

Measure title: Development of a city centre car sharing club

City:

Project: SMILE

Measure number: 9.2

A Introduction

Norwich is a compact City, relatively isolated within a largely rural area. The City Centre retains its mediaeval street pattern, whilst many of the inner suburbs of the City were built before the advent of the private car. Most streets are thus unsuited to high levels of traffic, and parking for vehicles is restricted. The City and County Councils therefore have a joint policy of aiming to prevent any growth in private car use within the urban area, and aim to cater for increasing transport demand by means other than the private car.

Due to the nature of the wider area and the very rural character of much of Norfolk, many residents consider access to a car to be essential. However, use of cars by City residents has been shown to be much lower than is typical for Norfolk, a car club could offer the flexibility of access to a vehicle, with reduced costs, and reduced pressure on limited parking provision, and help to allow residents to make more informed choices about the mode of transport that they are using for particular journeys, as the cost implications, in particular would be more transparent.

The idea of introducing the scheme to the University of East Anglia was consequent on the rapid expansion that has take place there, and the increasing pressure that this growth has placed on the limited car parking provision that is available. Lack of any real potential to expand parking provision, and the Universities aim to become one of the most sustainable University sites (an effective travel plan has been in place for some time) suggested that there could be similar benefits for the University to those which were anticipated in the residential areas.

A1 Objectives

The measure objectives are:

- **Objective 1** - Provide transport choice, giving access to a car when necessary, but also encouraging walking, cycling and public transport for day to day travel
- **Objective 2** - Reduce emissions from the use of private transport
- **Objective 3** - Reduce the amount of land used for parking private vehicles, releasing land (particularly in new developments) for more productive uses.
- **Objective 4** - Reduce social exclusion by offering those who cannot afford private transport access to it
- **Objective 5** - Assess the demand for clean vehicle car sharing clubs
- **Objective 6** - Develop a model of car clubs that could work in Norwich
- **Objective 7** - Establishment of two car sharing clubs of 5 cars each.

A2 Description

The purpose of this project was to introduce a car club to Norwich operating from two centres, one a campus based academic institution, benefiting mature students (who may live on campus) and staff (for business purposes) the other within the City Centre benefiting residents and local businesses. The City Centre operation was from both development based, and on street locations, and it was the intention that at least one major city centre development will offer car club membership as part of its sales package. Users could book online or by phone and unlock their car using their personal Smartcard. A PIN system 'unlocked' use of the car.

The principle of a car club is straightforward in that it provides access to a pool of vehicles, available for occasional use by local people and businesses. Implementation involves scheme design, the securing of appropriately located parking spaces, the provision of suitably equipped vehicles, and ongoing promotion. It was our intention that the car club would operate some form of alternatively fuelled vehicle, although any vehicle must be available for use at all times, and be easy to fuel by any user, so electric vehicles or those using fuels that are difficult to obtain will not be suitable. Within the project, however, there was a series of tasks and monitoring programmes designed to demonstrate the benefits of the scheme:

Task 1

- To bring a car club operator into the project as a partner

Task 2

- To negotiate with developers, and undertake appropriate consultations to provide both on and off street parking spaces for car club use

Task 3

- To monitor the attitudes and car ownership and use profiles of individual members as they join the scheme

Task 4

- To 'grow' the car club to become a self sustaining operation

Task 5

- To review the attitudes and behaviour of car club members to determine savings in CO₂ emissions, 'saving' in street space, reduction in private mileage, reduction in overall mileage and social inclusion

Task 6

- To monitor attitudes and understanding of the car club concept of the wider public

B Measure implementation

B1 Innovative aspects

Innovative Aspects:

- New conceptual approach

The innovative aspects of the measure are:

- **New conceptual approach, regionally** - There were no commercial car-sharing alternatives existing in Norwich at the commencement of the project. This measure is of great importance in reducing car dependency, where the citizens are independent of private car ownership. There are few car-sharing systems in Europe that contains only clean vehicles. The measure will therefore become a benchmarking action to become a European demonstration of clean vehicles in car sharing.

