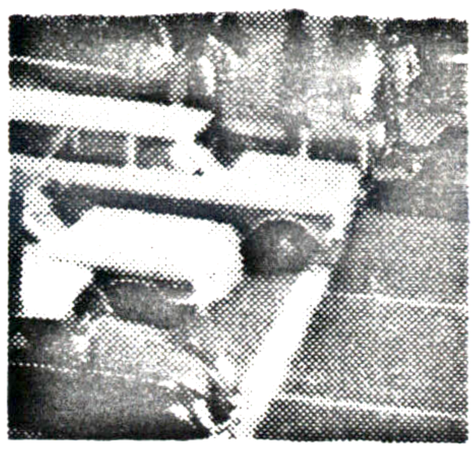
Paths Interrupt Roads



Pedestrian crossings are obstacles to pedestrians and throughways to automobiles—the car rules over people.

In many places, it is recognized by law that pedestrians have the right-of-way over automobiles. Yet at the crucial points where roads and walkways cross, designers invariably give priority to automobiles. They make the smooth, fast road continuous, interrupting the pedestrian walkway at the junctions. This continuous road surface actually implies that the car has the right of way.

What should crossings be like to accommodate the needs of the pedestrians?

The way a path crosses a road, depends on traffic density. If the traffic density is very low, it is safe to let people cross where they want to. If the traffic density is high, the crossing has to be specially defined.

The main problem for pedestrians trying to cross a heavily travelled road, is the width of the roadway. Buchanan has shown that the average waiting time, and the percentage of pedestrians who are forced to wait, for various levels of traffic flow, is greatly affected by the width of the road. *(Colin Buchanan, et al, Traffic in Towns, HMSO, London, 1963, pp. 203-213.)* The road and the lanes themselves, should therefore narrow to the width of the through lanes. Any crossing more than three lanes wide, should be split in two. This not only keeps the crossing distance at a minimum, but it enables the pedestrian to get beyond the visual barrier of parked cars for a clear view down the length of the roadway.

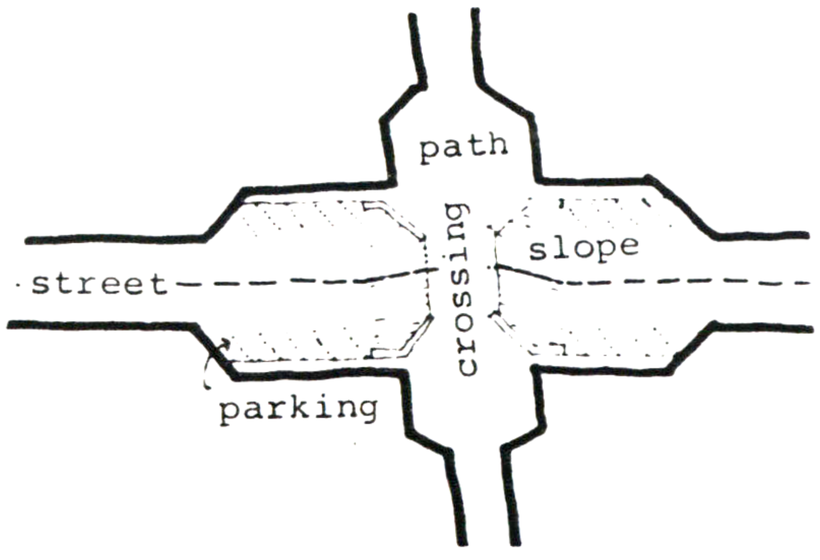
The fact that pedestrians feel less vulnerable to cars when they are about 50 centimeters above them, has been discussed in the pattern, *Pedestrian 50 cm Above Car.* The same principle applies, even more powerfully, where pedestrians have to cross a road. The pedestrians who cross, must be extremely visible from the road. Cars should also be forced to slow down when they approach such a crossing. If the pedestrian way crosses 6-12 inches above the roadway, and the roadway slopes up to it, this satisfies both requirements. The slope may not be too steep, since this would be dangerous to traffic, and make the pedestrians invisible as the car nose rides up. A slope of 1 in 6, or less, is safe from both points of view. This kind of crossing is somewhat elaborate. It is probably only appropriate where pedestrian traffic is unusually heavy—for example at a corner where a great deal of pedestrian traffic is generated by the entrance to a school, or a transit station.

To make the crossing even easier to see from a distance, and to give weight to the pedestrian's "right to be there", the pedestrian path could be marked by a canopy at the edge of the road.

