Delivering sustainable transport through the planning process in Southwark

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Delivering sustainable transport through the planning process in Southwark

OPTIMUM 2

18 May 2006
Detailed Case Report

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Loughborough University
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**Delivering sustainable transport through the planning process in Southwark**

1. Introduction

Following the explanation of the principles behind approaches designed to elicit planning gain in the main research report, the purpose of this document is to provide more in-depth coverage of the cases discussed. This report presents various types of mechanisms adopted in the UK and other countries. Chapter 2 explains three examples of *beneficiary pays* mechanisms while Chapter 3 looks at several types of *polluter pays* systems. Two other mechanisms that do not fit in the categories are presented in Chapter 4.

2. Beneficiary Pays

*Developer Contributions to Supertram, Leeds UK¹*

Leeds City Council (LCC) proposed a tram project named ‘Supertram²’ in Leeds during the mid 1990s. DfT backed this project with the condition that LCC involved private developers. In other words, private sector investment were sought to partly cover the Supertram infrastructure costs. Accordingly in 1996, LCC proposed a Supplementary Guidance Note (LCC, 1996) for consultation. In 1998, this document was adopted as the Supplementary Planning Guidance (SPG), *Guidelines for Assessing Developer Contributions to Leeds Supertram* (LCC, 1998) to the Leeds Unitary Development Plan (UDP) which set out that contributions from developers would be sought towards improving public transport and the tram in particular in accordance with national and local planning policy guidance.

LCC expanded this SPG further in 2002 for consultation with the aim of covering all public transport infrastructure including Supertram. The main difference between the proposed 2002 SPG and 1998 SPG currently in use is that the 2002 SPG introduced a concept of accessibility zones (see Figure 1) and contributions would be sought to cover all public transport infrastructure rather than Supertram. In addition, 2002 SPG includes a requirement for developers to adopt travel plans. In the event, the Supertram project was finally rejected by the DfT in November 2005 due to cost concerns. However, the mechanism is still worth of studying.

Under this mechanism, the methodology in calculating developer contributions is very standardised but there is still some flexibility. The payment itself is related to the development. Generally, for large contributions developers want to stagger their payments and tie them to the completion of phases of development and occupation. Therefore, many Section 106 agreements allow for the payment to be broken down in this way. Whilst the LCC is prepared to accept this approach of payment in instalments, they require that the final payments should be made as close to the time of the completion of the development as is possible.

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² Supertram is proposed to be a 21km electrically powered light rail network along three of the most heavily used routes into the city of Leeds.
The calculation is based on two main criteria: number of trips generated and distance to a tram station.

*Calculating Contributions (1998 SPG):*

Step 1: Identify total (minimum) infrastructure costs for a standard tramstop (in 1998, the rate was GBP£250,000);

Step 2: Set up threshold of development liable to contributions (see Appendix A1);

Step 3: Significant developments accessible to tramstops will contribute to the infrastructure costs subject to:

- Application of a scale factor (see Appendix A2) (1-10) where 1=250 daily trips threshold;
- Application of a distance factor (see Appendix A3) (1-10);

Step 4: Calculate contributions level.

*Worked example (2002 SPG):*

A housing development of 100 dwellings (Scale 4) 150 m from one of the proposed tramstop would be required to contribute GBP£70,000.

Some other factors will also be taken into account, for example, abnormal costs as a result of Conservation Area, development at greenspace, trips generated outside tram operating time, refurbishment or change of use and so forth.

SPG 1998 applies to all development within 500 metres from proposed Supertram stations. Outside of this corridor, LCC will still consider major developments on their merit and where necessary they will seek to secure public transport contributions. The new proposed SPG 2002 will cover all districts in Leeds.

The payment will be secured through the legal S106 agreement.

Under the SPG 1998 regime, the amount of money LCC collected from developers covers only about one to 2% (GBP£4 million) of total proposed Supertram project costs (GBP£400 million).

The distance factors in SPG1998 reflect the requirements of Circular 1/97 in that it tries to relate the development raising the contribution to where the funds are to be spent. By applying a decreasing level of contribution requirement for sites located further from the tram station this approach tries to take account of the level of the direct benefit the development would be expected to receive from the new infrastructure provided. However, LCC indicates that this distance factor is actually a key drawback in the mechanism because the nearer developments locate to the tram station, the more developers have to pay. It in fact punishes financially developments which are closer to the public transport. That is the reason why LCC does not carry this ‘distance’ matrix fully forward.
SPG 1998 is very practical. SPG 2002 with the accessibility zones, however, causes some confusion. One of the key issues is that it is not clear what zone developments are in. Another limitation is that the costs in SPG 1998 have not been updated yet (it is anticipated that these figures will be revised and updated regularly in any approved replacement SPD). In addition, under the SPG 2002 (or any other replacement of SPG1998) LCC has to consider carefully which new infrastructure scheme is the most appropriate when assessing the need for a contribution. E.g. there maybe a two or more infrastructure schemes in the locality which could serve the site.

Lessons from SPG 1998 and 2002 are that the more complicated the mechanism, the less practical it is although the complicated one may be more appropriate to do in terms of getting a correct solution for each scheme. As the leading actor, LCC works closely with the passenger service executive (METRO), and the Chamber of Trade in Leeds.

In SPG 2002, LCC added travel plans as a requirement for the new development. However, LCC worries that developers may adopt a travel plan only for getting the planning permission. As long as they get the permission, developers will no longer take travel plans seriously. Travel plans has therefore a forward problem. As a result, LCC intends to set ‘travel plans’ as an individual guidance which will include serious issues about the enforcement.

In SPG 2002, LCC has identified five levels of accessibility graded from A to Z (see Figure 1):

**Zone A – Target Level Public Transport Accessibility**

Everywhere in Zone A would be within convenient walking distance of a bus, light rail (rejected) or heavy rail stop that is served by a frequency of service under every ten minutes to at least four town centres (including the city centre). In addition, these services are either not in need of enhancements or have the capacity to cope with additional trips created by development. New development in Zone A should be designed to generate no more than 20% of trips by car all day.

**Zone B – Public Transport Improvement Priorities**

Locations in this zone are within convenient walking distance of an existing or proposed bus, light rail (rejected) or heavy rail stop where required enhancements to service or infrastructure have been identified in the Local Transport Plan. In these locations, new developments should be designed to generate less than 40% car trips. In addition, developers will be required to submit a planning obligation (a Section 106 Agreement) to help fund public transport schemes identified in the LTP.

**Zone C – Moderate Public Transport Accessibility**

Locations within this zone are within a convenient walking distance of an existing or proposed bus, light rail (rejected) or heavy rail stop that is served by a frequency of service at least every 20 minutes to at least four town centres or similar centres outside the Leeds boundary. In addition the services have the capacity for the additional trips generated by the development. Contributions to public transport improvements may be necessary to achieve the required modal split.
**Zone D – Poor Public Transport Accessibility**

Locations in this zone are within convenient walking distance of an existing bus, light rail (rejected) or heavy rail stop which only provides a limited or infrequent public transport service (i.e. a frequency of 20 minutes or more) and which only provide access to three or less town centres or similar centres outside the Leeds boundary. The full cost of an adequate level of public transport accessibility is met by the developer.

**Zone E – Inaccessible by Public transport**

Locations in this zone are not within convenient walking distance of an existing bus, light rail (rejected) or heavy rail stop and are not, therefore, accessible by public transport. Developments will be permitted if they generate modest additional daily vehicle movements.
Figure 1: Accessibility Zones (LCC, 2002)
Ørestadsbanen Metro Line Land Value Tax, Copenhagen, Denmark

The second example is taken from the Ørestad area to the south of Copenhagen in Denmark where land sales and a land value tax are used to capture benefits arising from the Ørestadsbanen automated light rail system in.