B2 Situation before CIVITAS

There were no commercial car-sharing alternatives existing in Norwich at the commencement of the project.

B3 Actual implementation of the measure

The measure was implemented in the following stages:

Stage 1: Engagement of partner (Feb 05 – Feb06) – Introduction of City Car Club (SmartMoves) as car club operator for the scheme as a partner to the programme

Stage 2: Launch of Car Club (April 06– May06) – Car Club launched at the University of East Anglia (one vehicle). This vehicle was a Renault Clio, and from the outset, there were operational issues due to limited usage. This resulted in the vehicle battery routinely losing charge (the on-board computers continue to consume power, even when the vehicle is switched off). The Universities Travel Plan Co-ordinator sought to increase interest in the Car Club across the Campus Continuing promotion and negotiation with developers to achieve off-street provision

Stage 3: Expansion of Car Club (May 06 –Jan 08) on street parking provision for car club expansion provided. 4 new vehicles added to fleet at two sites within the ‘Golden Triangle’ area of Norwich (an area chosen because of its professional/academic demographic, and a demonstrable environmental awareness demonstrated through the election of a number of Green Councillors. Successful launch involved local press, radio and television coverage. There has been continuing promotion and negotiation with developers to achieve off-street provision. Additional on-street provision agreed to provide for subsequent expansion. Membership grew steadily in this period, although slowly. Restructuring of the City Car Club business to ensure a firmer basis for expansion took precedent over immediate promotion of the car club, although press articles continued it was during this period that the car was finally withdrawn from the space at the University of East Anglia (October 2007). Although usage had

risen slightly after 18 months of continued promotion, usage levels had failed to reach sustainable levels by a large margin

Stage 4: Continuing expansion and promotion (Feb 08 – Nov09) – increasing membership through refreshed promotion of the service following the restructuring of City Car Club, and renewed commitment to the Norwich scheme. Four further locations were added, together with an additional two vehicles, bringing the number of operational vehicle sites to six, with an aim of increasing further the number of vehicles available. By June 2008, number of members has increase to in excess of 170. Continuing promotion and negotiation with developers to achieve off-street provision. Agreement achieved to provide development based car clubs on two sites (Norwich City Football Club, and Norwich Bus Station) although the design and construction process of the schemes mean that the car club has yet to expand into these sites

Stage 5: Expansion into City Centre to capitalise on Business market (Nov09 – date) Membership continues increasing, reaching around 150 members by January 20-09. New Cars added in City Centre, bringing total fleet to ten in November 2008. The number of vehicles has subsequently reduced to eight

B4 Deviations from the original plan

The deviations from the original plan comprised:

- **Development based Car Club** – It has proved difficult to engage developers in include Car Clubs as part of their schemes. A number of Developers have expressed interest, and agreements have been reached on two sites (The bus station, and Norwich City Football Club), but development timescales have meant that where interest and agreement has been reached, it seems unlikely that the car club will expand into new developments within the timeframe of the Civitas project. Opportunities have been sought to include the club in developments already in construction, but this too, has not succeeded

B5 Inter-relationships with other measures

The measure is related to other measures as follows:

- **Measure 7.2.** – The Car Club operates from within a Controlled Parking Zone, where this measure has introduced revised permit charges based on vehicle length in an attempt to encourage the use of smaller vehicles. This, together with the increasing cost of petrol may influence the growth of the car club
- **Measure 11.3** - Travel Planning – despite promotion of the Car Club through the university's Travel Plan Co-ordinator, take up was minimal, and well below the level required to sustain the service
- **Measure 11.5** - Individual travel advice. The potential linkage here is apparent, but the chosen demographics limited interactions

C Evaluation – methodology and results**C1 Measurement methodology****C1.1 Impacts and Indicators**

Table of Indicators.

