



## Traffic Safety Center

Setting New Directions in Traffic Safety

***Online newsletter Volume 2, Number 1, Spring 2004***

### **Safety and a Sense of Place**

#### **Urban designer Elizabeth Macdonald talks about making streets safer while meeting the needs of drivers and pedestrians**

Elizabeth Macdonald, Assistant Professor of Urban Design at the [Department of City and Regional Planning](#) at UC Berkeley, is perhaps best known for her research on the multi-way boulevard, a street model that accommodates both through traffic and slow-moving local traffic as well as heavy pedestrian activity. With Allan Jacobs and Yodan Rofe, she authored [The Boulevard Book](#) (MIT Press, 2000). In this interview with TSC newsletter writer Carli Cutchin, Macdonald discusses what works and what doesn't when it comes to making neighborhoods "walkable," and the barriers that prevent transportation planners and engineers from making these neighborhoods a reality.

**Q: There's been a move toward changing the built environment in such a way that people walk more and rely less on cars. As an urban designer, can you speak to the challenges that face designers and engineers as they work together to create new neighborhoods and alter existing built environments to make them safer and more convenient for pedestrians? Given that planners and engineers sometimes have very different priorities, how can they conceive and bring about a singular vision?**

A: I've come to understand that engineers and designers are coming from fundamentally different places. Engineers are coming from a more quantitative place. They're used to running numbers. If they have a traditional transportation engineering background they're probably focused on certain types of things like efficient movement and street capacity. Designers come at thinking about streets in a very different way, in a qualitative way. We weigh different types of values against each other, so movement might not be given the highest value. In fact, in some cases we might think about congestion as having a much higher value.

In the research that we did for The Boulevard Book we found that ways in which engineers analyzed situations tended to be abstract and removed. They might use analytic techniques such as potential conflict point diagrams. They might rely solely on such a graphic, instead of actually going out into the field and seeing, OK, well, maybe there are those potential conflicts, but are those conflicts really a problem or not? In other words, [they would use] these abstract diagrammatic methods of analyzing without going out and really seeing what happens.

**Q: Can you give me an example?**

A: The example I can give you comes from the multiway boulevards research work. A multiway boulevard is a street type that accommodates both fast moving through traffic and slow moving local traffic. The fast moving through traffic moves in the center in a wide roadway. One-way local traffic and parking occurs on side access roads. What you end up with is three different roadways within a single street entity. As you can imagine, that makes for rather complex intersections. Well, if you draw that intersection and then you think about all the many ways that people might move across that intersection, you end up with a potential conflict point diagram which has 50 conflict points, which is a lot more than a normally configured street, which has 16. [In a diagram] it looks really alarming. You start saying well, we can't allow that movement and we can't allow that movement and we can't allow that movement. Pretty soon, you have destroyed the natural functioning of the street. But if you go out and you look in the field and you see what's actually happening with multiway boulevards at intersections, you realize that if you put in appropriate traffic calming measures along the side access roadways, so that the people who are on the side access roads are moving really slowly, there are not going to be as many of those conflicting movements as it looks like on the diagram. We ended up drawing diagrams that were much more expressive of what was actually happening. When people saw those diagrams they started to understand that perhaps complex intersections were not so much a problem.

**Q: It makes sense that a complex roadway would call for more complex diagrams to understand what's going on.**

A: Yes, and another thing that I think still permeates engineering thinking today is the functional classification of streets which has been with us since the 1930s or 1940s, when streets were segregated into different types based on their movement function. The classifications that engineers use are oriented toward single use. It's similar to what happened with land use planning, where we have a legacy of single use zones. In land use planning we're just starting to think more in terms of mixed use. We need to start thinking in terms of streets as being mixed use streets as well. And that's where it starts getting scary in terms of safety issues, because once you're going to do that, how are you going to create safety for the pedestrians? So as a designer the

kinds of things that I think about are, how can you create protected areas in streets that protect pedestrians from vehicle traffic? That might mean differentiating by curbs so that you control the car by keeping it within a certain area. Then you can do things along the curb lines that really emphasize that one place is for pedestrians and one place is for cars. For instance, one of the best ways you can do that is by planting a row of closely spaced trees [to] create a real sense of enclosure and protection along that street.

**Q: It seems that it's important to take user perception into account.**

A: And comfort. And it can also warn the car driver. It works for both the pedestrian and the car driver, because if the car driver feels a sense of enclosure around the street space that they're driving on, it can tend to make them drive more cautiously. In other words, if you have a vertical element nearby [and sense that] you might hit it, the tendency is to slow down. Another thing that we like to do when we're thinking about pedestrian safety and comfort is to make sure that [pedestrians] don't have to cross a very wide vehicle realm. If you get over two lanes in each direction it's important to have something in the middle of the street that can act as a pedestrian refuge.