This project came about because in 1992 the City of Copenhagen was in recession and so it requested more money from the National Government. However, instead of providing the City with more money, the Government handed over its share of a long thin 310-hectare site for development. The logic behind this was that this stretch of undeveloped land lies in a prime location but was almost inaccessible. By providing a high quality public transport link, the site could then be sold thus not only regenerating part of the city, but recapturing the development and construction costs too.

Co-owned by the City of Copenhagen (55%) and the Danish Government (45%) since 1963, the ownership of the Ørestad area was transferred to a new development agency/company called Ørestadsselskabet (OS) (Ørestad Development Corporation) in March 1993, and a plan for its development drawn up shortly after. When completed, it is intended that around 80,000 jobs would be created at a number of sites in a large shopping centre, several offices, and a number of public sector developments, including a university, Government offices, and a television station. In addition, it is planned that 20,000 people will live in the area.

Ultimately, the Ørestadsbanen automated LRT system will operate a three-minute frequency to the city-centre (built and managed by OS), while the other lines to Frederiksberg and the airport, will be developed by OS in partnership with the relevant local authorities. The 22km system will be operated as a single unit, with the operator selected by OS through competitive tendering. The first phase was opened in October 2003. the second phase (70% owned by OS and 30% by the Municipality of Fredriksberg) was opened 2003. The third phase (owned 55% by OS and 45% by the City of Copenhagen) is expected to open in 2007 (Metro, 2006).

There has been a delay in opening the line and predicted costs have increased from around DKK6bn (£566m) in 1996 to DKK10.8bn (£1bn) now.

As noted earlier, the Ørestadsbanen automated light rail system project is to be financed by realising the increase in the value of land that the system will generate. This is to be done by selling the newly developed land and by collecting a land value tax, but to do this the scheme first had to be developed, meaning that the metro is currently being funded through Government and other loans.

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3 Based on Enoch (2002).
4 The figures have been converted from Danish Kroner (DKK) to GBP£ at the rate of GBP£1 to DKK11.6 (XE Currency Converter, visit www.xe.com).
5 In Denmark, the counties and municipalities have traditionally collected a land value tax worth 2.5% of the value of the land (3.4% in Copenhagen) payable by the landowner to pay for local services. In addition, the owners of non-residential properties pay a 1% building tax. Land values are assessed very two years. In the Ørestad, these revenues were transferred to OS to allow it to recoup its investment.
Mass Transit Railway Value Capture, Hong Kong, China

Perhaps the most successful body at raising finance from capturing increases in land values in recent years, is the Mass Transit Railway (MTR) in Hong Kong. Between the establishment of the MTR in 1975 and 1986, three urban rail lines - Kun Tong, Tsuen Wan and Island - were built. These covered 43km and 38 stations and carried 2.3 million passengers in 1997. To this was added in July 1998, the 35km Lantau Airport Railway, linking Hong Kong Island and the international airport at Chek Lap Kok, while the 13km, six station Tseung Kwan O extension which opened in August 2002.

The Hong Kong MTR does not receive any subsidy from the Government, covering 80% of its operating costs from the farebox and the rest by profits from property development. This is possible because the Government owns all the land in Hong Kong which it leases for 50 or sometimes 70 years. Developers pay a premium for land for 50-year period, based on a calculation that looks at the future value of the land possible from future development, which may be paid up front or in instalments. Thus the Government can assign land next to and above stations and depots for the MTR to develop.

To do this, the corporation seeks to limit its risk by finding developer partners who pay for all the ‘land premium charge’ and construction costs. In return, MTR gives the developer permission to develop the site. Thus there is very little cash outlay required from the MTR, and profits are earned through sharing the development income, or else through receiving part of the assets in kind, for example a shopping centre. From this generated income, together with revenue from leasing and managing selected property, the construction costs for new metro extensions are covered.

This funding mechanism is central to the whole planning process of new metro lines. When assessing a new rail line, MTR expects to make a return of 10%-11%. This ‘hurdle rate’ is the required or expected rate of return needed to cover the cost of capital, and to give profit to MTR’s shareholders. The level of risk and the profit margin are also taken into account.

Firstly, a feasibility study is conducted. This calculates the project cost, and the patronage and revenue, and then addresses any ‘financial shortfall’ by suggesting suitable sites for property developments that the Government could hand over to MTR. Once the potential of the line has been assessed, and the route agreed with Government, MTR produces plans for the development - siting where necessary services are to be built, such as schools, hospitals etc. - before they are submitted to the usual planning approval process.

With the Government’s backing secured, the engineers build foundations for the stations along the route. At the same time the approvals, generally airspace development rights, are divided into financially and technically feasible packages, at sizes affordable to property developers and financiers and offered to the market through a tendering process. Expressions of interest are then requested and the ‘best

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6 Based on Enoch (2002).
7 The Government recoups the value of the parcels of land granted to MTR through MTR paying the land tax premium on the land parcels for the 40-year operating period.
fit’ developer is selected, who then must pay a down payment to cover up front costs (e.g. foundations for property above a station). MTR meanwhile negotiates a 50-year lease. The developer then constructs the building and sells it. After the sale, 20-25% of any profit is taken by MTR. If there is a loss, this is all borne by the developer. MTR takes no risk.

One further aspect, is that while the railway must be completed to the timetable set by Government, MTR retains the right to decide when to negotiate with the private developers. This flexibility allows MTR to maximise its potential return by choosing to go ahead when economic conditions are at their most favourable. As a rule, the new developments have tended to open two to three years after the railway line.

Where there are developments above stations, MTR also helps manage the property. For example, the shops above MTR’s first development, Telford Plaza at Kowloon Tong station, are owned and managed by MTR. As well as providing a significant revenue stream, this allows a continuing co-ordinated management of the railway operation - property development interface.

From the three urban lines, 18 property sites were developed, consisting of 28,000 apartments in ten estates, 150,500 square metres of retail in three shopping centres (each located above a train depot), and 128,500 square metres of office space. MTR retains the management of all of this development. Financially, the profits from the sites totalled $HK4bn8 (£336m), approximately 18% of the cost of the three lines. In 1998, the rental and fees from the managed properties was $HK697m (£59m) - approximately 10% of the MTR’s total revenue.

With the Airport Railway, the scope for development was drastically increased. Five development sites at Hong Kong, Kowloon, Olympic, Tsing Yi and Tung Chung stations are being developed, amounting to 25,000 apartments, 11 office towers, six shopping centres and nine hotels. These developments were split into 15 separate packages, and are being completed progressively between 1998 and 2005. It is predicted that between $HK15bn and $HK20bn (£1.3bn-£1.7bn) will be raised from developers, contributing over half of the $HK35.1bn (£2.9bn) construction cost.

Meanwhile the $HK26bn (£2.2bn) Tseung Kwan O extension is to serve a new town of 500,000 people, and include 28,000 apartments, 100,000 square metres of office space and 132,000 square metres of local and district shopping centres, as well as schools, open space and other community facilities. Altogether, the property development fees for the extension are estimated to represent an investment cost of $HK80bn (£6.7n).

Planning is also taking place for other extensions to the railway in East Kowloon and Hong Kong Island which all include significant elements of property development.