METEOR / GUARD INPUTS				
NO.	EVALUATION CATEGORY	INDICATOR	DESCRIPTION	DATA /UNITS
	ENERGY			
3		Vehicle fuel efficiency	Fuel used per vkm, per vehicle type	MJ/vkm, quantitative, derived or measurement
local		private mileage	Reduction in private car mileage	Km/person/annum
	ENVIRONMENT			
8		CO ₂ emissions	CO ₂ per vkm	G/vkm, quantitative, derived
	SOCIETY			
13		Awareness level	Degree to which the awareness of the policies/measures has changed	Index, qualitative, collected, survey
local		Social Inclusion	Availability of private transport to those previously without it	

Detailed description of the indicator methodologies:

- **Indicator 3 - Vehicle Fuel Efficiency**

Data on fuel efficiency of our vehicles comes from the VCA website and the average for the cars based in Norwich is 127g/km, substantially lower than the average UK car (we estimate 180g/km – see C1.2 below).

- **Indicator local - Private mileage**

Each new member joining the car club is sent a ‘New Members’ survey asking about travel modes and car ownership on joining the car club. All City Car Club members are asked to participate in the annual car club survey. Comparing the two surveys gives us a snapshot on how the car club is changing travel patterns.

- **Indicator 8 – CO₂ emissions**

Data on CO₂ emissions from our vehicles comes from the VCA website. We can estimate the extent of car use reduction by car club members using our annual members’ survey and data from research into Carbon Savings from Car Clubs by Carplus funded by Dept of Environment, Food and Rural Affairs (DEFRA) Their first interim report of a three year project can be found on www.carplus.org.uk/resources.

- **Indicator 13 - Awareness Levels**

Awareness surveys were carried out in May 2007, approximately one year after the club had been launched, and follow up surveys were carried out May/June 2008.

- **Indicator local – Social inclusion**

The number of people joining the City Car Club without a car – figures from our annual surveys.

C1.2 Establishing a baseline

Obviously, prior to the launch of the car club, usage started from a Zero base, as no service existed. Between February and August 2007 a new members' survey was sent out to 1054 new City Car Club members across the country. We had a 24% return rate. Norwich car club was still in its early days and we received 15 forms back from Norwich members recruited during those six months. These surveys returns gave us a small baseline on travel behaviour before joining the club

- Car ownership
- Car use
- Motorbike use
- Public transport use
- Walking and cycling

Indicator 3 (fuel efficiency). We have been using Diesel Fiestas in the Norwich Car Club these have typical CO₂ emissions of 119 g/km. This compares favourably with the average fuel efficiency of cars in the UK (New car sales in 1995 averaged 190g/km, by the start of the project, this had fallen to around 170g/km. For the purpose of comparison we will assume an average of these figures of 180g/km) The recently introduced Kia Cee'd models are less fuel efficient (145g/km), but provide choice for car club members, thus improving the attractiveness of the club, still have lower emissions than a typical new car in the UK (2008 forecast 162g/km)

Local Indicator – Reduction in private mileage – we are able to estimate this from the annual survey of car club members.

Indicator 3 – CO₂ emissions. We can estimate this from the reduced mileage that car club members drive over previous behaviour, related to the fuel efficiency of our vehicles in relation to a typical private car in the UK.

Indicator 13 – Awareness levels – have been assessed from telephone surveys

Local Indicator – social exclusion – this relates to the number of members joining the club who previously did not have access to a car

C1.3 Building the business-as-usual scenario

If no car club had been established in Norwich, those members who have joined would either have retained their existing vehicle, or those that joined instead of buying a new car would have added to the pool of private cars in Norwich. The CO₂ emissions savings would not have been achieved, there would have been increased pressure on the already limited on-street parking provision (we have estimated that

there would be 40 additional vehicles on Norwich Streets were it not for the car club, and these have been replaced by 6, releasing around 170 metres of on-street parking spaces. Whilst the numbers are small, there is a clear increase in walking and cycling by car club members, consistent with local policy that seeks to decrease overall reliance on private cars and promote more sustainable modes of transport. Additionally, although no development based schemes have yet been built, those which have been agreed have contained much lower levels of car parking than would normally be the case, allowing an increased density of development on sustainable central sites, with improved levels of open space.

