North Harlow

Further note on transport
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A note on the specification for public transport for North Harlow was produced on 21st July 2005. This note provides commentary and information regarding mode split, and the role of public transport vis a vis other modes of transport.

1. Mode split aspirations for Harlow

For the purpose of achieving "sustainable" transport, the key mode split is that between "Car Driver", and all other modes. Experience in towns that have attempted to reduce traffic congestion and transport emissions by shifting trips away from cars has shown that it is very much easier to switch trips between the non-car driver modes (car passenger, public transport, walk, cycle) than it is to switch people away from the car driver mode. For example, improvements in public transport may attract new trips by people who formerly were passengers in cars, or who were walking.

In terms of improving sustainability, such shifts are of little or no value. For this reason public transport for North Harlow should not be planned separately from the other non-car modes. The mode split comparisons of towns and cities in the benchmarking section of this paper demonstrate very clearly that high levels of public transport use do not necessarily mean that there will be a corresponding lowering of the level of car use.

The level of car use will be determined principally by the availability and price of parking at destinations, together with the level of car ownership. If the supply, control and charges for parking at destinations (in the town centre and employment areas for example) are not within the influence of the bodies responsible for developing North Harlow, this could present a real difficulty in trying to achieve sustainable transport outcomes.

Car ownership can be kept to a minimum by ensuring that alternatives are of a high quality. The main aim should be to avoid multiple car ownership in households. One car per household means that many trips by other members of the household are more likely to be made by means other than the car. The reduced levels of parking provision are a a further key benefit in terms of sustainable development.

In considering the desired split of trips between the different non- car driver modes the following factors may be important for new and existing Harlow:
- North Harlow is hilly and may not be suitable for a high proportion of trips by cycle;
- There is likely to be a cultural barrier to cycling in Harlow (cycling being associated with lower social class or attainment);
- The structure of existing Harlow is unsuited to being served by high quality public transport, both in terms of its residential structure of impermeable enclaves, and the spatial distribution of employment and services away from the town centre or other accessible locations;

- Distances between north Harlow and the town centre are likely to be perceived as too great for walking, especially for shopping purposes.
- If North Harlow can attract people who currently live outside and commute into Harlow, this should enhance the use of non-car modes for commuting. This will require a lower provision of jobs in North Harlow than would be expected for the projected population. This would not affect the overall mode split figures for Harlow residents, however.

The following table gives the average mode split for medium sized towns (under 100k population) in England and Wales, together with an estimate of the current Harlow mode split, and suggestions as to an aspirational mode split for north Harlow, and its impact on "Greater Harlow".

Table 1. Mode split of trips by residents

Mode	All GB towns under 100k pop, 2003	Harlow guestimate 2005	Suggested target for North Harlow	Possible outcome for Greater Harlow
Car Driver	42	45	30	35
All other modes	58	55	70	65
	100	100	100	100

It is suggested that that the low car driver share for North Harlow would be achieved by a combination of high quality public transport serving all key destinations in Harlow, and by making walking extremely attractive with high quality streets and public realm, and good provision of mixed use development with local shopping and other facilities, enabling a substantial proportion of trips on foot.

The full mode split aspirations and estimates are show in the table below

Table 2. Possible mode split of all trips in Harlow

Mode	Harlow today	North Harlow aspiration target 2021	Greater Harlow aspiration target 2021, with measures also for existing town	Greater Harlow outcome 2021 without measures for existing town
Car driver	45	30	34	38
Car passenger	23	10	15	17
Public transport	7	25	20	16
Cycle	5	10	8	7
Walk	20	25	23	22
	100	100	100	100

Note
1."Greater Harlow" includes existing Harlow and North Harlow
2. "All trips" refers to everything including short walks over 50 metres. There currently are no data for Harlow on this definition.

Achieving a low car driver mode share in North Harlow will be an enormous challenge. The current level of non-car use in Harlow is "helped" by substantial areas of the town with relatively low car ownership. The intention for North Harlow is much greater representation by people in the medium and higher income ranges, and also young professionals with relatively high disposable income. This might include the relocation of people currently working in Harlow but who live in surrounding towns and villages and commute in. This target population, other things being equal, would be expecting to live with high levels of personal motorised mobility. They are not presently people with a high propensity to use cycles or buses. They may, however, use trains and park-and-ride.

