smartgrowth.htm.

21. See "Transportation Costs and the American Dream," Special Report from the Surface Transportation Policy Project, July 2003. Available at www.transact.org/report.asp?id=224.

22. John Holtzclaw, Robert Clear, Hank Dittmar, David Goldstein, and Peter Haas, "Location Efficiency: Neighborhood and Socio-Economic Characteristics Determine Auto Ownership and Use: Studies in Chicago, Los Angeles and San Francisco," *Transportation Planning and Technology*, March, 2002.

23. Joel Garreau, "Edgier Cities," *Wired Magazine*, Vol. 3.12 (December 1995). Garreau's predictions were played out to some degree at the 2005 National Association of Home Builders show. See Clay Risken, "McMansion Meets SoHo, Suburbanites' Penchant for Urban Lofts," *Slate*, Feb. 16, 2005, available at www.slate.com.

24. Larry Albert, "Remains of The Day: The Town That Demolition Built," *Cite 62* (Fall 2004).

25. There have been several studies on this subject. See for instance P.J. Shinbein, "Multimodal

Approaches to Land Use Planning," *ITE Journal*, Vol. 67 No. 3 (March 1997), pp. 26-32; and Ruth L. Steiner, "Trip Generation and Parking Requirements in Traditional Shopping Districts," *Transportation Research Record*, No. 1617, Paper No. 98-1370 (1996), pp. 28-37.

26. Michael Sorkin, "Cities and Suburbs, A Harvard Magazine Roundtable," *Harvard Magazine*, January-February 2000.

27. Arthur C. Nelson, "Towards a New Metropolis: The Opportunity to Rebuild America," Discussion Paper prepared for The Brookings Institution Metropolitan Policy Program, December, 2004, available at www.brookings.edu.

28. Reconnecting America's Center for Transit-Oriented Development, "Hidden in Plain Sight, Capturing the Demand for Housing Near Transit," 2004, p. 7

29. In 1979, central cities' share of office space was 74 percent, with 26 percent in the suburbs. In 1999, central cities held 58 percent, while the suburbs' share had grown to 42 percent. In one third of cities studied, the majority of office space is already in the suburbs. Robert Lang, "Office Sprawl: The Evolving Geography of Business," available at www.brookings.edu.

30. Alex Krieger, "The Costs—and Benefits?—of Sprawl," *Harvard Design Magazine*, Fall 2003/Winter 2004.