

Biggest issue  
ever!

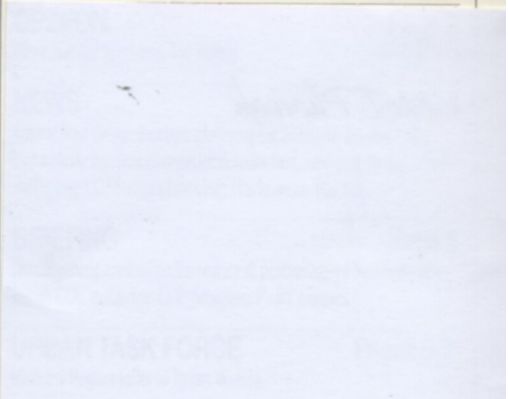
• ROGERS p 6 • GLAISTER p 18 • PHAROAH p 21 • ARMSTRONG p 25 • DOYLE p 32 •

# PLANNING IN LONDON

ISSUE 26

JULY 1998

THE JOURNAL OF THE LONDON PLANNING & DEVELOPMENT FORUM



# Neighbourhood car fleets—the key to rational car use

**LPG: A Green Fuel by Royal Appointment**

In May it was announced that four royal vehicles are to be powered by LPG and the Queen took a ride in an LPG powered taxi to support the green cause, writes Mark Haseley, a graduate consultant, at Oscar Faber.

LPG is one of many alternative fuels considered by some to be preferable to the conventional fuels of petrol and diesel.

Others include natural gas, ethanol, methanol, hydrogen and electricity. LPG is already used throughout the world as a road vehicle fuel. In the UK, numbers are negligible but notably include some ministerial vehicles. In Italy over 1,000,000 vehicles are operating on LPG. Elsewhere in the World there are around 700,000 LPG vehicles in the Netherlands, 350,000 in the USA, and 320,000 in Japan, the majority being taxis and buses.

LPG is a gaseous mix of propane and butane, 90 per cent propane in the UK. It is produced as a by-product of natural gas and/or oil extraction processes and oil refining. The great advantage that all gaseous fuels have over their liquid alternatives is that they burn more efficiently. Consequently, rates of fuel consumption and emissions of carbon dioxide are lower. The emission of a variety of other pollutants produced as a result of incomplete fuel combustion is also reduced. These include carbon monoxide, particulate matter (soot), and unburned hydrocarbons.

A major disadvantage that gaseous fuels possess is that they take up more space and possess less energy than a liquid fuel. A reasonable vehicle range therefore requires the use of heavier and larger

>>>



**Tim Pharoah is a consultant to Llewelyn-Davies and visiting fellow at South Bank University.**

Unlike individual car ownership, it opens up realistic travel choices and a chance for many people to save money on travel.

Neighbourhood cars are parked in small groups of dedicated spaces conveniently near to people's homes. The cars are owned or leased by a club, which deals with all aspects of their maintenance and management. Members of the club

**T**he neighbourhood car fleet (NCF) provides an alternative to car ownership that leads to less car use. It is therefore part of the sustainable transport toolkit. Unlike many traffic reduction techniques, however, it depends not on unpopular regulations or financial penalties, but on enlightened self-interest.

can reserve a car in advance or, in some schemes, are available on spec. Members can use any car from their local fleet, or from any other affiliated fleet, even in other countries. Unlike conventional rental, the car can be used for very short distances and for very short periods, making it useful even for local journeys. This is the

**A neighbourhood car fleet can relieve parking pressure in existing housing areas.**



essence of the NCF concept, but the context and the detail need further explanation.

Excessive traffic has led to widespread demands for reducing car use, now backed up by various planning policies as well as new obligations under the Traffic Reduction Act. Car ownership, however, is seen as untouchable in political terms, and the projected 30 per cent increase in cars owned in Britain in the next 20 years is accepted as inevitable if not wholly desirable. The logic of defending car ownership is, however, questionable on two counts. First, increased car use is strongly associated with the rise in car ownership. Second, desire for car ownership per se may be confused with desire for convenient access to a car.

The concept of neighbourhood car fleets resolves these dilemmas by providing an alternative to car ownership which reduces the stock of vehicles as well as per-capita use of them.