C2 Measure results

The results are presented under sub headings corresponding to the areas used for indicators – economy, energy, environment, society and transport.

C2.1 Economy

N/A

C2.2 Energy

The five cars we have used in the Norwich City Car Club in 2007 have been Ford Fiesta Duratorq TDCi 1.4l. These are diesel cars with a combined fuel consumption of 4.5litres per 100km travelled. They have a fuel economy rating of B.

26% of new joiners in Norwich gave up a car on joining City Car Club – evidence from our other, more established clubs, demonstrates that this percentage will increase as members become more confident in our service and accustomed to the travel planning required in being a car club member.

48% of our members decide not to buy a car as a consequence of joining City Car Club.

It is difficult to arrive at a quantitative figure for the reduction in private mileage as we do not ask our members to complete travel diaries however we do have indications from our annual survey and new joiners questionnaire that

- Members use cars less, for both short and long journeys. Before joining City Car Club, the percentage of new members driving a car once a week or more often for trips under five miles was 43%. After joining City Car Club 12% of members are using a City Car Club Car for journeys once a week or more often (trips under five miles), and 14% of members are using a car other than a City Car Club Car once a week or more (trips under five miles). Therefore no more than 26% of City Car Club members are using a car at least once a week for short journeys. This is a reduction of at least 17% in car use for short journeys for members compared to joiners.
- 53% of City Car Club members use the bus at least once a week for trips under five miles. This is more than double the rate for men in GB and 1.65 times the rate for women in GB.
- There is an increase of 12% in cycling and 9% increase in walking after people join City car Club.

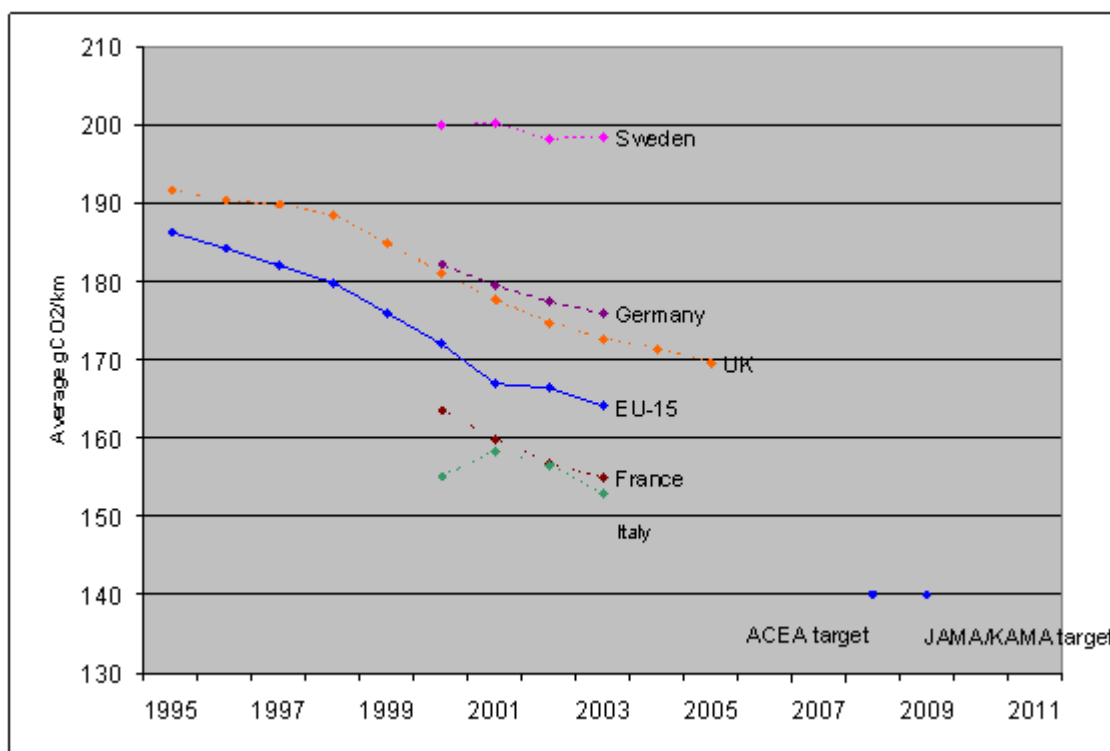
C2.3 Environment

The CO₂ from our cars range from 119g/km to 145g/km and on average (127g/km) are well below the agreed 2008 target of 140g/km agreed between European Automobile Manufacturers Association (ACEA) and the EU in 1997.

