By Robert Cervero and Cathleen Sullivan

TODs for Tots

What’s good for singles and retirees is even better for children.
Transit-oriented development continues to gain popularity as a promising tool for breaking the vicious cycle of sprawl and car-dependence, by replacing it with a virtuous cycle based on increased transit use and compact station-area development. But a common perception—based largely on media images—is that this sort of development appeals only to a distinctive niche market composed of childless couples, Generation Xers, Millennials, and empty nesters.

According to conventional marketing wisdom, it's these groups that most value the convenience and sociability of a walkable urban community. Reconnecting America's Center for Transit-Oriented Development has estimated that by 2025, 79 percent of TOD households in the U.S. will be childless. The implication is that families with children are irretrievably drawn to a car-dependent life in the leafy suburbs.

Yet well-designed multifamily TODs that de-emphasize car usage and parking can be perfectly suited for kids. Making private cars less dominant in the residential landscape lowers accident rates, noise levels, and air pollution. It creates safer and more enjoyable environments for play, in part by replacing surface parking (which consumes half the land of many suburban multifamily complexes) with green space.

The TODs we studied in Europe and Australia are specifically designed for and marketed to families. They are kid-friendly in three

Gardens and play space replace parking lots in Rieselfeld (above) and Vauban.

Shared streets are a feature of Hammarby Sjostad.
Two for One: Kid-Friendly and Green

Several of the most kid-friendly TODs are also models of sustainability. Projects that combine sustainable building, energy efficiency, and state-of-the-art waste practices with high-quality transit access exemplify the ultra-environmentally friendly version of TOD that we call “Green TOD.”

Green TOD’s mixture of urbanism and mobility confers appreciable environmental benefits. It emphasizes pedestrian paths, cycling, and transit infrastructure over auto-mobility. Mixing land uses not only brings destinations closer but also creates an active, vibrant street life and interior spaces, instilling a sense of safety and security. And through building designs and resource management systems, Green TOD embraces minimal waste, low emissions, and to the degree possible, energy self-sufficiency. The inherent synergies offered by Green TOD—such as higher densities that produce the co-benefits of higher transit ridership and reduced heating costs from shared-wall construction—could shrink its environmental footprint relative to conventional development by upwards of 30 percent.

For communities aiming to push the envelope of sustainable urbanism, the Green TOD model has much to offer, although achieving it will take money, time, and political leadership. It’s hard to find examples in the U.S., where communities that bill themselves as “green” or “eco-communities” are often low-density and located on outlying sites far from transit. In our view, transit must form the backbone of eco-communities, as it does in the Swedish, Dutch, German, and Australian communities we have described.

Of these examples, the least well known is perhaps Sydney’s Kogarah Town Square. It’s small, with a few hundred permanent residents, but it has all of the elements central to a Green TOD: accessible transit, a focus on pedestrians, and a variety of energy-saving features. The project’s ample open space, mixed land uses, and well-preserved heritage buildings appeal to young professionals, families with children, and empty nesters alike. The result is a culturally rich and demographically diverse community.

Meanwhile, Green TOD appears to be catching on elsewhere, including China (Qingdao and Jiaxing) and Taiwan (Kaohsiung). But perhaps the most ambitious version of Green TOD is now taking shape in the deserts of the United Arab Emirates. Masdar City, outside of Abu Dhabi, is aiming to become a fully energy-sufficient community, thanks to a massive solar farm at the city’s edge and widespread recycling. The city already is car-free and interlaced by rail and PRT (personal rapid transit) lines and a below-ground freight rapid transit line.

Other communities should not necessarily seek to replicate the specific practices of these places but rather should adapt the principles of Green TOD to local circumstances and constraints. As for those critics who label Green TOD “social engineering,” our view is that, far from precoring inhabitants to a particular way of life, it simply provides more choices of where to live and how to get around. For Americans seeking a suburban environment, choices are often limited to single-family detached housing that is far removed from shops, restaurants, and the like, requiring frequent use of a car. In contrast, Green TODs give consumers far more travel choices—a good thing in an increasingly diverse society.

New towns in town

Many of the child-friendly TODs we looked at in Europe were built on brownfield sites, which can be relatively trouble-free places to deviate from standard planning practice. An example is Amsterdam’s GWL-Terrein, a 15-year-old TOD project built on a 14-acre site once occupied by the municipal wastewater treatment plant. The site, just a mile and a half from the city center, adjoins several tram, rail, and bus lines. GWL-Terrein is a mixed income project designed and built by a joint venture. About half of the 625 housing units are subsidized, with the rest sold at market rates. Housing is organized around a central open space that is closed to cars. Parking is on the periphery, along with several car-share depots. Linked public spaces and communal gardens lace key ways: They de-emphasize the car and emphasize pedestrian infrastructure, including sidewalks, internal pathways, and crosswalks. They require a mixture of uses in order to create an active street life (which enhances safety by adding the “eyes on the street” that Jane Jacobs called for). And they have high levels of transit service, which allow children to take advantage of local museums and sports venues, and, when they’re old enough, to get to school on their own.

