Driven To Excess:
Impacts Of Motor Vehicle Traffic On Residential Quality Of Life In Bristol, UK

SUMMARY OF RESEARCH UNDERTAKEN AS PART OF A MASTERS DISSERTATION IN TRANSPORT PLANNING AT THE UNIVERSITY OF THE WEST OF ENGLAND

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Introduction

Research in Bristol has found a dramatic deterioration in the social life of streets with heavy motor vehicle traffic, with the average resident on a busy street found to have *less than one quarter* the number of local friends compared with those living on a similar street with little traffic. The research, carried out as part of a Transport Planning Masters dissertation at the University of the West of England, confirms for the first time in the UK the results of a 1969 San Francisco study by Professor Donald Appleyard[1], who found a similar erosion of community on busy streets.

Method

Door-to-door interviews were conducted with 60 households on three streets in north Bristol, very similar to each other apart from the amount of motor vehicle traffic.

Street	Category	Traffic Volume
Dovercourt Road	LIGHT	140 vehicles/ day
Filton Avenue	MEDIUM	8,420 vehicles/ day
Muller Road	HEAVY	21,130 vehicles/ day

The interviews with residents included six areas of questioning: demographic data, a street description, recollection of street activities, identification of friends, acquaintances, and home territory on an aerial photograph of their street, questions about the impacts of traffic on their lives, and finally any adaptations that residents employed to reduce the severity of those impacts.

Main Findings

Results were consistent with transport and sociological research that has shown that high levels of motor traffic on residential streets are associated with poor health and weakened social cohesion among residents. Following is a summary of the specific results from the study:

Traffic and Community

Findings indicate that motor vehicle traffic is responsible for a considerable deterioration of residential community, measured by the average number of social contacts, extent of perceived 'home territory,' and reported street-based social activity. Specifically:

- An average resident of HEAVY street had less than *one quarter* the number of local friends, and *half* the number of local acquaintances compared with their neighbours on LIGHT street.
- The residents of LIGHT street defined their "home territory" (defined as the area over which they 'feel a sense of personal responsibility or stewardship') far more broadly than those on HEAVY street. Eleven out of 20 LIGHT households even included *other people's homes* in their territory, while only 2 out of 20 on HEAVY street did so. (see Fig. 3)
- Residents of LIGHT street reported almost 3 times the number of gathering spots, compared to MEDIUM and HEAVY streets.
- In comparison with LIGHT street, the number of cross-street friendships across MEDIUM and especially HEAVY streets, decreased to a greater extent than would be expected if traffic were not a factor. This indicates that the primary influence on social deterioration is the external effect of traffic, not any possible personality differences among residents of the three streets.

