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Park and Ride schemes (P&R)

Photo 1: The Pear Tree Park and Ride, on the northern edge of Oxford

The concept of a Park and Ride (P&R) scheme is relatively simple – motorists park their cars in a car park on the edge of a town, and then take a bus (or other form of transport) to their final destination. This, in theory, reduces the number of vehicles going to the final destination, namely city centres.

The idea of Park and Ride originated in the 1960s with experimental services operating in Oxford, Nottingham and Leicester. The existing Oxford Park and Ride scheme started in 1973 and is the oldest continuously operating service in the UK.

Why P&Rs?

Local authorities and small historic towns implemented P&R schemes to improve accessibility and air quality. There were also believed to be gains for local businesses. Only two towns (out of 40) that implemented P&R schemes have reduced parking provision in the town centre.

During the 1990s P&R evolved from being based largely around small- and medium-sized historic cities to a range of urban areas, This coincided with Local Authorities applying to the Central Government for funding for transport measures. From 1997 the government approach moved from support for, to encouragement for, P&R schemes and by 2000 there were about 70 P&R in the UK and by 2005, 92 P&R in 40 cities.

P&R schemes have been considered as particularly suitable for historic towns with narrow streets. The positive comments from P&R users relate to the cost, reliability, waiting facilities and parking availability. However, the main negative comments from users also relate to cost and reliability.

Most P&R schemes include a variety of infrastructure measures to support the P&R scheme. These include traffic information signage, bus lanes, slip roads, bus priority signals, mobile and texting services. Facilities at P&R schemes include waiting rooms, toilet facilities, bus shelters, CCTV and cycle lockers.

Disadvantages of P&R schemes

According to Friends of the Earth (Birmingham) further Park and Ride expansion is inappropriate for the 21st century, as it does not contribute significantly to more sustainable transport provision or offer any significant environmental benefits.

They claim that Park and Ride have increased the accessibility of towns and cities, which in turn have proved unable to accommodate increased traffic. Nevertheless, it has decreased the localised effects of inner urban air pollution by relocating it to other areas. They believe that P&R actually produces a negative environmental impact and may ultimately diminish the choice and quality of other transport modes such as walking and cycling. They listed a number of concerns:

1. P&R does not necessarily reduce overall traffic levels - it simply redistributes it.
2. Vehicle miles and atmospheric pollution may increase. People in one survey in Bristol showed that over 40% of Park and Ride users had switched away from public transport in order to drive to the Park and Ride site. In Cambridge, vehicle miles increased by 0.6 miles per car once additional bus mileage was taken into account from the Park and Ride bus services.
3. P&R may undermine existing public transport services or may threaten the prospects for service improvements and the introduction of new routes. Most bus based Park and Ride schemes are subsidised by local authorities. Alternatively, the funding towards P&R could be used to develop more bus routes, cheaper bus journeys etc.
4. P&R with free car parking is a subsidy to car drivers. It makes car use more attractive by removing or reducing the cost and stress of parking in city centres and town centres.
5. P&R schemes increase the social exclusion of those without access to a car.
6. Large areas of land devoted to car parking is an inefficient use of land which could be put to another more productive use.

However, it is not just the Birmingham FOE that are wary of P&R schemes. Since the mid-1990s there has been growing opposition to P&Rs. This was due to a combination of building on green land (sometimes green belt land), damage to the environment, localised congestion and pollution, and effect on local amenities. Manchester City Council, for example, in rejected the need for large scale Park and Ride expansion noting that the majority of its population live within 10 minutes walk of a bus stop.

The detailed and long-term effects of P&R are complex. P&R are good at attracting cars, but may cause diversion of journeys and generate new car trips. According to the Campaign to Protect Rural England (CPRE) increasingly large areas of countryside are buried under tarmacadam in the name of sustainable transport. But ‘almost every trip relies on using the car at one end. We need to reduce traffic levels overall and improve public transport closer to where people live to provide genuine transport choices. If this continues, every major town in England will have a necklace of car parks around it’.

Other issues include
• the increase in congestion near P&R schemes
• the fact that approximately two-thirds of local authorities and over 50% of small historic towns are subsidising their P&R schemes.

Environmental impacts

There is some debate over the environmental impacts of Park and Ride scheme. On the one hand, they replace a vegetated surface with an impermeable one. This increases the risk of flooding, and may lead to a reduction in water quality (oil and particulate matter may wash over the surface contaminating groundwater and streams).