If a low car driver share can be achieved in North Harlow, this still leaves the question as to what happens in existing areas of Harlow. In Table 2, there are two outcomes shown for 2021. The first assumes that measures will be taken to move to more sustainable travel patterns for residents of the existing town. The second assumes that those residents will have travel characteristics similar to today's. The more optimistic case whereby the car driver share of trips by residents of the existing town is reduced, is realistic as an adjunct to more sustainable patterns in North Harlow, because the measures necessary for this in North Harlow will also impact on existing Harlow. In particular, parking restraint will be needed at destinations, and public transport services will need to serve existing areas of the town as well as North Harlow.

2. Additional points from the workshop held at the Princes' Foundation on Tuesday 26th July.

Local centres and mixed use
- Savills have estimated that non-residential activity in North Harlow might support at least 3 **neighbourhood centres**. However, the draft masterplan shows 15 local "centres". It is important not to over-estimate the degree of mixed use that can be achieved in North Harlow.
- The **"shortfall" of various activities** in Harlow is no guarantee that the shortfall can be made up. Changes in retail and other patterns of delivery means that it will be difficult to provide local centres on a traditional model, unless specific efforts (such as stable and low rents) are made available for shops and other local acilities.
- The development consortium has no direct control over the provision of **competing shops** and other activities, yet these will have a major impact on what can be made viable in North Harlow. For example, a major supermarket with full provision for car access and parking will severely undermine the viability of any small retail units in North Harlow local centres.
- **Community uses** such as local council departments with a "front desk" are extremely beneficial in making local centres viable and lively and should actively be promoted in North Harlow.

Public transport demand
- **Public transport demand** should be sufficient to support 4 or 5 high quality (6-10 minute frequency) bus routes to serve the development. This assumes a mode share of 20% of all trips, and the ability to provide routes that serve the main destinations in Harlow.
- Bus access from North Harlow must as a minimum be direct for the **main destinations**. These include the town centre, the main employment location, and the hospital. Secondary and higher education and leisure destinations are also important.

- Mechanisms must be in place to provide or support public transport from "Day 1" with special help or subsidy given to **early residents** to ensure that habits of car use are avoided.

Traffic generation

- It is likely that North Harlow will generate **peak hour car traffic** that will occupy at least 4 or 5 traffic lanes in the peak direction. However, this traffic will be dispersed in several directions, and not all focussed on the "living bridge". This assumes a "best case" car driver mode share of only 25%. This compares to a present journey to work car driver mode share of around 60%. It would be useful verify this estimate against the Transport Assessment work.

Design of streets

- **Design coding** is needed for the streets in North Harlow, not just to create an appropriate quality environment, but also to influence and to support the mode split aspirations. The ability to ensure that public transport is unimpeded by other traffic should be central to this exercise.

Delivery mechanisms

- A **financial mechanism** is desirable that will provide public transport operators with a financial incentive to attract and provide for a high level of public transport use. A stake in the development values generated by the public transport offer might be worth consideration.

3. Benchmarking towns in continental Europe

This section takes a look at some towns that have achieved better than average mode split, or higher than average levels of public transport or cycle use.

Austria

Langenlois – mode shift car to cycle

- Small town of 9,000 population (about 60km from Vienna)
- Traffic reduction initiative based on provision of small-scale cycle infrastructure and promotion
- Before and after studies (4 years apart) showed:
  1. Cycle mode share increased from 3% to 14% of all trips
  2. Car driver mode share dropped from 63% to 54%
  3. Overall sustainable modes increased from 27% to 39%
  4. Car kilometres reduced by 4%
- The initiative is being rolled out

Graz

- Population 240,000
- Car driver mode share was 46% in 1995 and was reduced to 42% by 2005. (This relatively small reduction was hard won by consistent effort over 10 years and shows the scale of the problem. Moreover, the reduction relates only to the town, not to trips by non-residents.)
- Cycle mode share has increased over the past 20 years, but largely at the expense of walking.