The specific objectives that NCF schemes help to meet are:

- a reduction of car dependence and use;
- reduced parking demand
- unlocked potential for car-reduced housing development
- lower household travel costs
- More equitable distribution of access to cars.

The NCF helps to overcome two aspects of individual car ownership that work powerfully against the achievement of sustainable transport objectives: the costs of individual car ownership are weighted towards fixed costs (purchase, tax, insurance, etc) rather than running costs. This means that owners cannot significantly reduce costs by driving less, and that there is always a built in financial incentive to choose the car rather than other modes.

Each car is driven for only a small part of the time, generating a high demand for parking space, both at home and at destinations. In addition

>>>> storage tanks, increasing vehicle weight and cost. This is one of the reasons why gaseous fuels such as LPG are more readily adapted for use in large vehicles.

Compared to many alternatives to petrol and diesel, the operating costs of gaseous fuels are favourable. The largest economic barrier to the widespread use of LPG is the initial capital cost of vehicle purchase or adaptation. A problem generic to vehicles designed for alternative fuels is that their low volumes of production mean high fixed production costs per unit. Petrol vehicles are produced in such high volumes that economies of scale force production costs down. The cheaper option adopted for the four royal cars is to adapt a road vehicle to operate on LPG. This can cost around £5,000 for the conversion of a bus and £1,500 for a car. Day-to-day operating costs of LPG road vehicles are as good as, if not better, than their petrol counterparts. In an effort to stimulate the market for LPG, fuel duty has been lowered below that of diesel and petrol. As a result, LPG is often 10p or more cheaper per litre cheaper than diesel. Vehicle lifetimes are expected to be longer due to lower maintenance costs, and more efficient engine operation.

If LPG is to make a significant dent in the volume of exhaust emissions generated by road traffic in the UK, it needs to be used in cars, the vast majority of road traffic. Storage and consequent lack of driving range make this unlikely unless they are to be used as short trip, urban vehicles such as taxis. Furthermore, private car users balance the vehicle operating costs and the high initial capital cost of a vehicle. Fuel costs tend to feature less significantly. If car users are to be persuaded to use LPG vehicles, purchase prices need to be reduced to a level at or below those of their existing cars, or conversion costs should be waived. Longer expected vehicle lifetimes are not likely to compensate for the perception that LPG vehicles are expensive to own in the first instance.

LPG is easily adapted for use in spark-ignition petrol engines, and as such is emerging as a viable alternative for buses, coaches and goods vehicle operators wishing to switch from petrol. There are several examples of such fuel-switching in the UK. One tour operator in Edinburgh, for example, has converted its

>>>



The NCF station containing car keys and equipment, including a children's seat and even a ski rack! (Stadt Auto, Bremen, Germany).

there are aspects of car ownership that some people find irksome, such as repairs, maintenance and administrative chores.

The idea originated, as far as I have been able to trace, with two economists at the University of Warwick in 1968<sup>1</sup>. They anticipated to a large extent both the structure and justification of modern NCF schemes. Of course, cars are frequently shared on an informal basis, if only between household members or occasionally between friends and neighbours. We are concerned here with more formal sharing, between people who do not have to know, let alone get along with each other. Car rental fits with this criterion, but is hampered by inflexibility, especially for short duration trips, and depots few and far between.

The first known formal shared car scheme was introduced in Montpellier (France) in 1973, but failed because

the car fleet served the whole town rather than an individual neighbourhood. Members could never be sure of finding a vehicle, despite students being employed to return cars to the parking points. An interesting feature of the scheme, however, was the technology for charging which was a pre-electronic version of the pre-paid card: users bought plastic strips which had to be inserted into a meter in the car, which then chewed it up in proportion to the distance travelled.

So the concept is not new. Some further schemes were introduced in the 1980s in the USA, Sweden, the Netherlands and Japan.

In London, too, pioneering work in the 1980s laid the foundation for schemes (though never implemented) in Kensington & Chelsea and Richmond<sup>2</sup>.

After various attempts and experiments, successful schemes were devised and launched in Germany and Switzerland in the late 1980s.

There are various types of scheme, but the basic features are:

- a locally kept fleet of vehicles for use by members of a club
- payment according to use
- small fixed costs.

On the continent, however, Neighbourhood Car Fleets have developed rapidly in the last few years. There are now schemes in over 260 cities with more than 20,000 members. Such broad experience has allowed some general conclusions to be drawn about NCF operation and its impact on the travel scene. The information below is based on analy-



sis by the European Car Sharing Organisation.

