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**Promoting Physical Activity and Reducing Climate Change: Opportunities to Replace Short Car Trips with Active Transportation**

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Automobile use is a significant contributor to climate change, local air pollution, pedestrian injuries and deaths, declines in physical activity and obesity. Nearly a third of U.S. greenhouse gas emissions in 2007 were transportation-related; each gallon of gasoline used in transportation emits 20 lbs of CO<sub>2</sub> into our atmosphere. A significant proportion of car use is for short trips that can relatively easily be taken with active transportation options – walking or cycling – or with public transportation. About half of all car trips in the UK, the Netherlands, and the US, for example, are less than 5 miles. There are a number of immediate, practical opportunities for these nations, and others, to implement policies and programs that reduce short car trips and increase active transportation.

To place these opportunities in perspective, it is helpful to understand both recent temporal changes in walking and cycling as modes of transportation, and their extraordinary geographical variation. In the UK, between 1989/91 and 2004, the average number of trips made on foot declined 25% and trips made by bike declined 33% (Department for Transport, 2005). In the US, the trend over the past several decades is one of sharp decline (Maibach, 2007). Britain (2%) and the US (1%) have low rates of cycling for transport; conversely, the Netherlands (27%), Germany and Denmark have cycling trip rates over ten times that found in the UK (Environmental Audit Committee, 2006).

Structural enhancements – creating safe, convenient walking and cycling routes to local destinations – are an important means of promoting active transport, but they are not the focus of this commentary. Rather, we focus on communication enhancements, marketing enhancements, and policy enhancements that communities can make with relative ease to promote active transport.

**Communication.** There is strong evidence that community-wide physical activity campaigns (“large-scale, intense, highly-visible community-wide campaigns with messages directed to large audiences through different types of media” and accompanied by other community-based behavior change components”) increase communitywide rates of physical activity (Guide to Community Preventive Services, 2009). There is also evidence that targeted information campaigns can increase rates of walking and cycling per se – as well as active commuting – especially among “motivated sub-groups” of the community (Ogilvie et al., 2007). Worth noting is the fact that – in surveys and in community trials -- many people cite “health benefits” as one of their primary motivators for wanting to participate in active commuting (Anable & Gatersleben, 2005).

Informational programs that encourage people to commit to trying active commuting – often implemented through workplaces – have also been shown to significantly hold the potential to influence short trips (Wolfram, 2005). In Aarhus, Denmark, for example, 90% of people who made such a commitment reduced their car use after bicycles, bus passes and other incentives were made available to them (<http://www.ntn.dk/Aarhus/papers/BikeBus-Overgaard.doc>). The Aarhus example also nicely illustrates the opportunities associated with marketing enhancements.

**Marketing.** The essence of marketing – or social marketing – in this context is the introduction of products or services into communities that increase the benefits associated with active transport and/or reduce the costs. One such promising method – “individualized travel marketing (ITM)” – involves telephoning all households in targeted areas of the community to determine which are potentially willing to give active or public transport options a try. Potentially interested individuals are provided with customized information (e.g. a customized walking or cycling map) and, if relevant, a free short-term public transit pass. A carefully evaluated ITM program in Australia was shown to reduce car trips by 9%, increase public transport trips by 17%, and increase walking and cycling trips by 35% and 61%, respectively – changes that were sustained over 2 years – with a stunning cost-benefit ratio of 1:13 (Thøgersen, 2007). Further evidence supporting the effectiveness of ITM is rapidly accumulating in the UK, Japan, US and other nations around world.

Approximately 50 European cities have automated ‘city-bike’ sharing systems that offer short-term rental of bicycles at numerous points around a city on time-based tariffs. Paris’s *Velib* system was launched in July 2007. It features a fleet of 10,000 bicycles available from 750 stations distributed 300 metres apart from each other. Also, Barcelona’s Bicing system is planned to cover approximately 70% of the city’s area. Although there is little evidence to date on the extent to which the programs are reducing car use, it is clear that they are successfully increasing rates of cycling (C40, 2008).

Other promising marketing interventions include walking school buses – which have been shown to reduce car trips to school by around 25% (Mackett, et al., 2003) – and marginal car ownership/car sharing clubs which have been shown to reduce car use by over 50% and increase walking and cycling by nearly 100% (UKERC, 2009).

**Policy.** Communities have numerous options to use policy in ways that make active and public transport options more attractive. Pricing policies are one such option. For example, the London Congestion Charging Scheme resulted in a substantial decrease of car use, and a 30% increase in cycling (Santos, 2008). The Stockholm congestion charge also reduced car use. Other policy options, ideally used in combination, include reduced car parking, lower speed limits, giving cyclists priority at intersections, closing some roads to cars, and allowing contraflow (i.e., reverse direction) cycling on one-way streets (Woodcock et al., 2007).

Transport pricing schemes – and other measures that impede car traffic – are often not easily implemented because of lack of public support. Interestingly, public support grew for both the Stockholm and London congestion charges after they were implemented as people grew more positive about the effects of the fees on congestion levels, the environment, and parking problems and evaluated the policy as more acceptable (Schuitema, Steg & Forward, 2008).

**Communication as a Policy Advocacy Tool.** Communication alone has limited potential to achieve population behavior change goals. The potentially more powerful use of communication is as an advocacy tool to build grass roots and legislative support for appropriate public policies (such as the transport pricing schemes referenced above) and investments in communication and marketing programs that improve the public's well-being.

**Integrating Transportation, Housing and Other Community Policies.** To get the maximum benefits from the changes in transport policy suggested here, as well as from marketing and communication interventions, changes in housing and locational policies will be required too. These policies affect the distances people have to travel to reach the important destinations in their daily lives and thus the feasibility of sustainable and healthy ways of travel. Calculations of the potential for shifting from car use to walking and cycling rarely allow for the possibility that in addition to mode switching, walking and cycling could also facilitate *destination switching*. As well as the pure like-for-like replacement of car journeys with non-motorized modes, journey lengths could also be altered by the substitution of longer car journeys with shorter ones by non-mechanized means (UKERC, 2009). If people choose to live, work and play in locations that are accessible by walking or cycling, then over time, this can have a multiplying effect on travel behavior choices. In such circumstances, some people may prefer not to own a car, but rather hire a car occasionally or join a car club.

**Conclusion.** The three sets of options and opportunities outlined in this commentary – communication, social marketing, and policies – all have considerable potential to yield significant health, quality of life, economic and environmental benefits to communities willing to implement them. Public health authorities should work closely with transportation and community planning authorities to harvest these opportunities.

### **Conflict of Interest Statement**

The authors declare that there are no conflicts of interest.

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