The majority of the cars given up by City Car Club members are older, more polluting vehicles. 44% of all cars replaced by City car Club vehicles are 10 years or older. Another 35% are 5 to 9 years old. Age and reliability of private cars seems to be one of the more significant catalysts to joining the car club. This means that our estimates of CO₂ savings probably underestimate the true impact.

Carplus quote a figure of 37.6g CO₂ saved per car club car km driven

Average new car CO₂ emissions in EU and selected Member States



(Source – Department for Transport (UK))

C2.4 Transport

N/A

C2.5 Society

27% of all new members in Norwich did not own a car on joining City Car Club.

C3 Achievement of quantifiable targets

No.	Target	Rating
1	Provide transport choice, giving access to a car when necessary, but also encouraging walking, cycling and public transport for day to day travel	**
2	Reduce emissions from the use of private transport	**
3	Reduce the amount of land used for parking private vehicles, releasing land (particularly in new developments) for more productive uses.	0 (see note 1)
4	Reduce Social exclusion by offering those who cannot afford private transport access to it	0 (see note 2)
	Assess the demand for clean vehicle car sharing clubs	**
	Develop a model of car clubs that could work in Norwich	**
	Establishment of two car sharing clubs of 5 cars each.	**
NA = Not Assessed 0 = Not achieved * = Substantially achieved (at least 50%) ** = Achieved in full *** = Exceeded		

1. The scheme is unlikely to be operating from within a development within the lifespan of the project. However, inclusion within development schemes has been agreed, and this will result in increased development densities, and lower parking provision. We have therefore partially achieved this target.
2. 27% of members previously had no car. We are unable to quantify how many of these would not have had been able to afford a vehicle without the existence of the club, but this target has almost certainly been partially achieved.

C4 Up-scaling of results

City Car Club will be looking at expanding the car club to other appropriate areas of Norwich with the intention of achieving 40 cars in and around the city centre. Our main focus for the next year will be corporate use and considering putting the car back into UEA. We intend to have at least 20 cars operating within the Norwich area by the end of the project, which is sufficient to ensure a self-sustaining operation, and are already looking to expand into the City Centre to attract more business use to the Club.

C5 Appraisal of evaluation approach

The first members' survey was conducted in the last two weeks of September 2007. We only had a 9% response rate, lower than the response rate in 2006. Consequently, as Norwich only had 32 members at the time, the data collected is too limited to be confident that the figures represent a true picture of the operation of the club in Norwich. However we have identified at least two reasons for the low response rate:-

- E-mails were sent using a standard e-mail with a link, rather than a personal e-mail.
- The set questions were extremely repetitive, leading to higher levels of abandonment of the survey.
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The 2008 survey addressed both of these issues and additionally, the club has grown significantly over the intervening period (there were 140 members approximately at the time of the survey). The relatively small number of members again resulted in a relatively limited response. However the information collected suggest that the impact of the Norwich City car Club has followed national trends in most respects.

Additionally, we have undertaken surveys to establish awareness levels of the Club. Prior to the project, the club did not exist, and therefore we started from a zero threshold.

C6 Summary of evaluation results

The key results are as follows:

Members of Norwich City Car Club

- 26% of Norwich City Car Club members give up a private car
- 48% of Norwich City Car Club members decide not to buy a car
- Total number of cars displaced to date is equal to 40 cars
- 79% of cars given up were five years old or more
- These were replaced with new low emission diesel cars
- There is a 17% reduction in short journeys by car
- There is a 12% increase in cycling and 9% increase in walking
- From a zero threshold in 2005/6, awareness of the club amongst the wider population has grown to 23% amongst the population within the Survey Area (The Norwich urban area, and its rural hinterland) by May2007. Here are the tabulated results from the survey
- The following responses relate to figures obtained nationally from the survey carried out by City Car Club



Have you heard of the Car Club in Norwich?