Researchers at the Center for Cities and Schools at the University of California, Berkeley, noted in a recent study that TODs designed with the needs of children in mind allow greater independence for preteens and teens. Instead of creating couch potatoes, child-friendly TODs foster what some call “free-range kids.”

Kid-friendly TODs are part of a larger global effort to create child-friendly cities. Yet such cities are more the exception than the rule in the U.S. today, where the “gotta have a car to raise a kid” mindset is pervasive. Families that want to stay in the city have trouble finding houses and apartments that are suitable for young children.

Their cause has been taken up by a group called CUBE—Community-Based Education—at the University of Kansas. CUBE actively champions community designs that adhere to the principles of the “Bill of Rights for Kids” created by Aspen architect Harry Teague. Teague’s principles hold that cities must be safe, built at an appropriate scale, accessible, integrated with nature, and include cultural anchors easily recognizable by children.

Mixed use in Australia: Kogarah Town Square.
the project. Bicycle storage is readily available as well.

Because of GWL-Terrein's unconventional design and location in a very liberal city known for its cannabis shops and red-light districts, one might assume that it caters to counterculturalists. To the contrary, the project appeals to families with children, mostly because of its plentiful green spaces (in short supply in a dense city like Amsterdam), proximity to the city's many cultural offerings, access to transit, and traffic-calmed streets.

A 2001 survey showed that 42 percent of the households included children under 18 years of age, well above the average of 24 percent for the city as a whole. The survey also found that a third of the residents were drawn to the project because it is car-free and emphasizes green urbanism and healthy living. While more recent statistics have yet to be compiled, the prevalence of tots and teens in GWL-Terrein is evident to anyone strolling through the project today.

Parents we talked with on a recent visit said they liked the fact that their children could roam freely and safely throughout the project. Shops, a restaurant, community gardens, and a civic plaza are favored destinations for local residents. At the same time, parents lamented the lack of a neighborhood school or child care center, though both can be found nearby.

In Stockholm, another, much larger brownfield redevelopment called Hammarby Sjostad was originally planned for empty nesters. Today, however, only five percent of the 20,000 residents are over 65, and 22 percent are families with children under 19. The development is widely applauded for its eco-city designs (it's largely energy self-sufficient and known for aggressive recycling). The opening of an inner-city tramway, together with calmed traffic and ample green space, has made Hammarby Sjostad a very popular place to live. It commands higher rents than many other growing areas in and around central Stockholm.

Kid-friendly design features include buildings that hug the sidewalks, offering secure and human-scale pedestrian corridors and leaving plenty of play space in the rear. The development's car-free interior is especially popular. "I only have to cross one street," said one mother, using a map to trace her daily walking route to a day care center. The tramway serves as an organizing fea-
The "greenness" of developments like Hammarby Sjostad is just as important as transit to family-friendliness. The prospect of raising children in a place designed for low-carbon, car-restricted living appeals to many parents. In combination, green mobility options and green urbanism have proven a powerful lure in attracting environmentally conscientious households to Hammarby Sjostad.

Suburban but car-free
Sometimes the TOD acts as a magnet, drawing families to an outlying site. The Dutch new town of Houten (pop. 40,000) is an example. Located on an intercity rail line between Utrecht and Amsterdam, Houten was explicitly designed for pedestrians and cyclists, making it supremely kid-friendly.

The town has the shape of a butterfly. Its two districts fan out from the core, putting most residents within walking distance of the central railroad station. There are no through roads for motorists. Drivers must follow a circuitous ring road to go from one corner of the community to the other. Among Houten's distinctive and kid-friendly features are protected bicycle paths; direct walking and biking connections to the railroad station (along with extensive bike parking and lockers); and numerous soccer and basketball fields. In 2000, almost half of all trips were made by bicycle, with just a quarter by private car, 25 percent below the national average for communities with similar household incomes. Judging from a recent visit, not much has changed since.

Freiberg, one of Germany's greenest cities, boasts two kid-friendly TODs on its outskirts. Just two decades ago, Rieselfeld, where 9,100 residents now live on 170 acres, was a wastewater leach field. Today, the project's ample open space, children's play areas, traffic-calming features, and good transit access attract large numbers of families. So do its recreation centers, playgrounds, bike-priority lanes, and, most of all, its schools. A third of Rieselfeld's population is under 18, and almost half of the households have children. The community's marketing literature touts its pro-family aims.