In conclusion, there are a number of reasons behind the success of the financing route. The first is that new lines are only funded through highly populated areas where existing demand is enough to guarantee that the line will be well used. In other words,

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8 The figures have been converted from Hong Kong Dollars (HKD) to GBP£ at the rate of GBP£1 to HKDS11.9 (XE Currency Converter, XE.com, visit www.xe.com).
new lines are only considered if they are almost guaranteed not to make a loss. This was not the case in Copenhagen, where the building of a new line is primarily aimed at kick starting economic regeneration. In Hong Kong, any regeneration benefits are seen as being positive spin offs rather than a core objective.

Secondly, the assumptions made when calculating the financial returns from the project are extremely conservative and err heavily towards the worst case situation, and thirdly the contracts issued by the MTR passes all the risk to its private developer partners while maintaining a share in any profits.

On top of these reasons, Hong Kong is obviously a special case. A relatively tiny land area coupled with a rapidly growing economy and population, has led to a massive demand for land, which even remained, albeit a slower rate, during the recent Asian economic downturn.
3. Polluter Pays

*Developer Contributions, Wycombe, UK*

In Buckinghamshire, traffic levels are anticipated to grow 30-50% between 1998 and 2011. The largest component in traffic growth has been car use. To address the traffic and environmental problems associated with this increasing car use, Wycombe District Council (WDC) and Buckinghamshire County Council have jointly promoted the Wycombe Transportation Strategy (WTS) as part of the Local Transport Plan. WDC also adopted its Local Plan to 2011 (WDC, 2004) in January 2004. The Local Plan sets out five accessibility zones\(^{10}\), with accompanying parking standards and an approach that aims to secure development contributions to the WTS where development would materially increase local congestion or other problems. Whilst the approach is grounded in the local plan, the details are set out in supplementary planning guidance.

The whole district has been assessed in terms of how easily it can be reached from any other point using public transport; each part of the District has been categorised into one of five zones with Zone 1 being the most accessible and Zone 5 the least accessible (See Appendix B1).

The WDC parking standards are related to accessibility zones – less parking is permitted in more accessible areas – and are a response to the Government guidance on transport, car parking and town centres, set out for instance in PPG3 Housing and PPG13 Transport. They are also more in line with the objectives of the Wycombe Transportation Strategy. The approach advised by these changes is to move away from unrestrained provision for car travel, to achieve higher densities of development and to fund improved alternatives to the car. Parking restraint may also influence future demand and use of other modes. It is also consistent with government advice on planning obligations, most recently set out in Circular 5/2005.

The motivation of the methodology adopted in seeking developer contributions towards transport is that WDC has a method designed to quantify to what extent development related traffic contributes to off site traffic problems was and to attribute a proportional cost to address these problems. The approach draws a linkage between the demand of the development, trips and the maximum parking standards.

Developer contributions are usually be sought where a transport strategy is in place and new development is proposed which would generate new demands for travel. Where contributions are sought, these will be proportionate to the level of demand associated with the development and its parking provision. The current threshold in seeking contributions is when development would be expected to result in the equivalent of more than twenty net additional *vehicle movements* per day (typically equivalent to the level of traffic arising from three or more new dwellings).

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9 Based on Callaghan (2005; 2006); WDC (2000; 2004; 2005)
10 Accessibility Zones: the accessibility zones are based on a computer model that measured the inward accessibility of each enumeration zone in the district, i.e. taking account of population patterns, public transport routes and service frequencies how many people could reach any destination from their starting point everywhere else in the district (and beyond) within 35 minutes generalised public transport travel time. The outputs were banded into five accessibility zones.
Calculating Contributions:

Step 1: Assess the maximum number of parking spaces for any new development based on the standard for the relevant public transport accessibility zone (see Appendix B1 and B2);

Step 2: Multiply by the typically expected number of daily traffic movements per parking space (see Appendix B3); the current threshold is 20 movements;

Step 3: Multiply by the unit cost of GBP£210\textsuperscript{11}.

The unit cost of £210 was calculated as following:

- Estimated expenditure (£14,168 million) – Existing known source of finance (£5.266 million) = Funding shortfall (£8.902 million) for the period of 2000/01-2005/06;

- WDC sought £4 million (approximately 45% of total funding shortfall) from the developers because it thought that “new development commencing in the Wycombe Transport Strategy area over the 5-year period should meet a substantial part, but not all of the shortfall” and the remaining funding will continue to be sought from government and other sources;

- Using TRICS database to estimate additional daily traffic movements per parking space generated by the new development (approximately 19,000);

- Part of total shortfall (£4 million) / additional daily trips generated by the new developments (19,000) = unit cost £210.

Originally, the approach applied only to the High Wycombe transport strategy area (see Appendix B4). In 2002 it was extended to Marlow. There is still some flexibility, for example, these are some exemptions within the transport strategy area whilst large scale developments may justify a contribution even outside of the strategy areas. Exemptions may include small scale businesses such as neighbourhood stores which may generate specific trips but which provide a local facility that may actually reduce motor vehicle trips overall. Some community developments might also get exemptions.

The one-off payment is typically secured through Section 106 agreement between the District Council and the developer before the planning permission granted. Sometimes, at the request of developers and in respect of smaller sums, an exchange of letters is used as it is quicker and for small scale developments developers may be unwilling to pay legal fees.

In addition, WDC identifies collection and spending zones (see Appendix B4) which show where they will spend any contributions. A register of all contributions that have been received and how these are spent is available for inspection. This methodology has been reviewed twice over the life of the LTP by the joint WDC and BCC transport panel, taking into account any changes to the:

\textsuperscript{11} The unit cost of £210 calculation (WDC, 2006): funding shortfall ($8.902 million) x 45% / estimated trips generated based on parking spaces
• Boundaries of Accessibility Zones;
• Level of the multiplier figure;
• Other sources of funding to implement agreed transport strategies; and
• Other relevant factors.

WDC is presently reviewing its approach to development contributions generally and is planning to extend its approach across the district and to other areas such as affordable housing and open space.

Use of monies collected has to be consistent with the purposes for which they were collected, i.e. towards the Wycombe Transport Strategy. It has to be approved by the cabinet members for Transport of the two Councils - effectively either Council has a veto. Allocation reflects local priorities and availability - or non-availability - of other resources, and priority that is given to particular schemes.

This methodology has been running for seven years and WDC receives about 2,500 applications per year (approximately 17,500 applications in total in seven years). By 30 September 2005, WDC has already sought 113 contributions. WDC has secured GBP£2.3 million plus interest of GBP£0.3 million (GBP£2.6 million in total) compared with its GBP£4 million target.

This approach is very practical and has generally worked well in practice. Whilst the linkage of parking standards to accessibility aims to reduce parking levels where appropriate the contributions are geared towards reducing traffic problems, and improving alternatives to the car. What this approach has done is to help square a circle for the development applications and promote wider acceptance of relationship between development and transport solutions.

In terms of limitations, WDC indicates that in cases that are not straightforward. It is necessary to be very careful in calculating trip generation figures. The other limitation is about the consistency and understanding of this approach among developers and staff overtime. As time has gone on, WDC has had to work hard to keep both the approach and personnel fully up-to-date with how it should work. If this approach is applied mechanically without regard to the underlying principles, it can give rise to anomalies and conflict.