	Frequency	Percent
Yes	191	23.6
No	617	76.4
Total	808	100

Q4B. Where did you hear about it?

	Response	Percentage of respondents
Newspapers	96	47.3
Television	20	9.9
Radio	24	11.8
Leaflet through door	7	3.4
Citizen Magazine	9	4.4
Other	47	23.2
Total	203	100

By July 2008, just over one quarter (25.8%) of respondents said that they had heard of the Car Club although this rose to 31.3% of City residents. The equivalent tabulated results of the survey are shown below

Q4a. Have you heard of the Car Club in Norwich?

		Frequency	Valid Percent
Valid	Yes	208	25.8
	No	597	74.2
	Total	805	100.0

Q4b. Where did you hear about it?

		Frequency	Valid Percent
Valid	Newspapers	86	41.3
	Television	31	14.9
	Radio	23	11.1
	Leaflet through door	10	4.8
	Citizen Magazine	5	2.4
	OTHER	53	25.5
	Total	208	100.0
Missing	Not applicable	597	
Total		805	

D Lessons learned

D1 Barriers and drivers

D1.1 Barriers

Barrier 1 – During much of 2007 City Car Club was at a hectic stage of development, seeking inward investment to allow the company to reach critical size and become economically viable in the long term. This year key people also left the company contributing to a delay in expanding the club in Norwich as planned. To address these issues we have now employed a new person on part-time in Norwich and strengthened our senior management team in London.

Barrier 2 – City Car Club did not use diesel fuelled cars before this project – we originally thought that the diesel cars may be appropriate in Norwich to integrate with the bio-fuel work ongoing in other parts of the city. It is apparent that this fuel will not be available for public use in the foreseeable future and the sustainability of larger scale bio-fuel production has been questioned by our members and local politicians. During 2008 we intend to gradually replace the diesel fleet with petrol and petrol/electric cars.

Barrier 3 - The Car Club was a new concept in Norwich. Initial radio coverage was negative to the concept citing the rural nature of Norfolk, and the necessity of Car Ownership. Developer interest has also been lukewarm, although as the club has established interest awareness is growing. There have been four reports produced by City Car Club for developers expressing interest in operating a car club from their new development. In each case the car club has been suggested as part of the mitigating factors in reducing the parking standard on site.

Barrier 4 - University based Car Club – After 18 months, and despite continuing promotion, the University based vehicle remained substantially underused. It was withdrawn from the Campus in October 2007. Initial issues concerning the technology of the vehicles computers using all the battery charge initially caused problems, and attempts to supplement this with solar chargers proved less than successful. The fact that the scheme could not be made available to undergraduates (there was an age limit on the insurance policy for the Car Club that effectively excluded them) limited what would have been a potentially large market, and academic staff did not appreciate the benefits of the service over more traditional travel options (particularly taxis).

Barrier 5 – Membership usage of vehicles – The level of membership achieved in Norwich would have been expected to sustain a reasonable use of the number of vehicles available. However, usage of the cars, despite the membership levels, has been low, and this may be due to the compact nature of the City and the ready accessibility of all services and facilities within easy reach on foot, by bike, or public transport, all of which are used substantially more by car club members than is typical of the wider population. Additionally, the need to ensure 24 hour use of the vehicles has become apparent over the period of the project. The club has only recently been established in mixed use areas where the variety of car use could be expected to ensure this round the clock activity.