Germany

Lemgo – massive increase in public transport use

- Historic city with Hanseatic links
- Population 42,000. Population of town bus "service area" 30,000
- "Just in time" interchange concept – 3 diameter routes every 15 minutes meeting at "treffpunkt", plus one radial route every 30 minutes.
- Introduction of new bus concept has led to an increase in use from just 1 to 63 bus trips per person per year.
- Now 1.9 million bus trips per annum
- http://www.stadtbus-lemgo.de/

Freiburg

Freiburg is a much larger city than Harlow (215,000 population, 2004), but it provides a good example of how mode split can be changed over time by the consistent application of measures designed to modify travel behaviour. The table below shows the change in mode split between 1982 and 1999.

Table 3 Freiburg mode split

Freiburg Mode Split Internal trips	1982	1999
Car driver	29	25
Car Passenger	9	7
Public transport	11	18
Cycle	15	26
Walk	35	22

Source: http://www.freiburg.de/1/109/10927/index.php

The proportion of trips undertaken by car, both driver and passenger, has been accompanied by an increased share of trips by public transport and cycling. However, and this is important to note, most of the increase in public transport and cycling has been at the expense of walking (13 out of 18 percentage points). This shows just how difficult it is to bring about mode shift from car driver to other modes.

A further lesson from Freiburg is that even with probably one of the most efficient systems in Europe, and favourable urban structure with high density corridors and little out of town commercial development, public transport still accounts for less than one in five trips. However, the non-car mode share of two thirds of trips is impressive. The likely present Harlow figure is likely to be around 55%.

Other German cities

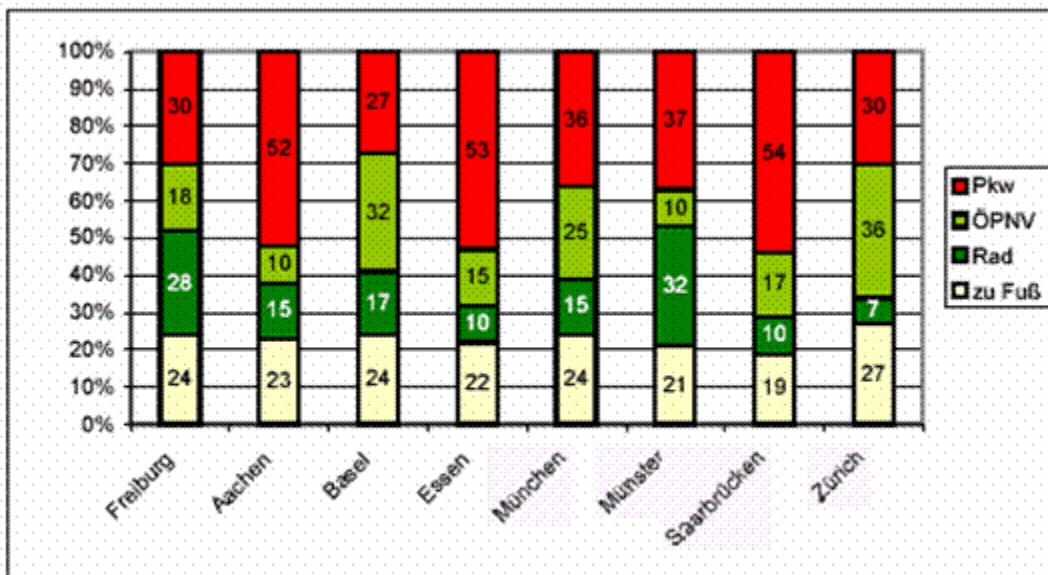**Figure 1 Mode split in some German cities**

Diagramm A3-6: Vergleich unterschiedlicher Städte bezüglich des Modal-Split im
Binnenverkehr

This demonstrates that the amount of car use (shown in red) is not necessarily
related to the amount of public transport use (shown in light green). For example
Aachen and Munster (similar sized towns) both have a public transport mode
share of 10%, yet the car share is 40% higher in Aachen (15 percentage points
higher). The difference is explained by the high proportion of trips by cycle in
Munster (a third of all trips which is more than double the share in Aachen). A
second example is that Zürich has twice as much public transport use as
Freiburg, yet car use in the two cities is the same.