Each Neighbourhood Car Fleet vehicle typically replaces 5 – 6 private cars; there are 15 – 20 users per vehicle; membership often adheres to the 'rule of thirds':

- a third are non- car owners
- a third had planned to become car owners
- a third gave up ownership in favour of Neighbourhood Car Fleet membership.

If available throughout the European Union, it is estimated that the car population could be reduced by six million vehicles. A quarter of all bookings are made within one hour of travel commencing. (This clearly distinguishes the flexibility of Neighbourhood Car Fleets compared with conventional car rental). Members of Neighbourhood Car Fleet schemes consume 50 per cent less energy for their total travel needs.

A typical scheme works as follows:

- join the club to get personal key;
- reserve a car by telephone (anytime);
- collect car from NCF station;
- drive and return; and
- leaving travel docket and key in safe.

All the business of car ownership is done for members (maintenance, insurance, repairs, tax, MOT).

The main areas of potential may be in high density housing areas without off-street parking, but with on-street parking controls and easy access to good public transport. In such areas (Camden, Richmond for example) NCF can reduce parking in new housing. These principles have been explored in a recent study for the London Planning Advisory Committee and include better environmental quality, easier development of in-fill sites, and increased housing capacity<sup>3</sup>.

This marrying of car-reduced housing with the NCF concept is rapidly developing, with schemes



**A neighbourhood car fleet allows the development of car-free or car-reduced housing.**

>>> fleet of petrol buses to LPG. Fleet operators are likely to value the wider costs of LPG vehicle use, eg fuel prices, fuel duty rebates, maintenance and repair costs, and vehicle lifetimes. Furthermore, they are often keen to show their environmental credentials. It is for these reasons that LPG is a serious alternative to petrol and diesel.

Public transport and goods vehicles represent the minority of UK road traffic. Even a nation-wide fleet of LPG buses or goods vehicles 'is therefore unlikely to significantly dent road transport emission volumes. Where it can make an impact is in urban road networks where buses and taxis constitute a larger proportion of traffic and more people are exposed to the effects of vehicle exhaust fumes. It is in these areas where the need for reductions in exhaust emissions is most critical, at least in human health terms.

So the Queen's ride in a taxi! It's just the right chord.

under construction or planned in many European cities including Amsterdam, Hamburg, Munich, and Stockholm. Perhaps the largest is the 6,000 home mixed use regeneration project in Tübingen with parking reduced to 50-60 per cent of normal levels. The first British car-free housing development to be linked to the NCF concept may be Edinburgh, where a 121 dwelling scheme in Gorgie includes only 10 car spaces, for NCF and disabled drivers.

Neighbourhood Car Fleets offer the potential to tackle many of the problems caused by individual car ownership, including (paradoxically) lack of travel choice and excessive reliance on cars. They also have the potential to convert car-free housing from a niche market to the norm for high-density, high-quality housing in locations accessible to public transport and local facilities. Housing served by NCF should be cheaper as a result.

Unlike many schemes to reduce traffic, the NCF relies for its success on enlightened self interest, and provides direct financial and other benefits to the user, as well as to the wider

community through less parking and less traffic. With many areas of high parking stress, and good alternatives to the car, there is plenty of scope for the introduction of NCF schemes in London.

Britain's first formal public NCF scheme is planned to begin operation in Edinburgh's Marchmont district in 1998. The NCF idea originated in Britain but has been developed elsewhere. A demonstration scheme in London is long overdue.

<sup>1</sup>Fishman, L and Wabe, J, Restructuring the Form of Car Ownership, University of Warwick, 1968.

<sup>2</sup>Pharoah, T, Shared Cars: Key to Reducing Traffic? in TCPA Journal Sept 1987.

<sup>3</sup>Llewelyn-Davies et al (1998) Sustainable Residential Quality: New Approaches to Urban Living, London Planning Advisory Committee.

**Tim Pharoah's most recent books include the award winning *Traffic Calming Guidelines* (Devon County Council, 1991), *Less Traffic, Better Towns* (Friends of the Earth, 1992) and *Transport Concepts in European Cities* (with Dieter Apel, Avebury, 1995).**