Finally, bus stops, vendors, shops, grow naturally around a place where a pedestrian path crosses a road. There must be enough room for these activities on both sides of the crossing, and for the parking, standing, loading and unloading that go with them.

(continued over)

Therefore:



1. Narrow the road to the length of the through lanes at the crossing.
2. If the road is more than 3 lanes, split it, and provide an island in the middle.
3. Keep the pedestrian path at a constant level through the crossing, 6-12 inches above the road surface, and slope the road up to it—with a slope not greater than 1 in 6.
4. Swell out the pedestrian path on both sides of the crossing to make space for kiosks, benches, vendors, etc.

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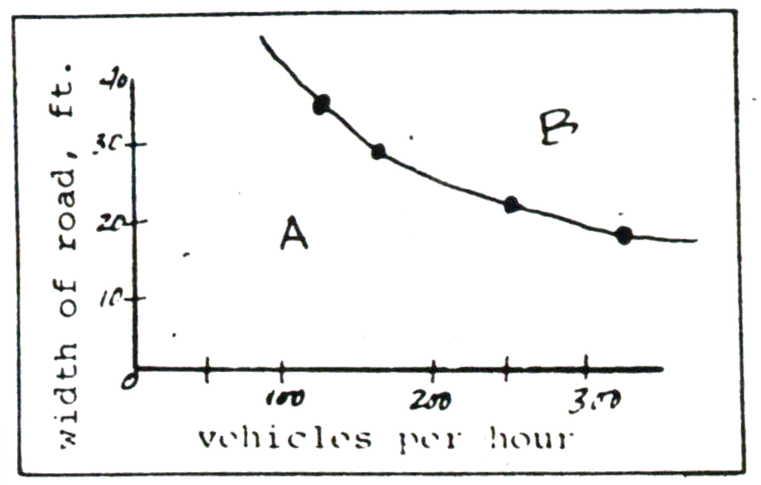
Problem (continued)
A less extreme solution, to be used perhaps at less important intersections would be to modify the roadway's texture along the approach to the crossing. Rougher texture gives the driver three kinds of warning: a) it alters the dynamics of the car giving a different "feel" to the roadway; b) the sound of the car passing over the road is noticeably different; c) it gives the roadway a different visual appearance. All of these cues combined will be incentive for the driver to slow down and become more alert. The length of this textured section will depend on the speed limit of the road. For 25 mph, it will be 62 feet on either side of the crossing; for 35 mph—105 feet and so on according to the following table from the *California Drivers Handbook, California Office of State Printing, April 1970, p. 15:*

25 mph	62 feet
35 mph	105 feet
45 mph	160 feet
55 mph	225 feet
65 mph	302 feet

The use of bumps or textured roadways for slowing people down is demonstrated in railroad crossings. Highways are now using rough and noise generating textured surfaces to slow drivers down for off-ramps and for sections of the highway where lanes merge. They are apparently effective alarms; some of them generate noises and vibrating sensations inside the car.

Context
This pattern applies to road crossings where pedestrian density is apt to be fairly high and where traffic is also fairly heavy. It does not apply to local residential roads where both are low. It does not apply to crossings where pedestrian density is high and traffic low, since under these conditions the pedestrians have no trouble competing with cars. The pattern only applies to situations where the pedestrian is "threatened". Buchanan defines a situation where a pedestrian is threatened, in terms of the delay he experiences while waiting for a gap in the traffic: "when 50% of pedestrians are liable to experience delay the average delay to *all* is about two seconds. The corresponding average delay to those who are actually delayed would in this case amount to 4 seconds. It is generally considered that, at about this point, the pedestrian's freedom to cross the road anywhere he pleases in accordance with his own judgement needs to be curtailed, and that canalisation of pedestrians onto some kind of controlled crossing is required. We think that an average delay to all crossing pedestrians of two seconds may be taken as a very rough guide to the border-line between acceptable and unacceptable conditions. Any greater delay would imply that most people (more than 50%) would have to adapt their movements, to give way to motor vehicles—a situation clearly not compatible with the idea of an environmental area." *(p. 204) Buchanan, op.cit.* His data for this borderline condition is presented below. If a particular roadway of width, W, carrying a volume of traffic, VPH, lies in region B, then a special pedestrian crossing is required.



Region A — Pedestrians free to cross anywhere.
Region B — Some form of controlled crossing desirable.

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