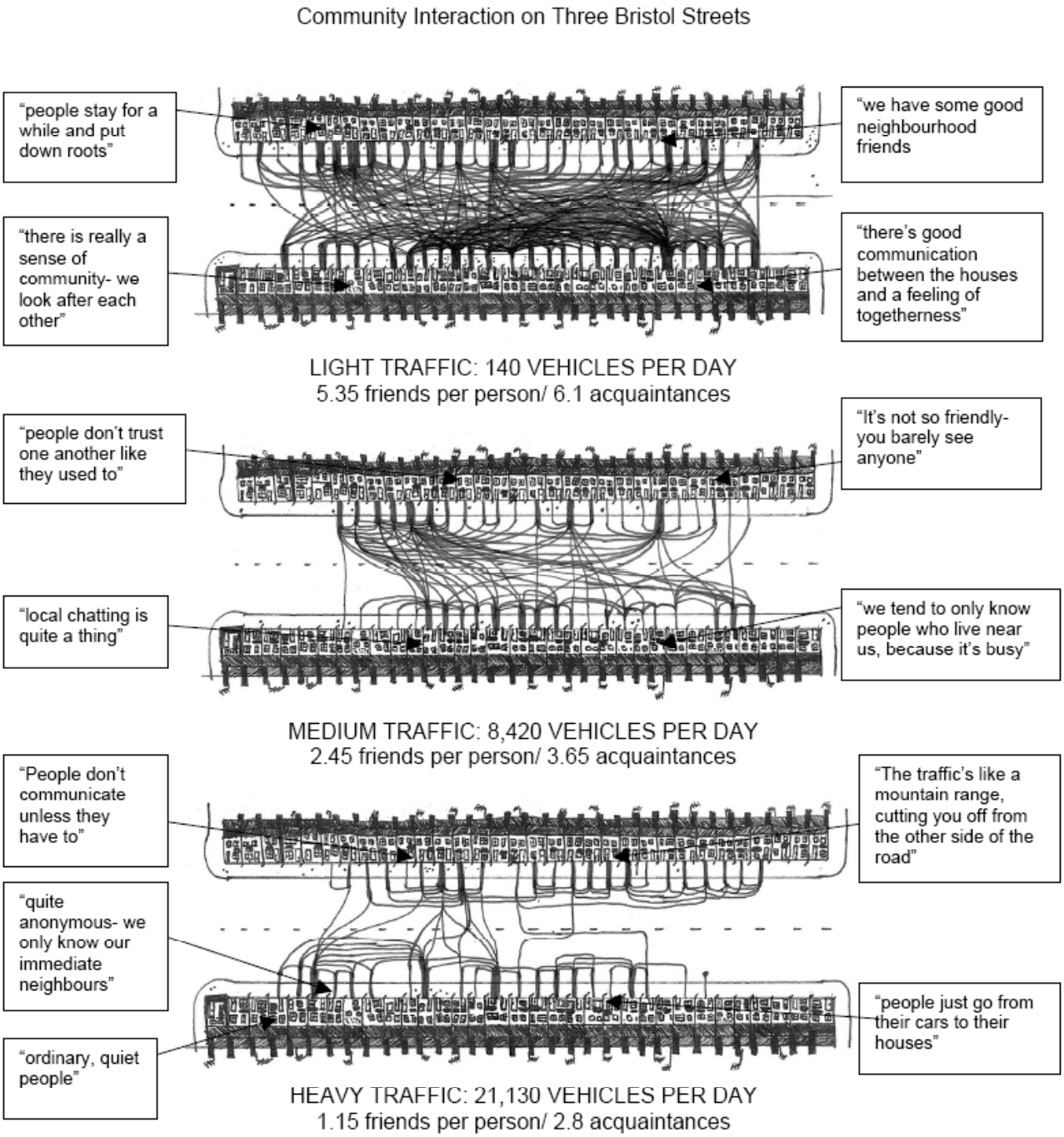

Fig. 1: Community interaction on three Bristol streets: lines represent friendships or acquaintances; dots represent where people are said to gather and chat.

Traffic Intrusion on the Residential Environment
Residents on both MEDIUM and HEAVY streets expressed considerable irritation with the impacts of motor traffic on their street, with air pollution identified as the most severe impact. This outcome is consistent with research that identifies road traffic and vehicle exhaust in particular as "the largest contributor to outdoor environmental nuisance."[2] Specifically, 13 out of 20 HEAVY street residents reported being irritated by traffic while walking on their street and half experienced sleep disturbance.

Quotes from Residents of HEAVY Street (~20,000 motor vehicles/ day):
"(The traffic is) like a mountain range, cutting you off from the other side of the road…..it's hellishly busy….a bloody nightmare. The buses and lorries shake the house when they come by. The air pollution can be quite bad out the front, sometimes during rush hour you feel the air getting thicker and thicker….." - *male, early fifties*

"The air pollution is really very bad- it's annoying when the dirt builds up in the kitchen. There's just always so much dirt, grit, and grime around. I've considered moving out because of this." - *male, early fifties*

"A cyclist who lives on this block got hit crossing the road, and his leg was broken. A pedestrian was killed crossing at the lights. There have been many deaths and casualties on the road." - *male, mid fifties*

"We're very concerned about (our 4-year-old girl's) health- she has a constant cough- and we limit the amount of time she spends outside. We use a humidifier to try and reduce the pollution, but it doesn't work," he said. (Remarking that he had cleaned the television screen the day before, he took a clean white paper towel, and wiped it across the screen. It was black- totally filthy.) "We're constantly breathing this in," he said, exasperated. - *male, late thirties*

Adaptations by Residents to Motor Vehicle Traffic
The individuals interviewed for this research demonstrated real resilience in the face of impacts from traffic that at times became quite severe, especially on HEAVY street. Adaptive responses ranged from shifting activities to the back of the house and limiting the freedom and social lives of their children, to selecting décor that would hide the constant particulate build-up. Specifically:

- 11 out of 20 households on MEDIUM street and 9 out of 20 on HEAVY street reported that they live more in the back of the house, compared with 3 out of 20 on LIGHT street.
- Several residents on HEAVY street chose dark or black curtains or doors to hide the soot buildup from vehicle exhaust, which accumulated on surfaces in and around their homes.
- All of the residents on HEAVY street and 19 out of 20 on MEDIUM street kept their front windows shut because of air and noise pollution from traffic. Only 2 of those on LIGHT street did so.

