Urban Land - August 2007 - LandWrites

The main obstacle to skinny streets in the United States is no longer the city traffic engineer, but rather the local fire chief, who enforces the fire code with singular purpose.

Skinny Streets and Fire Trucks

By Reid Ewing, Ted Stevens, and Steven J. Brown

Skinny streets calm traffic, maintain a comfortable human scale for pedestrians, cut the cost of development, make more land available for public and private spaces, and minimize the negative environmental impacts of all that asphalt, such as runoff and reflective heat. The narrow streets of older neighborhoods, villages, and towns are a large part of their charm. Some of the most acclaimed new communities feature narrow streets. Even the popular media have picked up on their value. One of *Newsweek* magazine's "15 ways to fix the suburbs" was to reduce the width of neighborhood streets.

The field of traffic engineering is slowly embracing narrow streets. This is evident from articles in professional magazines, downsized street standards in many communities, and recommended street designs from an unlikely pair, the Washington, D.C.–based Institute of Transportation Engineers and the Chicago-based Congress for the New Urbanism. Back in 2001, the Urban Land Institute, the National Association of Home Builders, the American Society of Civil Engineers, and the Institute of Transportation Engineers published Residential Streets: Third Edition, authored by Walter M. Kulash, that examined street widths to enhance livability.

Nowadays, the main obstacle to skinny streets is no longer the city traffic engineer, but rather the local fire chief, who enforces the fire code with singular purpose. The National Uniform Fire Code and International Fire Code call for 20 feet (6 m) of clear width (beyond parking lanes) with very limited exceptions. State and local fire codes tend to follow suit (though they needn't, as the national and international codes are advisory).

When citizens and developers began demanding narrower streets, the fire department of Peoria, Illinois, objected on the grounds that, someday, fire trucks might approach a fire from different directions, while parked cars lined both sides of the street, blocking access. In the interest of "safety first," the city commission voted five to zero to maintain the existing subdivision street standard of 34 feet (10.3 m). The fire department of Dover, Delaware, baldly asserted that no parking should be allowed on streets narrower than 28 feet (8.5 m) because it "presents a severe danger to the public. Firefighting operations would be greatly affected in these areas." Dover's standard subdivision street is 36 feet (11 m).

Proponents of skinny streets suggest that more fire substations be built to cut response times, that big fire trucks be replaced with small ones, and that firefighters be trained to haul hoses some distance as they do in big cities. But such ideas are unlikely to carry the day in a political environment of scarce resources and deference to public safety.

So began a search for creative compromises on street widths between developers and fire departments.

Baldwin Park, Orlando, Florida. Baldwin Park is a 1,100-acre (445-ha) new community on the site of the former Naval Training Center in Orlando, Florida. City officials rejected a sparse network of high-capacity roads in favor of a fine network of two-lane streets, woven into the surrounding community. A master developer was chosen who shared this community vision.

But all that connectivity introduced the threat of cut-through traffic, and the need for traffic calming. “Street connectivity and traffic calming are siblings,” says Danny Pleasant, Orlando’s transportation planning bureau chief at the time. “You need both.” The solution at Baldwin Park is a network of very narrow streets, 20 to 22 feet (6 to 6.7 m)—so narrow, in fact, that two-way traffic has to yield even when it passes a single parked car. A complete street grid with alleyways allows fire trucks to attack a fire from all directions. All buildings in the community, including single-family houses, are outfitted with sprinklers. The upfront cost of the sprinklers is offset by lower insurance rates.

To sell the idea of skinny streets, Orlando sent its fire officials on tours of the Disney new town Celebration, and the old town of Winter Park, which abuts Baldwin Park. With streets as narrow as Baldwin Park’s, Winter Park showed that a grid of narrow streets could provide uncompromised emergency access. City transportation staff identified the streets on which fire officials lived, and used some of the narrow ones as examples of safe and skinny streets in their presentations to the fire department.

Canyon Rim Village, Redmond, Oregon. Canyon Rim Village is a 70-acre (28.3-ha) greenfield development in Redmond, Oregon, about 120 miles (193 km) east of Eugene. In an 18-month effort, Tennant Development gained approval for streets measuring 28 feet (8.5 m) wide, including parking on both sides. This is eight feet (2.4 m) narrower than the city’s subdivision street standard of 36 feet (11 m).

Houses at Canyon Rim Village are alley loaded, reducing the number of parked cars on the street and freeing up space for emergency response. The absence of parked cars has a downside, making streets visually wider than ideal for traffic calming. Following Canyon Rim Village’s lead, another developer was allowed to build 28-foot (8.5-m) streets in a conventional subdivision with garages in front and short driveways. These streets are now too crowded with parked cars for the fire department’s comfort, and the town has vowed not to approve 28-foot (8.5-m) streets again without alleys.