**Q: When you describe a lot of these elements what comes to mind is Shattuck Avenue in Berkeley. Can one look to Shattuck to get a sense of how multiway boulevards function?**

A: Well, it doesn't quite do it. Shattuck is a bad example of a multiway boulevard. On the classic multiway boulevard, the median that separates the center roadway from the side roadway is wide enough that you can actually walk on it. And it's always planted with at least one row of closely spaced trees [which serves as] the demarcation between the fast moving vehicle realm and the slower moving pedestrian realm. And the median should be wide enough that pedestrians can walk on it, so that they will walk to it, so that they'll claim the whole space from the face of the buildings to the outer edge of that median as an extended pedestrian realm.

**Q: What are some of the bigger challenges of making something like this a reality in existing built environments?**

A: Existing street standards. Standards that have been adopted by cities for very well-intentioned reasons, but have frankly gotten out of hand. There are standards having to do with tree spacing and sometimes they're based on crazy things. For instance, in Oakland, you can't have [trees] closer than five feet to a parking meter. So parking meter spacing dictates tree spacing, which from an urban design point of view is really crazy. Put the trees in first, then put in the parking meters, but don't do it the other way around, because you end up eliminating a tree here, a tree there and

pretty soon you have nothing. You don't have a strong tree line that helps define the pedestrian realm. Taking trees to the intersection is another problem. Most street design standards require that you pull the trees back from the intersection, supposedly for reasons of sight lines. And often those distances are really excessive, like 30, 40, or 50 feet from an intersection. There are assumptions about how much the view is being blocked, when in reality trees are usually linear vertical elements that don't really block views. In many instances they are smaller than poles associated with traffic lights. Lane widths is another big issue, because if you want to make streets that are comfortable and safe for pedestrians, you want to have narrow lane widths for a couple of reasons. One, it cuts down on the overall width of the vehicle realm of the street pedestrians have to cross and two, wide traffic lanes can lull drivers into thinking it's OK to drive fast. The standards that are in place for lane widths are excessive. They're freeway standards as opposed to urban street standards. The philosophy that I come to street design with is that in an urban environment it isn't appropriate for any street to be only for vehicle movement. Every street should also be a place. And if you over-privilege movement on streets, it can't be a place, it disrupts the place possibilities.

**Q: What about main thoroughfares, arterial streets-for instance, San Pablo Avenue (a major surface street that runs through several cities in the San Francisco East Bay and parallel to Interstate 80)?**

A: San Pablo Avenue has been designed to function as an overflow street for freeway traffic. It's an arterial street, but it's still a street that goes through neighborhoods and people use it for neighborhood activities. So my bias is to say that those local needs and activities take precedence over through travel, or should at least be balanced with through travel needs on any street.

**Q: It seems that what you do looks at it very holistically and concentrates on all of these different needs, but of course you're also advocating for that sense of place, for people to be out walking and feel comfortable. In terms of the steps that you're taking in making built environments more accessible for pedestrians, what stage are you at? Any examples of recent projects?**

A: An example of a recent project that my firm, Jacobs Macdonald: Cityworks Projects, recently completed, is a redesign of International Boulevard in Oakland, adjacent to the new Fruitvale BART station where a new transit village is being built. We did a redesign for a four or five block area. We received a Metropolitan Transportation Commission grant to actually build two blocks of that redesign right in the heart of what is the Fruitvale neighborhood retail shopping area, adjacent to where the new transit village is being built at the BART station. We did two things. First of all we closed a short segment of a street-34th Avenue-that connects International Boulevard to the transit village, and created a pedestrian plaza lined

with trees and benches. Second, we placed a new central median on International Boulevard, planted it with two rows of closely spaced trees, and created little concrete sitting areas at the intersections. It's basically tamed it from being an arterial street to being a neighborhood shopping street.

**Q: Clearly, safety was a priority in the International Boulevard redesign. I'm wondering if there are types of projects where the intention is to get people out walking more, or to calm traffic, but that don't necessarily increase the safety factor.**

A: One of the things you have to think about is what pedestrians are going to want to do if you want the environment to be safe. Sometimes there's a tendency to want to overly control and channelize pedestrian activity, which I think gets you into problems. For instance, by [providing only one place] to cross, for instance by creating some kind of barrier along the sidewalk, or if you have a median, creating barriers along the median to discourage them from going out there. Such discouragements to pedestrians are usually well-meaning, and they might very well discourage less able-bodied pedestrians who are probably not going to J-walk anyway. But they're not going to discourage other people, it's just going to make it tougher for them, which will make it less safe. I think that that's a problem--people start putting in place things that they think are going to make it safer but actually make it less safe. You've got to really think about what pedestrians want to do. And you have to go out into the field and spend a lot of time looking at what actually happens on streets.

---