Rieselfeld can be described as "transit-led development" (TLD). The tramway opened in 1997, a year after the first families moved in. The presence of three tram stations encouraged new development to wrap itself around the rail nodes. With seven-minute peak-hour headways, residents can reach the city center in 10 minutes. Green mobility is reflected by modal split statistics: According to the latest data, compiled in 2007, 16 percent of resident trips were made on foot, 28 percent by bike, and 25 percent by public transit.

Freiberg's second TOD, Vauban (pop. 5,000), has been called one of the greenest places on earth. It is also extremely child-friendly. In his firsthand account of Vauban, written in 2007, Steve Melia writes that "the car-free streets were full of young children, often unsupervised, playing or cycling." There were even more children, he adds, than in the "woonervf"-like Spielstrassen (play streets) that are prevalent elsewhere in Freiburg.

Finally, let's look at another German greenfield TOD, Kronsberg in Hanover. This is a young district with a high proportion of young people: Almost one third of the 7,000 residents are under 18 and the average
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These examples from abroad show that
Kronsberg's aim of creating a kid-friendly
environment served by high-quality transit
has largely been accomplished.

Down under
While European cities can lay claim to hav-
ing most advanced the art and science of
building kid-friendly TODs, some urban dis-
tricts in Australia are not far behind, accord-
ing to Timothy Beatley and Peter Newman in
their 2008 book, Green Urbanism Down Un-
der. One example is Kogarah Town Square,
redevelopment project in southern Sydney.
It mixes several hundred housing units,
50,000 square feet of office and retail space,
and 35,000 square feet of community space
(with a library and town square). A five-story,
mixed use town center sits on what a decade
ago was a massive surface parking lot.
Beatley and Newman coined the term
POD/TOD/GOD (pedestrian-oriented,
transport-oriented, and green-oriented) to
describe Kogarah Town Square. Buildings
here are oriented to the sun and topped
by photovoltaic collectors. They are also in
close proximity to a railroad station. As in
the project's European counterparts, ample
open space is wrapped around the attrac-
tive and well-lit town center, much used by
families.

U.S. examples hard to find
These examples from abroad show that
TODs can be superb environments for rais-
ing kids. If cities in Europe and Australia can
tame the car, why can't we?
In fact, it would be a stretch to label any
TOD in the U.S. today as "kid-friendly." The
Fruitvale Transit Village in Oakland,
California, adjoins a BART (Bay Area Rapid
Transit) station, but the station's ambiance
is marred by several large parking struc-
tures. And, although a charter high school
and a day care center are located nearby,
there are no significant green spaces or pub-
ic playgrounds in the immediate vicinity.

Planning and zoning practices in the U.S.
bear part of the blame for kid-un-
friendliness. Zoning ordinances typically
require far more parking than is needed, and
plans are often shy about calling for change.

The provision of playgrounds or cycling in-
frastucture in newly planned urban projects
is all too often an afterthought.
Embracing child-friendly city planning
would mean bringing the views, ideas, and
aspirations of children (and their parents)
to the table at every planning charrette and
neighborhood meeting on a proposed land-
use change. It would also mean fighting the
trenchent forces that work against green
design and true transit-oriented develop-
ment. We hope that the real-world examples
reviewed above will help to change minds.
Demonstration projects are another
way to move forward. The Metropolitan
Transportation Commission, the regional
planning authority for the San Francisco
Bay Area, has awarded a number of "Trans-
portation for Livable Communities" grants
to help local governments improve pedes-
trian connections to transit stops. In an all-
out battle to counter the childhood obesity
epidemic, the Robert Wood Johnson Foun-
dation has funded kid-friendly community
designs under its Active Living by Design
program. On the federal level, the hope is
that the next transportation bill will set aside
funds for building bike paths and pedestrian
paths in child-friendly developments.

In the end, it will take the collective voice
of environmentalists, child-advocacy groups,
sustainability-minded planners, pro-transit
interests, PTAs, and the like to marshal the
resources necessary to make kid-friendly
TODs a reality in 21st century America.

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<th>Mode splits for resident journeys within Stockholm County</th>
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Hammarby Sjostad contributed to the Stockholm area's tilt toward transit in 2007. Only 62 percent of the community's residents owned a car in that year, compared with 66 percent in 2005.

**RESOURCES**

**CENTERS**
The Center for Cities and Schools, established in 2004 at UC Berkeley, is an interdisciplinary initiative of the Graduate School of Education, the College of Environmental Design, and the Department of City and Regional Planning: http://citiesandschools.berkeley.edu.

Reconnecting America's Center for Transit-Oriented Development is a nonprofit organization based in Oakland, California: www.reconnectingamerica.org.

**READING**