WDC and BCC have been more successful in collecting contributions than spending them. So far, only half of the GBP£2.6 million collected has been spent or committed. However, no contributions have had to be returned because they have been unused (the standard agreement is that unspent contributions are returned within ten years).
Area Transport Plans, Cambridgeshire, UK\textsuperscript{12}

Cambridgeshire County Council, in partnership with Cambridge City Council and South Cambridgeshire District Council has developed four Area Transport Plans (ATPs) which cover the entire Cambridge city, and some of the surrounding areas in South Cambridgeshire. The main purposes of the ATPs are to:

- Identify new transport infrastructure and service provision that is needed to facilitate the development of local plan allocations, and
- Identify a fair and robust means of calculating how individual development sites in the area should contribute towards the fulfilment of that transport infrastructure.

ATPs have been introduced in Cambridgeshire to allow the rapid growth in some areas to be more effectively controlled from a travel demand perspective. So far, City Council has adopted four ATPs within its SPG, while the measures are also in line with the Cambridge Local Plan, and the Cambridge Local Transport Plan. The County Council rationale for adopting the ATPs is that developers need to be allowed to develop, but that they also need to contribute something towards mitigating the additional negative transport impacts that they will cause.

Basically, County Council assesses the amount of the trips by all modes that are going to be made. The current threshold is 50 or more net trips. Although this is a standardised approach depending where corridors the development is in, there are still ad-hoc negotiations on top of this.

Figure 2 illustrates the process.

Figure 2: Cambridgeshire County Council ATPs Contribution Application Process (based on County Council ATPs)

**Calculating Contributions:**

Step 1: Estimate total costs required by new development to achieve necessary transport infrastructure;

Step 2: Estimate trips (*all modes*) generated by new development on a daily basis;

Step 3: Calculate unit cost per trip generated;

Step 4: Set up a threshold, currently 50 trips per day;

Step 5: Calculate net trip generation;
Step 6: By using a ‘Trip Rates\textsuperscript{13}’, calculate contribution from developers per generated trip.

**Worked example: Southern Corridor ATP (SCATP):**

Costs of schemes: GBP£4,910,000

*All mode* trips generation: 13,290 per day

Contribution / trip = GBP£4,910,000 / 13,290 = GBP£369 per trip

600 sqm Gross Floor Area (GFA) office development on previously vacant site.

Trip Rates (TRICS): 24 trips per 100 sqm (GFA) (all modes)

Trip Generation = 24 trips x 600 sqm / 100 sqm = 144 trips (all modes)

Existing trips = 0 trips (site was previously vacant)

*Net* trips generated = 144 trips – 0 trips = 144 trips

Developer Contribution = GBP£369 per trip x 144 *net trips (all mode) = GBP£53,136

Theoretically, the scheme needs to be reviewed annually. However, because of the introduction of the Local Development Framework which have more vigorous requirements than were for supplementary planning guidance for local plan, The County Council can not review the ATPs until the local development framework process is been through which would be fairly much totally new basis starting from the scratch. If the County Council starts to review the ATPs, it will look at all new developments and take into account what happened in the past.

Every new development within the boundary of the transport corridors (see Cambridgeshire CC, 2006) is required to contribute to the transport infrastructure improvement. There are some exemptions from the scheme for clinical hospitals (research based hospitals have to pay), primary schools and secondary schools for up to 16 years although the County Council still has not formed a unambiguous standards. The County Council indicates that the assessment for these exemptions has to be done professionally and on a case by case basis. For example, a private school which requires a bigger catchment needs to pay, whereas a local authority school might be exempted.

Developers submit a transport assessment or transport statement indicating what the baseline is and all the movements might be generated. The County Council will then check the assessment and state if it is realistic. On the small scale developments, for example, 7-8 houses, the County Council or the City Council officers will always give more help and provide advice/guidance in order to push/remind developers to take account of all factors in development planning.

\textsuperscript{13} ‘Trip Rates’ is derived from result of survey information and TRICS (Trip Rate Information Computer System) database.
Trips generated assessment is mainly based on the TRICS and a large amount of surveys. Typically, the developers will do these surveys over a 24 hour period. The existing trips are determined also from surveys. If a developer makes a mistake when it calculates the trip generation, the County Council will correct it with the help from the local Councils.

The County Council does not have any formal process in place in monitoring ATPs’ effectiveness. It is a more of an occasion for the County Council to monitor the change in trips for the TRICS database. In fact, an ATP is part of a whole package of policy measures, which include PPG13, Circular 1/97, 5/05, the Local Plan, the Cambridge Structure Plan, Parking policy with the City and Local Transport Plan, govern parking in Cambridge and South Cambridgeshire. In the centre of Cambridge, since the Cambridge Local Plan came in 1996, there has been virtually no parking allowed in the City Centre except for the disabled and services. The County Council then needs to provide transport capacity to accommodate transport demand of coming into the city centre. Through the whole policy package including the ATP, the Local Transport Plan, the Local Plan and so on, everything aims to govern the transport in the City in order to achieve better mode shares for the non-car travel.

The Local Plan process is quite robust. In the SPG, County Council could review on a regular basis and it would be a fairly easy job. In terms of the limitations, the ATP review may be time consuming.

There is a problem with interpretation in that developers will usually do everything in their power to demonstrate that their new development generates virtually nothing or that their existing site previously generated many trips. Most of the problem comes down to this misinterpretation. The City Council will usually give a list to the developers informing what they should take into account for their planning application.

Travel Plans will usually be conditioned with the planning process and there is usually a requirements on the developer to monitor their own travel plans.
Hampshire County Council (HCC) and its constituent Districts currently seek to encourage more sustainable developments from a transport perspective by linking the planning contributions from the developer directly to the level of impact that the development will generate.

Currently, there is no specific amount of contribution sought, although each amount is related to the estimated actual impact of the development as a result of the analysis within the Transport Assessment above an informal contribution threshold that is applied as a rule of thumb across the County that acts as a starting point for contribution negotiation. The use of such a tariff based system is sanctioned in Circular 5/05 (ODPM, 2005), and this is an area that HCC are actively considering for future approach to developers contributions. HCC has set up a contributions working party and preliminary studies have been conducted into producing a formalised approach to the contributions system, like those seen beginning to operating in other local authorities throughout the country. It is likely that any system adopted by HCC would be based on a trip rate variable.

Below is a proposed scheme prepared by the WS Atkins Consultants for HCC.

HCC aims to develop a formalised County wide approach to seek developers contributions. The new approach will improve the accountability, efficiency, certainty and fairness of the system. The approach proposed applies to all development proposals including residential, commercial and housing regardless of the size. The contributions will be secured through Section 106 agreement although some smaller scale development may be dealt with an exchange of letter.

Developer contributions would be calculated according to the total number of vehicle trips that will be generated by the new development.

Calculating Contributions:

Step 1: Calculate the value of ‘per vehicle trip’ (a unit cost): the value of ‘per vehicle trip’ can either derived by calculating the marginal cost (per additional trip) to the Council in transport system investment; or calculated by dividing the total number of new vehicle trips generated by planned residential development into the target LTP shortfall;

Step 2: Calculate contribution figure as starting point using set trip rate and appropriate output from TRICS;

Step 3: Developer produces Transport Assessment/Travel Plan (according to PPG13)

Step 4: Negotiate and adjust figure based on developer proposals in Transport Assessment/Travel Plan

The proposal also emphasises that there is a need to take account of economic and accessibility factors when determining an appropriate level of contribution. An Index

14 Based on Wall (2005); WS Atkins (2002)
of Multiple Deprivation (IMD) which describes overall deprivation at a ward level is used accordingly to adjust contribution level. More specifically, IMD index include six domains with different weight - income; employment; health deprivation and disability; education, skills and training; housing; and geographical access to services.
Comprehensive Transportation Review Methodology, City of Rockville, Maryland, USA\textsuperscript{15}

The City of Rockville is the fifth largest city in Maryland and is the county seat of Montgomery County. It occupies approximately thirteen square miles within the metropolitan Washington D.C. area and is characterised by low density suburban style development. The City is not only trying to provide more transport infrastructure, but also encouraging alternative modes including carsharing, shuttles to transit stations and so forth. In addition, applicants seeking planning permission may be obliged to contribute toward the improvement of offsite transportation and safety facilities.