Peninsula Neighborhood, Iowa City, Iowa. Iowa City has streets of various widths, depending on the age of the neighborhood. The oldest streets, dating back to the 1800s, have 31 feet (9.4 m) of paved width. Streets built between 1900 and 1970—a majority of the city’s network—are 25 feet (7.6 m) wide. In the 1970s, the subdivision street standard was raised to 28 feet (8.5 m), with parking on both sides.

In 1997, the city decided to offer an unused 40-acre (16-ha) property for sale, and hired Dover, Kohl & Associates to develop a master plan for what became Peninsula Neighborhood. The parcel was sold to a residential developer in 2001. The result is a new urbanist neighborhood with 25-foot (7.6-m) streets—three feet (0.9 m) narrower than the existing standard—that allow parking on both sides. The city engineers and fire department agreed to these narrow streets “as an experiment,” according to Iowa City planner Robert Miklo.

Since then, planners have been working with city engineers and fire officials to develop new residential street standards. The proposed standard width is 26 feet (7.9 m) with parking on only one side. The engineers and fire department have compromised on street width, while the planners have compromised on parking.

Whether this is a step in the right direction remains to be seen. On the older 25-foot (7.6-m) streets, the city regulates on-street parking based on density. In low-density areas, parking is allowed on both sides and vehicles can easily maneuver around the few cars parked on the street. In denser areas, parking is generally limited to one side of the street. There have been no reported problems with emergency access.

Glenwood Park, Atlanta, Georgia. Glenwood Park is a mixed-use neighborhood in east Atlanta, a city with old neighborhoods that do not meet the fire department’s current 20-foot (6-m) clearance requirement. The developer, Green Street Properties, arranged for a demonstration of fire truck maneuverability in one such neighborhood, Grant Park. To further narrow the test course, cones were set up. Then Green Street Properties CEO Charles Brewer and Atlanta Mayor Shirley Franklin climbed into a fire truck, and the driver navigated the course with ease. The only problem was on one turn, where a couple of cones were knocked over.

Based on this demonstration, public works and fire officials agreed to relatively narrow streets (by current Atlanta standards): 20 feet (6 m) without parking, 27 feet (8.2 m) with parking on one side, and 34 feet (10.3 m) with parking on both sides. The developer agreed to expand corner radii from 15 to 20 feet (4.5 to 6 m). Of equal importance, everyone agreed to planting tree islands in the parking lanes, every few car lengths. This way, even when cars are not parked on the street, the street is visually narrowed.

Since the win-win result at Glenwood Park, Atlanta is considering tighter street standards for traditional neighborhood developments that meet certain criteria. If approved, only 12 feet (3.6 m) of clearance would be required between parking lanes.

WaterColor, Walton County, Florida. WaterColor is a 500-acre (202.3-ha) mixed-use development by the St. Joe Company located on the Gulf of Mexico, near the original new urbanist community of Seaside. At buildout, WaterColor will have 1,140 residences, a town center, and a commercial center with a fire station.

An independent fire district reviews all development projects in Walton County, and has a chance to comment and make suggestions. Through design compromises, WaterColor ended up with 20-foot (6-m) streets—18 feet (5.5 m) of asphalt and one-foot (0.3-m) gutters on each side. This provides the required 20 feet (6 m) of clear width, but only 18 feet (5.5 m) of travel way. There is an additional eight feet (2.4 m) on each side that alternates between parking bays and planting strips, and then four-foot (1.2-m) gravel sidewalks that are permeable to stormwater.

The fire district wanted 20- to 25-foot (6- to 7.6-m) corner radii, but agreed to 15-foot (4.5-m) radii with load-bearing road pavers at the corners. While motorists see tight corners, by making the curbs mountable, the effective radius for fire trucks is 20 feet (6 m).

Potomac Yard, Alexandria, Virginia. Located in Alexandria, Potomac Yard is a large mixed-use development on the site of a former rail yard. All of the houses will be oriented toward the street, with parking at the rear of the units, accessed from a system of alleys. On-street parking will be allowed on at least one side of the street—and in most cases both sides. Street widths will be comparable to those in Old Town Alexandria and in the Del Ray neighborhood.