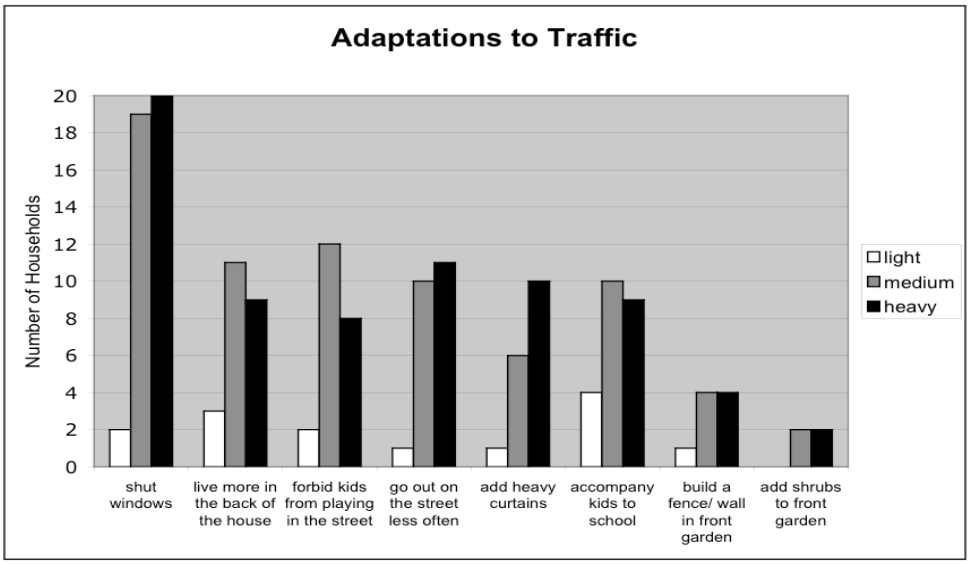

Fig. 2: Adaptations utilised by residents to minimise impacts from motor vehicle traffic