Photo 2: Flooded Park and Ride - Seacourt, Oxford

In addition, the change in land use removes valuable habitats for flora and fauna. Tarmacing the surface cuts off air and water getting to the soil and so the soil is essentially killed off. On the other hand, it is unlikely that P&R schemes directly lead to a decline in biodiversity, as any rare species present could prevent the P&R scheme from being built. There are others that believe P&R schemes are compatible with floodplains, since during times of floods, vehicles can be moved away from the P&R (Photo 2). Moreover, it is possible to use semi-permeable materials (bricks with holes in them) that would allow some drainage and aeration of the soil.

Case study: Oxford's Park and Ride scheme

Oxford's transport problem is severe and has important effects. For example,

- Up to 80 000 vehicles a day converge on the city and its 15 000 parking spaces.
- At peak times, the three-mile trip from the Pear Tree roundabout to locations close to the city centre is 30 minutes of congestion, delay, frustration and increasingly air pollution.
- Asthma has been linked with the rise in air pollution and Oxford has one of the highest rates of asthma in the UK.
- During high pressure weather conditions, levels of carbon monoxide and nitrogen oxide in Oxford exceed WHO safe limits.
- Even in nearby rural areas photochemical smog (low level ozone) reduces air quality.

In 1973 Oxford City Council opened the Redbridge Park and Ride Scheme, accommodating 200 cars. By 1995, four sites provided 3750 parking spaces and plans were published to provide an extra 1000 spaces. There are now five P&R schemes in Oxford (Fig 1). One of them, Water Eaton is adjacent to the new Oxford Parkway railway station that will open in 2015, and provide a rail link to London Marylebone. **Congestion** and **pollution** had forced the planners to develop the Park and Ride Scheme.

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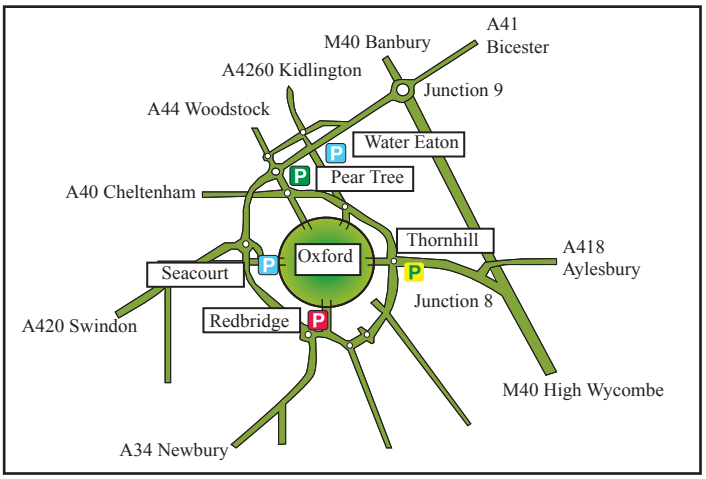
Fig. 1 P&R schemes in Oxford



- Over 35% of visitors to central Oxford arrive by car
- Park and Rides intercept 18% of Oxford-bound cars during off-peak times and 38% at peak times
- There are over 15 000 parking spaces in Oxford. Park and Ride has **added** extra parking spaces rather than **replace** inner city ones.
- Oxford has the highest bus usage for a city its size and the second highest use of bicycles
- Park and Rides are having an adverse effect on rural bus services as over 1000 potential bus users use Park and Ride instead
- Park and Ride has prevented Oxford from becoming an inner city car park
- Each Park and Ride scheme take up to 12 ha of good quality green belt land.

Consequently, there needs to be:
1. restricted parking in the city centre
2. more bus routes and bus lanes
3. users of Park and Ride should pay extra so as to increase revenue to pay for public transport. An increase of 50p per day would generate £500 000 each year.

The Oxford Transport Strategy is the result. So far there has been:
- a decline in the number of shoppers in Oxford city centre
- an increase in the cost of parking in the city centre, and fewer cars going in to the city centre
- an improvement in air quality.

Results of the Oxford Transport Strategy

Traffic	
Entering central area	-20/30%
High Street	-75%
Science area	-14%
Car parking	
City centre (public spaces)	-20%
Buses	
Passengers	+9%
Travel: faster and more reliable	

Success?

Success depends upon the original objectives. One of the main reasons for success appears to be economic - increased usage and more visitors to small historic towns. On the other hand, P&R has been less successful in reducing traffic flows and congestion. P&R appears to be popular at a local level and appears to have high user satisfaction. However, at a national level it may be contributing to increased emission of greenhouse gases, and so is not necessarily a good policy.

As issues of climate change and peak oil become ever more important at a local- and global-scale, transport strategies that focus on increased use of cars might not be the best policy. Alternatives to P&R include Free Cycle Hire (Barclay's Bikes or Boris bikes), Carriageway relocation, Improved cycle networks, Guided Bus services, and hybrid cars).