Netherlands

Houten – cycle oriented town
- Population 42,000
- Model Cycle Town
- No through movement for cars, which must make all trips via the ring road
- Traffic-free cycle routes and traffic calmed residential areas
- High proportion of travel by cycle – 44% of all trips under 5 miles
- Walking accounts for 23% of trips under 5 miles
- (Note that in GB trips under 5 miles are 70% of the total)
- (Denmark and Netherlands have the highest per capita cycling rate in northern Europe, Britain has the lowest)

Switzerland

Frauenfeld – High level of public transport use for small town

- pop 22,400 (2004)
- Small tram system (13kms)
- Tram alone carries 1 million ppa
- Tram has average of 56 trips per person per year, or around 5% of mode share
- Bus data not available

Schaffhausen – High level of bus provision and use for small town

- Pop 33,000 (43,000 with Neuhausen –adjacent town)
- Regular buses on clockface timetables
- Interchange at the station (pedestrianised walk into town centre)
- High levels of bus use more than 250 trips per capita per annum
- 8 bus routes totalling 50 kms

Table 4 Mode split in other towns in Europe (ADONIS 2001)

City	Foot and Cycle	Public Transport	Car	Inhabitants
Amsterdam (NL)	47 %	16 %	34 %	718,000
Groningen (NL)	58 %	6 %	36 %	170,000
Delft (NL)	49 %	7 %	40 %	93,000
Copenhagen (DK)	47 %	20 %	33 %	562,000
Arhus (DK)	32 %	15 %	51 %	280,000
Odense (DK)	34 %	8 %	57 %	198,000
Barcelona (ES)	32 %	39 %	29 %	1,643,000
L'Hospitalet (ES)	35 %	36 %	28 %	273,000
Mataro (ES)	48 %	8 %	43 %	102,000
Vitoria (ES)	66 %	16 %	17 %	215,000
Brussels (BE)	10 %	26 %	54 %	952,000
Gent (BE)	17 %	17 %	56 %	226,000
Brujas (BE)	27 %	11 %	53 %	116,000

4. Benchmarking towns in England and Wales

The mode split for trips by residents of towns of a similar size to Harlow are shown in the table below. The figures are approximate.

Table 5 Mode split for all trips in medium sized towns

Mode 2002-2003	% of all trips by residents of towns of 25-100k population	Guestimate for Harlow 2005 %
Car driver	42	45
Car passenger	23	23
Public transport	7	7
Cycle	3	5
Walk	25	20
All	100	100

The key point here is that outside the main cities in Britain, walking and cycling almost always account for more than a quarter of trips, whereas public transport rarely accounts for more than 10% of trips. This underlines the importance of getting urban structure right so that as many trips as possible are walkable.

4. Sustainable towns programme

The sustainable travel towns programme is a DfT initiative showcasing three towns which will share £10 million of government funding over 5 years to encourage sustainable travel. **Darlington, Worcester and Peterborough** were selected from an original shortlist of seven. They were chosen on the basis that they were self contained, centres of local employment and economic activity with a relatively small population with emerging transport congestion problems, and not currently leading in the field of sustainable travel.

The programme is in the early stages, so the following initiatives are proposals rather than schemes which have been implemented.

The proposed schemes for the three towns run along similar lines, presumably having all followed DfT guidance in the brief. *Darlington* is of interest having undertaken a robust travel diary survey to establish baseline data. This is common practice in some continental cities but is very rare in UK practice. The results of this survey suggest considerable potential for mode shift from car to non-car modes. Cycling has been recommended as offering particular potential.

Darlington

- Population around 100,000
- Comprehensive travel survey undertaken – about 5% sample of households
  http://www.darlington.gov.uk/dar_public/Documents/Development%20and%20Environment/Development%20and%20Regeneration/Transport%20Policy/Town%20On%20The%20Move/Travel%20Behavioural%20Research%20Report.pdf
- Third of all car trips are under 3kms, and two thirds are entirely within the town.(implying under 8kms)
  http://www.darlington.gov.uk/generic/news/news+archive/2005/march+2005/travel+behaviour+in+darlington.htm
- Mode of transport - 41% of all trips by people living in Darlington are by car as driver, and 21% by car as passenger, 25% on foot, with 12% by public transport and 1% by bicycle
- 11% of internal car trips (I.e. 7% of all car trips) are less than 1km.
- The survey shows that there is considerable potential for changing travel behaviour, with sustainable modes of travel providing a practical alternative to 56 % of car trips within the town.
- Most residents surveyed overestimated the time it would take to make a journey by public transport (by 70%) and underestimated the time to make a journey by car (26% less).
- 34% of car trips within Darlington could have been made by bicycle (free of constraints such as luggage, no bike). Of these 44% gave time as the reason they did not cycle, 4% lack of infrastructure, and 5% comfort. 8% did not view cycling as an everyday mode (attitude). The remainder, 39%, simply didn't choose to cycle, for no particular reason, and would be the first to be targeted for awareness raising/persuasion.
  This "soft" group amount to 9% of all car trips by Darlington residents.