In September 2004, the City introduced a Comprehensive Transportation Review Methodology (CTR) which encourages development applicants to mitigate transport impacts. By providing non-auto improvements and modifications to the transport system, developer applicants can earn ‘trip’ credits\textsuperscript{16}. Applicants may receive a maximum 15\% trip credit for implementation of a TDM programme and participation in the City’s TDM programme.

The Comprehensive Transportation Review (CTR) describes the transport subset of the development review process. It guides the City in evaluating the transport impacts of development applications on site access and circulation, alternative transport facilities, and car traffic. The CTR also addresses mitigation measures to alleviate negative transport impacts.

The City staff review development and redevelopment application in accordance with the City Zoning Code and other applicable policies and laws in order to analyse the impacts of new development or redevelopment on transport facilities.

Before sending its development application, developers are required by the CTR to submit a Transport Report (TR). The TR contains five components including A-Introduction, B-Site Access & Circulation, C-Offsite Automobile Traffic Analysis, D-Non-auto Offsite Analysis and finally E-Summary, Mitigation, and Credits. Developments generating less than 30 total peak hour site trips shall include Component A, B and E in their TR while all components should be included in the TR for those developments that generate 30 or more total peak hour site trips.

The City firstly reviews the TR to ensure compliance with CTR methodology. If the TR is not acceptable, the City treats the development application as being incomplete until a new revised TR is approved. Only after the TR is approved, does the City then start to review the development application and assess its transport impacts and mitigation measures.

Criteria of assessing development application are based on four factors. These are:

\textsuperscript{15} Based on RCG (2004, 2005a, 2005b); Seggerman and Hendricks (2005)
\textsuperscript{16} Credits: Adjustments will need to be made on an individual basis when assessing transport impact fees. For example, a developer may agree to provide land or to construct facilities of the type for which impact fees would be charged. In such case, the developer is entitled to receive a credit equal to the market value of land or facilities provided which is subtracted from its impact fee payment (NAHB, 2005).
- **Level of Service**: The CTR provides standards to determine the level of services for automobile, bicycle, pedestrian and transit mode traffic;

- **Orientation Toward Transit (Transit-Oriented Areas-TOAs)**: The City identifies TOAs and Non-TOAs within Rockville city. TOAs refer to the areas where viable non-auto options exist and include areas within 7/10ths of a mile accessible walking distance from existing and programmed transit stations;

- **Transport Demand Management**: Fit TDM programme into the CTR;

- **On and Off-Site Accessibility**: All developers are required by the CTR to submit a Site Access and Circulation Analysis which deals exclusively with on-site issues, while any development which generates 30 or more total peak hour site trips should submit off-site analyses for each mode of transport.

Developers also need to include Mitigation Plans which must be approved by the City. Mitigation Plans may consist of:

- Implementation of, or monetary contribution towards, proximate physical roadway modifications that increase auto capacity sufficiently to bring Level of Service (LOS) to acceptable levels;

- Implementation of, or monetary contribution towards, physical non-auto improvements that appropriately address project-specific impacts through an alternative means, as approved by the City;

- Participation in the City’s TDM Programme or alternative TDM programme, as approved by the City.

Table 1 summarises the types of mitigation and maximum credits allowed in developing mitigation plans:

<table>
<thead>
<tr>
<th>Mitigation</th>
<th>Maximum credits allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOA</strong></td>
<td></td>
</tr>
<tr>
<td>Off-site mitigations to roadway network that a developer offers to implement. Goal is to lessen impact from trips generated by the development.</td>
<td>Variable credit, depending on improvement</td>
</tr>
<tr>
<td>Off-site mitigations to non-auto facilities that a developer offers to implement.</td>
<td>15% of trips</td>
</tr>
<tr>
<td>Implementation of a TDM programme</td>
<td>15% of trips</td>
</tr>
<tr>
<td><strong>Non-TOA</strong></td>
<td></td>
</tr>
<tr>
<td>Off-site mitigations to roadway network that a developer offers to implement. Goal is to lessen impact from trips generated by the development.</td>
<td>Variable credit, depending on improvement</td>
</tr>
<tr>
<td>Off-site mitigations to non-auto facilities that a developer offers to implement.</td>
<td>10% of trips</td>
</tr>
<tr>
<td>Implementation of a TDM programme</td>
<td>10% of trips</td>
</tr>
</tbody>
</table>

Table 1: Types of Mitigation and Credits (Seggerman and Hendricks, 2005)

Note:

*TOA: Transit Oriented Area*
Warwickshire County Council (WCC) seeks developer contributions particularly where new development is likely to create significant travel impacts. WCC’s Local Transport Plan 2006 –in its Land Use and Transportation Strategy (LUT) aims to encourage new development in Warwickshire to be of a sustainable nature. New development will therefore be considered within a framework that a) promotes patterns of development that make better use of land, particularly in the existing main settlements in the County and b) reduces the need to travel through better integration of land use and transport. The four key themes of the Strategy are to encourage patterns of sustainable development; to promote a choice of transport by public transport cycling and walking to promote accessibility to jobs, shopping, leisure facilities; and to reduce the need to travel by car.

The LUT Strategy has general guidance and criteria to assess whether a site accords with the strategy’s principles of sustainable development. Where new development is assessed and needs to be more sustainable, then a series of measures will be considered. These will be used as the initial starting points for the negotiation of contributions. The contributions WCC seek for a sustainable development can include improvements to public transport for example bus, or rail services and/or public transport infrastructure improvements for example bus stops, highway improvements, junction and access improvements, cycle paths and pedestrian facilities.

Under National policy and the Regional Spatial Strategy, WCC encourages new development to locate within its existing main urban centres for example L Leamington Spa, Kenilworth, Nuneaton, Bedworth, Stratford-upon-Avon and Rugby which is designated as a foci for development and is an area of growth over the next 10 years. The urban centres are where public transport and other sustainable transport methods are more able to meet demand and offer a choice of sustainable transport mode to mitigate the negative impacts of growth and promotes appropriate transport improvements.

One of the key questions for the County Council in relation to new developments is ‘How to justify the contribution?’ The Land Use and Transportation Strategy assists in the justification of contributions through the general guidance and criteria as described briefly above. In addition to the LUT strategy there is a document which was developed by Stratford-upon-Avon District Council (SDC) as (one of five local planning authorities in Warwickshire), in conjunction with WCC, and provided a standardised methodology of calculating developer contributions towards specific transport scheme.

SDC/WCC identified traffic congestion and parking problems as key concerns of its local community and visitors alike. Concerns also include the safety of pedestrians, cyclists and other road users while there is a threat of exclusion from key services and facilities for those without access to a car. In addition, economic growth has worsened the transport problems in Stratford.

As a result, SDC adopted a methodology to seek developer’s contributions in order to mitigate traffic impacts of their new development. This methodology is supported by PPG 13, Circular 05/05 the Warwickshire LTP the Warwickshire Structure Plan 1996-2011, and the Stratford-upon-Avon District Local Plan Review. The methodology applies within the Stratford-upon-Avon urban area only. The methodology has the status of Supplementary Planning Guidance and is to be used for the purpose of development control.