At the time the plan was approved in 1999, no issues were raised regarding emergency access. However, when the developer submitted detailed site plans in 2005, simulations showed that fire trucks would clip corners when turning from streets to alleys. One possibility was to enlarge the corners and drop a few townhouses from the plan. But to redesign the project would have taken time and money and would have reduced the number of units available for sale. Another solution was to use smaller fire trucks, some of which the city already had at an undersized fire station nearby. The third alternative, ultimately chosen, was to place a turnkey fire station within Potomac Yard, moving the firefighting function from the undersized station to a new one with four full-size bays.

While the buildings will be equipped with sprinklers, the scale of these structures will make it necessary to attack fires from the alleys as well as from the streets. Analysis showed that a new station not only would offset delays resulting from turning problems, but also would reduce fire response times citywide, save money in the long run, and create the opportunity for additional affordable housing units over the fire station.

Potomac Yard Development, LLC, a partnership of Pulte Homes and Centex Homes, agreed to contribute the land and most of the money for the new station. Measures such as triple-paned windows, bifold rather than overhead bay doors, and high-quality insulation will be used to comply with U.S. Department of Housing and Urban Development (HUD) noise standards, isolating residents from building vibration and fire engine noise.

The state of Oregon. The national leader in street narrowing is the state of Oregon. Oregon's transportation planning rule (TPR) requires local governments to adopt standards that keep street widths to a minimum. A stakeholder group was formed to develop street design guidelines that everyone could live with. Fire officials were well represented within the group, and the resulting guidelines have been endorsed by the office of the state fire marshal, Oregon Fire Chiefs Association, and Oregon Fire Marshal's Association. Basic residential streets are 28 feet (8.5 m) with parking on both sides, 24 feet (7.3 m) with parking on one side, and 20 feet (6 m) without parking.

Many Oregon cities have adopted skinny residential street standards. Others have approved skinny streets by granting variances for specific development projects. In Portland, a collaborative process led to the downsizing of streets from 28 to 32 feet (8.5 to 9.7 m) to 20 to 26 feet (6 to 7.9 m) with on-street parking. The old standards allowed two cars to pass unimpeded; the new standards require one car to yield to another when they pass next to parked cars. The Portland standards were shown to be adequate even for fire trucks with outriggers.

Portland's fire chief also agreed to narrow cul-de-sac streets, as long as they were less than 300 feet (91.4 m) long. That way, firefighters in a second truck could carry equipment to the fire if the street were blocked. Cul-de-sac turnarounds were reduced from 90 feet (27.4 m) to 70 feet (21.3 m) in diameter. The fire chief reasoned that speed is essential getting to an emergency, but not leaving one. Trucks can back out after a fire.

Village Homes in Davis, California. This area has skinny streets and a long track record of fire safety. Originally, fire officials wanted enough cross-sectional width for two engines to park side by side with open doors. Instead, they got a 20-foot (6-m) width on shorter cul-de-sac streets and 24 feet (7.3 m) on subcollectors. In 30 years of occupancy, there have been three fires, none with injuries. Over the same period, there have been no accidents involving pedestrians or motorists, a result of the low travel speeds.

The street widths in this article do not represent dramatic reductions from what might be considered typical. However, a few feet can make a difference in livability and environmental impact. A typical medium-size city has more than 500 miles (804 km) of residential streets, and a five-foot (1.5-m) reduction in street width equates to a 300-acre (121.4-ha) reduction in asphalt.

The nation's largest manufacturer of fire trucks, Pierce, has cab widths varying from 100 to 102 inches (254 to 259 cm). Standard mirrors add ten inches (25.4 cm) to cab widths on each side (although new mirrors are available that add only six inches [15.2 cm]). Body widths range from 96 to 101 inches (244 to 256 cm). Outrigger spreads on ladder trucks are typically 16 feet (4.8 m) wide. Hence, there is rarely justification for more than 16 feet (4.8 m) of clearance, and in low-rise areas where ladder trucks are unnecessary, a clear width of 12 feet (3.6 m) should suffice.

Perhaps the best opportunities for street narrowing are in areas where parking can be restricted due to the presence of alleys, periodic parking bays, or off-street, common-area parking. This can result in the narrowing of streets by seven to 14 feet (2.1 to 4.2 m). Skinny streets can handle turning vehicles as long as corner radii are sized properly and parked cars are set back from intersections at appropriate distances. Even narrow culs-de-sac and small turnarounds may be acceptable as long as these streets are not too long. Demonstrations with fire trucks and cones, or simulation programs such as AutoTURN, can be used to establish dimensional requirements for turning movements.

Other design solutions include mountable curbs and loadbearing sidewalks, sprinklers in all residential units, textured pavements and landscaped islands to visually narrow streets, and small gaps in on-street parking for outriggers.

What is needed to reach a compromise is a creative development team and an open-minded fire chief.

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