Proposed measures
1. Personalised travel planning – a mail out and phone call to 40,000 households to determine interest in receiving a personalized travel plan

2. Travel awareness campaign - advertising, public relations, face-to-face events, direct mail, email, bus backs, lamp columns, car park tickets.
3. Encouraging Cycling
    - Delivery of a comprehensive network of on road and traffic free cycle routes, including a new cycle / pedestrian bridge crossing a trunk road and a link to the National Cycle Network.
    - Cycle parking at key destinations, such as schools, colleges, shops and leisure centres.
    - Comprehensive signing of the cycle network, including links to journey origins and destinations.
    - Measures to support cycling to school, including 20mph zones, traffic calming, and new cycle / pedestrian crossings.
    - Improved access for cyclists to Darlington's mainline rail station major retail and employment centres.
4. Encouraging walking
    - Installation of new pelican and toucan crossings.
    - Town Centre pedestrianisation.
    - Widening of footways and removal of unnecessary street 'clutter'.
    - Better signing of pedestrian routes, particularly to the mainline rail station and other key destinations.
5. Encouraging public transport use, including
    - Integrated Travel Centre
    - Workplace travel plans
    - School travel plans
    - Car club
    - Car sharing
    - Improving road safety
    - Accessibility planning
    - Real time information system
    - CCTV
    - New services
    - Greatly improved information provision,
    - Easier to understand fares structure and promotional fares initiatives,
    - Physical improvements to buses, bus stops and routes to bus stops

6. Safety and security improvements

Worcester

Proposed measures
1. marketing strategy to increase awareness and use of public transport and walk/cycle routes
2. measures to change behaviour (e.g. travel plans for employment sites and schools, provision of a sustainable travel fund and provision of consultancy advice, support for a car club, car sharing etc)
3. a   odeled   ized travel planning campaign, using the Travelsmart approach trialled in other places, covering 60% of households across the city improving access to travel information for all modes of travel within the city, including the location of travel information terminals (odeled on the Nottingham and Leicester approaches) at key locations.
4. A travel centre building on existing facilities such as the Demand Responsive Transport call centre and the proposed Worcestershire Hub one-stop shop, to

provide information on all modes of transport into the city centre area through phone lines and a website.
5. a health impact study to quantify the health benefits of promoting increased use of sustainable travel modes

Peterborough

Proposed measures
1. Personalised travel planning – focusing on direct contact with residents
2. Travel database – to collect and monitor information about travel patterns
3. Marketing and promotion
4. A "more cycling" strategy – combining infrastructure improvements and softer initiatives. These include reallocation of road space, better journeys to school/work, security improvements, street cleaning, cycling training for school pupils.
5. Walking – including a review of walking routes, marketing, safety, signage.
6. Business travel planning scheme – travel plans and car sharing schemes.
7. Urban traffic control system – including implementing a SCOOT (Split Cycle Offset Optimisation Technique) focusing on key corridors with the aim of increasing bus priority.
8. Real time passenger information
9. Passenger information screens in the town centre displaying bus and train information – to allow people to ascertain travel information before reaching the transport interchange point.
10. Transport interaction website aimed mainly at visitors to the city.
11. Interactive kiosks – 6 to be installed at key points in the city including transport interchanges to provide travel information.
12. Travel information centre – one stop shop for travel and tourist information.
13. Interactive mapping system – for people to enter their home address and find the nearest cycle, bus or walking route to their destination.
14. Integrated sustainable transport guide – information point for people without internet access.
15. Smartcard – loyalty card with discounts
16. Route branding – to show links between various modes of transport and provide user confidence in routes
17. Home zones – identify ways of increasing the use of sustainable travel through further home zones (one implemented already in Peterborough)