The methodology applies to non-residential developments and all residential developments above a threshold of five dwellings. SDC also sets an equivalent threshold of 250 square metre of floor space for commercial developments.

The methodology comprises two types of contributions. The initial one is a capital contribution to the Stratford Upon Avon Transport Strategy and a second contribution to site specific public transport, walking and cycling needs.

**A Capital Contribution to the Transport Strategy (Wider Off-Site Contribution)**

Step 1: District and County Council publish a costed list of schemes indicating both the public sector and the private sector contribution (this list will be updated and reviewed);

Step 2: Estimate total *vehicle* trips generated from the development by using the TRICS database which takes into account any proposed variation in parking standards;

Step 3: Trips generated will be expressed as a proportion of the estimated total vehicle trip generation;

Step 4: Apply this proportion to the expected funding gap for the major schemes in the ten-year transport strategy for the town;

*Worked example:*

Estimated funding gap for private sector contribution: GBP£ 2.187 million (as of September 2002).

SDC estimates the new developments between 2002 and 2008 and approximate daily trip rate by using TRICS:

- 655 dwellings - 7.6 trips per unit per day
- 24,500 sqm B1 - 14.1 trips per 100 sqm per day
- 500 sqm retail. - 49.9 trips per 100 sqm per day

Total number of daily trips generated by estimated development will be:

\[(655 \times 7.6) + (245 \times 14.1) + (5 \times 49.9) = 8682\]

Funding gap per trip therefore = GBP£ 2.187 million / 8682 = GBP£ 252
So for example, a 100 unit housing development would be asked to contribute 7.6 x 100 x GBP £252 = GBP £191,520.

**A Contribution to Site Specific Public Transport, Walking and Cycling Needs (Local On-Site Contribution)**

SDC will consult WCC in relation to the assessment of the existing public transport, walking and cycling facilities in relation to a new development. A new development is assessed against the general guidance and criteria for sustainable development within the LTP. Where a contribution is sought to improve public transport service/s or infrastructure improvements and/or cycling and walking improvements then these measures will be negotiated (during the planning application process) on a site-specific basis to include both revenue and capital funding. A developer contribution towards the cost of a package of sustainable transport measures might be required to ensure that a new development meets the criteria for sustainable development.
To ensure that development can take place in the right place and in the right ways without causing unacceptable harm to people and the environment, East Sussex County Council (ESCC) requires development proposals to be assessed to see if they accord or conflict with planning policies in its Development Plan. To date, the ESCC Development Plan draws on:

- National Planning Policy Guidance (PPG’s);
- The Regional Spatial Strategy; and
- The Structure Plan\(^\text{19}\); and influences
- District-wide Local Plans; and,
- Supplementary Planning Guidance (SPG)

Within its Development Plan package, and in order to improve the quality and sustainability of individual development schemes and their acceptability to local communities, ESCC has developed a Development Contributions scheme (SPGDC) as the SPG to its Structure Plan.

The development contributions are made regarding transport, education, social services and other public services by landowners and developers to ensure that where planning permission is granted for new development:

- Impact on the environment is minimised; and
- Infrastructure necessary to support the development can be provided.

SPGDC calculates contributions from developers according to two different circumstances of Stress Areas and Other Areas. Stress Areas are areas where existing infrastructure and services are already close to, at, or even beyond their capacity or are of poor quality. In such areas, even small scale development can bring problems and stress to the infrastructure and accessibility. While outside of Stress Areas (Other Areas), large scale may likely place excessive demand. The following section focuses on the transport aspects only.

The entire county is classified as a Stress Area for the purposes of assessing the need for development to contribute towards transport measures. The specific impacts of new development is determined on a case-by-case basis (This relates to the Structure Plan policy TR3). For major developments, comprehensive transport impact assessments are required to identify specific impacts and appropriate remedial and mitigating measures. For smaller developments, the specific impacts tend to be quite local and mitigation requirements are normally more readily identifiable; provision of shelters and adaptations to facilitate use of nearby bus stops by low floor buses for

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\(^{19}\) The County Council is agreed to carry out its Structure Plan work jointly with Brighton and Hove City Council.
example. The contribution is termed ‘Local Sustainable Accessibility Improvement Contributions (LSAIC)’. LSAIC is intended address the more general impacts arising from development on the wider network, i.e., funding to supplement Government’s integrated transport settlements for schemes identified through the Local Transport Plan and its Local Area Transport Strategies LSAIC complements the measures to required to address specific impacts by providing. (Analogous to pumping more water into a closed system; as transport demands are increased by development the network becomes more susceptible to breakdown, and failure is more likely at pre-existing weak points such as junctions rather than at the source of the additional demands).

<table>
<thead>
<tr>
<th>Residential Development</th>
<th>Non-Residential Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 15 dwelling or 30 hostel bed spaces;</td>
<td>• Developments providing 1,000 sqm or more employment/retail/leisure/tourism/other commercial floorspace; and</td>
</tr>
<tr>
<td>• Site of 0.5 hectares or more where outline permission for residential use is sought and the number of dwellings is not specified; or</td>
<td>• Any development requiring a Transport Assessment</td>
</tr>
<tr>
<td>• Any other residential development which requires a transport assessment</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Development Thresholds

Table 2 shows the development thresholds which trigger the need for LSAIC.

The detailed methodology for LSAIC calculation from residential development is described below:

Step 1: Identify the estimated annual budget of transport improvement: GBP£4 million.

Step 2: Identify funding gap associated with new residential development: GBP£2.04 million.

Step 3: Work out average cost per dwelling: GBP£1,150 per dwelling.

<table>
<thead>
<tr>
<th>Development Type</th>
<th>Accessibility Zone*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zone 1</td>
</tr>
<tr>
<td>Flat/maisonette</td>
<td>£250</td>
</tr>
<tr>
<td>Small house (1 &amp; 2 bedrooms) &amp; Affordable housing</td>
<td>£250</td>
</tr>
<tr>
<td>Medium house (3 &amp; 4 bedrooms)</td>
<td>£450</td>
</tr>
<tr>
<td>Large house (5 or more bedrooms)</td>
<td>£625</td>
</tr>
<tr>
<td>Sheltered accommodation (units)</td>
<td>£65</td>
</tr>
<tr>
<td>Residential hostel (bed spaces)</td>
<td>£30</td>
</tr>
</tbody>
</table>
Note*: the accessibility zones referred to in this table are derived from the County Council’s adopted SPG on ‘Parking Standards at Development’

Table 3: LSAIC Matrix for Residential Development

Table 3 shows contributions sought from residential development.

Calculation of LSAIC for non-residential types of development are on a case-by-case basis which takes account of Travel Plans. The development of a methodology with a view to applying LSAIC to non-residential development is under consideration. An example of how the principle is applied ad hoc is a financial contribution secured in relation to a medium large (food) retail development towards the costs of a town centre traffic study required to inform the promotion and development of an appropriate scheme of traffic management measures. LSAIC is reviewed according to the latest transport funding settlement.
In September 2004, West Berkshire Council adopted a Supplementary Planning Guidance (SPG): *Delivering Investment from Sustainable Development* in order to secure developer contributions towards local infrastructure, services and facilities. The SPG consists of a *Core Guidance* and twelve *Topic Papers* which give detailed information and guidance. *Topic Paper 2 (Transport)* is designed to guide contributions or obligations towards transport infrastructure and services specifically.

Developer contributions will be sought from both residential development and commercial development for both on-site and off-site provision. The threshold are as following:

- Residential development: one dwelling or more;
- Commercial development: see Table 4.