D1.2 Drivers

For those people who need a car – even if infrequently - the car club provides an effective alternative to owning a car. With pricing apparent for each trip members then choose public transport, cycling/walking over use of the car club car on many occasions. Without the car club this option would be unavailable therefore increasing the number of cars and car journeys in Norwich. The Civitas funding has enabled the operation of a car club in the city at a far earlier time than if left to the market. Car clubs are still relatively new in the UK and most activity has been concentrated in London and the bigger cities. Smaller urban areas (even the size of Norwich) pose more a commercial risk and it is unlikely that a car club operator would consider Norwich as a viable operation until the market in the UK has had an opportunity to become established and mature.

Driver 1 – The attitude of the population. To change peoples socio-cultural habits and behaviours are hard, but so far we have seen mostly positive reactions from the residents Norwich. Norwich has also recently been ‘voted’ the ‘greenest’ city in the UK. We believe that growing awareness and changing attitudes will support the still early days of the car club.

Driver 2 - Limited car parking within the central urban area. In most central streets in Norwich there is only enough space to cater for around 70% of households to have a car. Recent permit changes have increased the cost of parking and favour smaller vehicles (WP 7.2)

Driver3 – Rising Car ownership costs. Although car ownership costs have consistently fallen over the past decades, this trend is now reversing, particularly in relation to fuel costs, and vehicle excise duty levels that are increasing penalising fuel inefficient vehicles.

Driver 4- Long-term viability. Car Clubs are rarely if ever economically viable in the early years, so the funding through Civitas has enabled the establishment and growth of the Club through this difficult period. The need to ensure that the Club can be self-sustaining after the project ends requires that the project reaches a critical mass of approximately 20 vehicles

D2 Participation of stakeholders

- **Stakeholder 1** - Norwich residents. Whilst being potential beneficiaries of the club, residents in the areas where the club has been established are all affected. Awareness of the benefits of the club to both members and non-members is therefore essential
- **Stakeholder 2** – Norwich Business – businesses could take advantage of the club, particularly if cars were situated within the City Centre (our intention prior to completion of the project) rather than using pool cars.

D3 Recommendations

- **Recommendation 1** – General awareness and support is critical to the success of the Club, both in initial establishment, and in terms of Growth. Word of mouth is the single most effective mechanism for achieving a successful car club
- **Recommendation 2** – Implementation would be possible in other Cities of a similar size to Norwich, provided that the scheme received financial support in the earlier stages. Support is likely to be required for a minimum of three years from the actual launch of the club, and probably longer
- **Recommendation 3** – Launching in an institution of higher education will be more successful if as many stakeholders as possible are eligible to join the car club. City Car Club's insurance criteria excluded all undergraduates at the UEA. There are now more favourable insurance criteria which can include 19 to 21 year olds and this greatly magnifies the potential for interest in the club.
- **Recommendation 4** – Engaging businesses at the earliest opportunity is essential – not only to increase membership, utilisation of the cars and awareness of the service but businesses generally use the cars during the working day, residents tend to use the cars evenings and weekends. This will be crucial to the overall sustainability of the car club. Ideally, a corporate user to both use and champion the scheme should be engaged at the earliest stage
- **Recommendation 5** - In compact cities operators need to be aware that they may need to achieve higher membership levels per vehicle than is 'standard' in the industry, and the density of vehicle provision needs to be adjusted accordingly. Individual vehicles, spaces within reasonable walking distance of each other serve wider catchments and are more likely to achieve the necessary levels of use.

D4 Future activities relating to the measure

Spring 2009

On-street, the club has expanded its presence into the City Centre. This has realised the potential for business use of the service (now recognised as essential), perhaps belatedly in terms of this project. The Club, whilst successful in terms of membership levels and growth, is yet to be self sustaining financially. The first priority for spring 2009 is therefore to identify and obtain additional funding so that the project can continue building on the success of the venture in terms of growth and membership.

Our priority areas in 2009 will be in the vicinity of Norwich train station and the city centre (through business/corporate use).

Management

We have new management in Norwich and this will result in a raised profile of the car club in the target areas. Other staff from City Car Club will assist in developing media coverage, working with businesses and liaison with developers.

Business use

We will start to work closely with the biggest employers in the city this year including Norwich Union and the Local Authorities