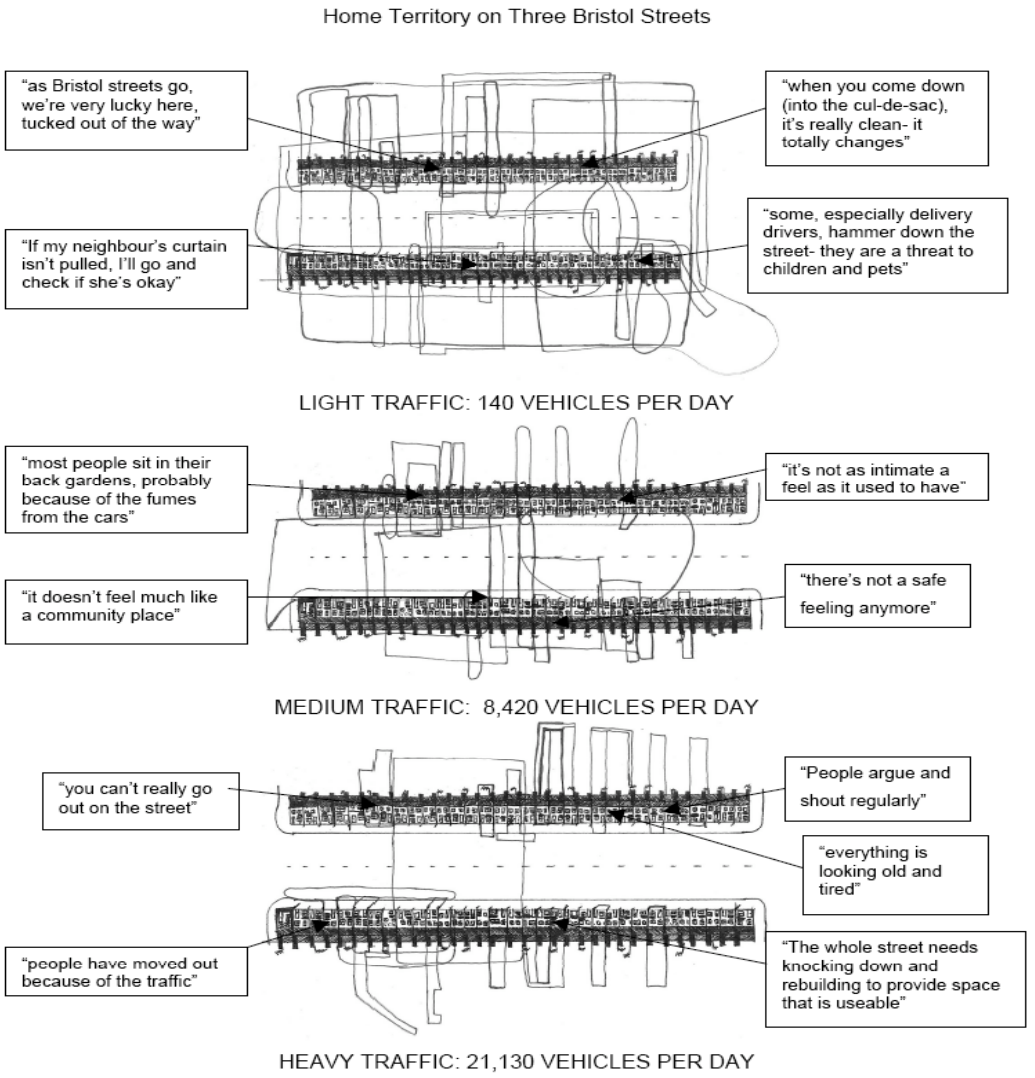

Fig. 3: Residents were asked to draw their 'home territory' (the area over which they felt a sense of personal responsibility or stewardship) on an aerial photo of their street. This diagram includes all 'home territories' on maps of the three streets.

Conclusions

It seems that issues of community and quality of life have been neglected whilst planning and transport policies have led to a massive growth in motor vehicles (over 1000% since 1950 in the UK[3]). The impacts of this unprecedented increase are now being felt throughout British society. Put into context with the large body of research that has documented the severity of traffic impacts, a bleak picture emerges of a growing deterioration of the environment and community life, especially along busier roads. These impacts exact a particularly heavy toll on children and the elderly, who are more vulnerable to the impacts of traffic in their neighbourhood.

Interference with neighbourhood social interaction is a health issue: Healthy social networks are not only an important prerequisite to happiness and quality of life- they also defend against multiple forms of mortality. According to researchers, "over the last 20 years more than a dozen large studies have shown that people who are socially disconnected are between 2 and 5 times more likely to die from all causes, compared with matched individuals who have close ties with family, friends, and the community."[4]

Growth in motorised traffic is THE major threat to quality of life in Bristol. Not surprisingly, indications are that quality of life in the city as a whole is being diminished by motor vehicles more than any other single cause. According to the 2006 Bristol Quality of Life Survey, most of the measures of quality-of-life in the city have been improving. The notable exceptions, however, are primarily transport-related, including road traffic casualties, traffic noise, traffic pollution and dissatisfaction with bus service, which have all been getting worse in recent years.[5]

Policy Solutions

The findings from this research provide additional support for the urgent need to change course on current transport policy. Reducing motorised transport demand is also a critical response to the climate crisis. Transport- particularly aviation and motorised road traffic- is the fastest growing source of carbon emissions. By taking steps to reign in the inexorable growth of motor vehicle traffic, we can address global climate change, local quality of life and community deterioration simultaneously.

Policy solutions to the problems identified above include:

- adoption of a maximum 20mph speed limit on all residential streets
- implementation of quality walking and cycling networks that are continuous, integral, and prioritised
- public transport that is affordable, frequent, and accessible
- the re-localisation of economic and social communities, improving the availability of local goods and services while reducing the need to travel
- the widespread implementation of home zone style street design (streets designed for primary use as a social space, while retaining access for cars at a walking pace)
- support for low or no-car designs in all new residential developments
- promotion and facilitation of social and cultural activities such as street parties and car-free days, and support for residents desiring street improvements
- in order to facilitate lower car ownership, wider availability of formal and informal car-sharing programs
- residential and commercial parking charges that reflect the true cost of parking

> "I'm glad that I didn't get a car because I'd be dependent on it now. *Some of my friends would rather go without food than give up their car*. I value my independence too much."
>
> -female, early seventies (LIGHT street)

DOWNLOAD AND READ THE FULL STUDY

To download the full study, go to: http://tinyurl.com/6329rz

If you don't have access to the internet, please call 0117 922 5708

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[1] APPLEYARD, D., 1981. *Livable Streets*. Berkeley: University of California Press.

[2] WILLIAMS, I.D. and MCCRAE, I.S., 1995. Road traffic nuisance in residential and commercial areas. *The Science of the Total Environment.* 169 (1995) 75-82.

[3] GOODWIN, P., CAIRNS, S., DARGAY, J., HANLY, M., PARKHURST, G., STOKES, G., VYTHOULKAS, P., 2004. *Changing Travel Behaviour: Script of a Presentation given at the Bloomsbury Theatre, London, 20.9.2004*. London, ESRC Transport Studies Unit, University College London.

[4] PUTNAM RD. Bowling Alone: The Collapse and Revival of American Community. New York, NY: Simon &Schuster; 2000.

[5] BRISTOL CITY COUNCIL, 2006. *Quality of Life in Bristol: 2006*. Bristol City Council. Available from: http://tinyurl.com/3fbaat