<table>
<thead>
<tr>
<th>Use and Use Class</th>
<th>Floorspace:Employee Ratio</th>
<th>Approximate threshold above which contributions will be expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office B1a</td>
<td>20 m²:1</td>
<td>200 m²</td>
</tr>
<tr>
<td>Light industrial B1c</td>
<td>25 m²:1</td>
<td>250 m²</td>
</tr>
<tr>
<td>Industrial B2</td>
<td>33 m²:1</td>
<td>330 m²</td>
</tr>
<tr>
<td>Distribution B8</td>
<td>48 m²:1</td>
<td>480 m²</td>
</tr>
<tr>
<td>Retail</td>
<td>27 m²:1</td>
<td>270 m²</td>
</tr>
<tr>
<td>Retail Warehouse</td>
<td>90 m²:1</td>
<td>900 m²</td>
</tr>
</tbody>
</table>

Table 4: Threshold of Contributions Sought for Commercial Development

Appendix C shows contributions may be sought in terms of transport:

- Residential development: Cost of highway works and transport improvements dependent on requirements arising from the proposal of one dwelling or more;
- Commercial development: Contribution to provision of transport facilities based on the scale and impacts of the proposal.

There is also a requirement of travel plans for the new development where there are significant implications for transport (see Table 5).

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20 Based on WBC (2004a, 2004b, 2004c)
## Development Type and Size Thresholds

<table>
<thead>
<tr>
<th>Development Type</th>
<th>Size thresholds</th>
<th>Sought</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail or Leisure</td>
<td>&gt; 1000m² gross floorspace</td>
<td>A Travel Plan</td>
</tr>
<tr>
<td>Business (Class B1), Health or Educational</td>
<td>&gt; 2500m² gross floorspace</td>
<td></td>
</tr>
<tr>
<td>Employment (Class B2)</td>
<td>&gt; 5000m² gross floorspace</td>
<td></td>
</tr>
<tr>
<td>Employment (Class B8)</td>
<td>&gt; 10000m² gross floorspace</td>
<td></td>
</tr>
</tbody>
</table>

A Travel Plan may also be sought below these thresholds if:
- the locality has been identified for traffic reduction or sustainable transport promotion;
- a proposal would result in a particular local problem that can be overcome by a Travel Plan;
- the proposal is one, which cumulatively with others in a locality, would be a major travel generator;
- a proposal is in close proximity to a development or developments with an existing travel plan and can be integrated with it (e.g. by payment of pro-rata contributions).

| Table 5: Travel Plan Criteria (WBC, 2004b) |
Integrated Transport Measures and Developers’ Contributions, Nottingham, UK\textsuperscript{21}

Nottinghamshire County Council and Nottingham City Council have jointly produced an Interim Transport Planning Statement (ITPS) in order to provide clarity and advice regarding the implementation of the policy on developer contributions towards integrated transport measures in relation to the Nottinghamshire Structure Plan Review, the Local Transport Plans for Greater Nottingham and North Nottinghamshire, and regional and national policy guidelines.

The ITPS is a part of the Transport Assessment procedure and allows local authorities to negotiate over all types of development and seek contributions wherever they consider the development would have a material impact on transport. Accordingly, the County Council provides guidance figures for the main categories that will be sought (see Appendix D). The ITPS applies in principle to all types of development.

The County Council considers different factors which will influence developer contributions calculation including:

- Area: for example, developer contributions located in North Nottinghamshire will be half of those sought to the Greater Nottingham area;
- Development location: in general, the contribution of developments in urban centre should be lower than that for out of town development;
- Development type: different types of developments have different impacts on transport, therefore, contributions will be sought according to the type of development;
- Development scale or size: residential development will be based on hectares of net developable area and business development will be based on gross floor area. The County Council may waive contributions for those small scale development.

In practice, each development proposal is treated on a case by case basis and after negotiation with developers, the County Council secures contributions through a S106 agreement. Monies collected are then to be spent within five years.

The County Council reviews these figures annually in line with inflation.

\textsuperscript{21} Based on NCC (2002)
Planning Obligations, London Borough of Croydon, UK\textsuperscript{22}

In 2005, London Borough of Croydon (LBC) adopted a non statutory guidance to its Unitary Development Plan (UDP) - the Draft Croydon Plan: The Planning Guidance Note (PGN) 1: Planning Obligations. PGN 1 aims to provide a transparent, fair and consistent basis for the negotiation of contributions.

Different categories are considered in the determination of planning obligations including transport, housing, community facilities, open space and outdoor recreation facilities, economic development and so on.

In transport terms, access and highways, planning obligations will be sought as summarised in Appendix E.

\textsuperscript{22} Based on LBC (2005)
**Transport Impact Fees, West Hollywood, California, US**

The City of West Hollywood (CWH) sits within the South Coast Air Basin which has some of the most noxious air pollution in the United States. This is caused by motorised transport vehicles and has led to the adoption of legislation, The West Hollywood Transportation Demand Management Ordinance requires building owners, employers, developers, and other entities to pay an impact fee if a review considers the transport impact to be ‘significant’.

In brief, the transport impact charge is a flat fee times the number of square feet or residential units. The City uses the SANDAG Traffic Generators Manual and traffic studies to estimate trips generated by the development.

Interestingly, the developments that specifically serve lower income residents are given a ‘credit’ which entitles a lower fee for their higher public transport use. In the same way, developments located close to public transit can apply for a reduction in their impact fees as well.

Impact fee charges are used to fund public transport infrastructure and other non-auto modal improvements. In addition, the City requires all developments with over 10,000 square feet to implement a travel plans programme.

The West Hollywood Transportation Demand Management Ordinance applies to all employers of five or more employees at a worksite located in the city and in a development of ten thousand or more square feet of enclosed space. A development hereby refers to both newly constructed and change of use applications.

The Ordinance requires that each employer shall employ best efforts to attain an Average Vehicle Ridership (AVR) of 1.5 within twelve months after approval of a trip reduction plan. It also dictates that employers shall:

a. Submit a trip reduction plan as set forth in the relevant section;

b. Employ best efforts to achieve an AVR of 1.5 as stated in the relevant section;

c. Provide incentives to their employees to achieve an AVR of 1.5;

d. Submit an annual progress report to the city.

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23 Based from NNCA (2003, 2004); WHCG (2005); Woods (2005)
24 The San Diego Association of Government’s (SANDAG) Manual is commonly used for trip generation rates in Southern California.
25 AVR: Average Vehicle Ridership refers the total number of employees assigned to a work site between 6:00am and 10:00am, Monday through Friday, divided by the number of vehicles they drive from home to work. AVR will be calculated using a five consecutive-weekday average that does not include a holiday. Bicycles shall not be counted as vehicles for the purposes of AVR calculation.
In the City of Los Angeles, Transportation Impact Assessment (TIA) fees are paid by property owners of proposed projects only in either designated ‘Transportation Study Districts’ (TSD) or an area with a ‘Transportation Specific Plan’ (TSP). For other proposals, development impact mitigation is managed primarily through the city’s Transportation Demand Management ordinance which occasionally requires TDM plans.

The TIA fees are assessed on the basis of ‘pm’ peak hour trips that are forecast to be generated by a proposed project. TIA fee rates are calculated from the cost to implement projects that will improve (TSD/TSP) area wide traffic conditions divided by the trips expected to be generated in the TSD/TSP by new development projects. Based on this philosophy, projects with TDM programmes to reduce vehicle trips could gain benefits since the estimate of fees is based on trips expected to be generated at the site.

TIA fees fund support transport infrastructure, TDM measures, public transport services, and Transportation Management Associations (TMAs). The City also uses TIA fees as the basis for the penalty that is assessed to property owners who fail to adhere to a trip cap imposed as a condition of project approval.

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26 Based from NNCA (2003, 2004)
27 TMA is an institutional setting delivering TDM strategies.
Section 94 and Negotiated Agreements, New South Wales, Australia

Under Section 94 of the Environment Planning and Assessment Act 1979 (PCO, 2006), local councils in New South Wales prepare Contributions Plans based on predictions of trends and future growth in local populations over a set period of time. The infrastructure and services required are calculated based on these predictions and local councils then identify how much developers need to contribute towards supporting the growth caused by their development.

With the Development Contributions Amendments to the 1979 Act (PCO, 2006), in addition to Section 94, local councils may use negotiated agreements (similar to Section 106 in the UK) and impose a flat rate of 1% levy on developments. This levy relates to 1% of development costs rather than being calculated from floorspace or area. It is up to the planning authority to determine the cost of development for each planning application submitted, and therefore to determine the 1% fee.

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28 Based on Foster (2005)
4. Other Mechanisms

‘Roof Tax’, Milton Keynes, UK

The Milton Keynes Partnership indicates that the infrastructure price tag for the proposed eastern and western expansions of the new town will reach between GBP£1.2 billion and GBP£1.5 billion by 2011 including an improved transport system. Traditionally in Milton Keynes, the planning authority secured developer contributions via Section 106 agreements in order to cover infrastructure costs. However, this mechanism has been criticised that contributions might not be equitably paid over the whole expansion period.

Milton Keynes Council (MKC) then introduced a new tariff system named ‘Roof Tax’ beyond a traditional S106 agreement. In fact, the ‘Roof Tax’ is a more coordinated and organised interim measure to potentially get the ability to levying funding for local government. Breaking with the traditional approach of ‘site by site’ negotiations via Section 106 agreement, The underlying principle is that a fixed tariff will provide developers with the certainty they require regarding their development costs while allowing Milton Keynes Forward (MKF), as a local delivery vehicle, to take a comprehensive approach to fund strategic transport and other public investment by using pooled contributions.

The aim of this mechanism is to effectively capture some of the land value created by granting planning permissions to large scale green field development and try to get some money to pay for the strategic infrastructure that would be required to bring that site forward in a sensibly controlled way. It means that planning consents for major development in and around the city will not be approved unless developers agree to standardised contributions designed to ensure key local and regional infrastructure is provided.

MKC indicates that the requirement for contributions to strategic and local infrastructure will apply to all major planning consents within the Eastern and Western Expansion Areas. In other words, the tariff applies to 15,000 dwellings and about 130 hectare of business land. Under this, developers will be required to pay GBP£18,500 per dwelling while the business element is about GBP£33 million towards the tariff based on hectare (it might be changed to square footage in the future). This could help provide around GBP£270 million. As of the end of July 2005, the Council has signed agreements when 20 large landowners and builders.

The leading organisation is Milton Keynes Partnerships (MKPs) which is a subsection of English Partnership (EP) consisting of EP, the Council, and the main representatives of strategic partnerships. The Council and all its partnerships support this scheme. In addition, developers themselves formed their own group called Milton Keynes Forward (MKF) to negotiate the tariff. There is a broad policy framework set in the Local Plan in terms of Supplementary Planning Guidance (SPG) or Supplementary Planning Documents (SPDs) on the tariff.

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29 Based on Lewin (2005); Milne (2005); Hetherington (2005); MKPC (2005a, 2005b)
30 MKF: A group representing the development industry with interests in the Eastern and Western Expansion Areas in Milton Keynes.
The tariff basically consists of two broadly equal elements: the local element and the strategic element. The local element reflects SPG and SPD which MKC has in place, for example, education, recreation etc. The strategic element is related to projects identified in Local Transport Plan (LTP), for instance, University, major highways and other public transport infrastructure improvements.

The standardised tariff itself has the inflation rate built in (inflation, retail price index, 50/50). Developers could pay this charge in different stages: 10% on an outline, 25% on start onsite, 75% at the end of dwelling completion. There will be a five years review on tariff.

Apart from public facilities like education, welfare, health, the tariff will contribute to funding for local/grid road improvements and major road schemes as well as public transport. Basically, developers have agreed with the tariff because it can draw funding from central government, and is fixed for a period of years. This means developers know what the costs are in relation to their land purchases. It is easier for developers to plan with certainty on the profits they can obtain and the investment they need to make. What also the tariff allows to happen is that English Partnership (EP) can borrow against the potential S106 that is going to come in and start to pay for the infrastructure as soon as possible. This is seen as a better way to invest infrastructure at an early stage while developers can also get benefits with available public service facilities at sites.

Stated in the new 2004 Town and Country Planning Act, the tariff approach is optional which means that the tariff is optional and that developers can still use standard S106 negotiation. Therefore, MKC’s negotiations might be undermined because MKC can not mandate the developers to pay the tariff unless developers want to get the scheme through quickly and the tariff is financially advantageous for them. Otherwise, developers will just try to reduce the contribution as much as possible. The ‘Roof Tax’ is a legally enforceable contract rather than a condition.

Fifty percent of the new dwellings will be affected until 2016. Funding raised will be invested 15% strategically and 75% in transport. The focus is to be on a public transport corridor running down the high street with 90% of new dwellings within 400 metres of a bus stop (high density design, minimum 35 dwellings per hectare in expansion area). Higher density designs will be concentrated on public transport corridors in order to improve modal shift. The emphasis is to give people choice and allow them to access the public transport system.

The proposal was put in March 2005. MKC is still waiting for ODPM and the Treasury’s approval. New housing under this scheme is scheduled to start within 12 months. One site has already signed a S106 agreement and agreed to pay the £18,500 fee per dwelling.
The Transport and Roads for Developments in the Warwickshire Guide 2001 states that “a travel plan will be required for all non-residential developments that fulfil the requirements for a Transport Assessment, and may be required for developments where the application is for a modest extension the size of which would be sufficient to increase the overall floor space to above the normal threshold, or an application for an extension to a development where the threshold has already been exceeded”.

WCC requires a contribution to sustainable transport which is an upfront one-off lump sum payment. WCC hopes to make any service funded by the lump sums commercially viable after 5 years. WCC seeks contributions to subsidise public transport provisions for 5 years.

The developer will be also required to enter into an Agreement with the County Council made under a Section 106 agreement in order to secure a Travel Plan. The agreement will include the following as a minimum:

- A requirement to produce a travel plan
- A requirement to appoint a travel plan coordinator
- The target
- The contribution
- The monitoring requirements
- Provisions in relation to speculative development, multi occupation and future occupiers where applicable.

On a car/employee ratio basis, the development occupier will be required to pay a contribution towards sustainable transport in the vicinity of the site or towards other measures to reduce or offset actual levels of car usage. The payment is a unit sum of GBP£4.50 as of January 2003 for each employee car by which the target (car/employee ratio ranges from 58% to 65% depending on actual circumstance) is missed for each day on which it is deemed to be missed. The occupier will also be required to pay 10% of the sustainable contribution as the extra administrative costs.

_Worked example (WCC, 2003):

There are 200 employees working at the site and the target is 60% (car/employee ratio). Then no more than 120 (200 x 60%) employee cars should commute to the site. Assuming there are actually 124 employee cars are found to commute, the occupier is then required to pay 4 x GBP£4.5 (unit sum) for each day until a further monitoring takes place.

31 Based on Small (2005); WCC (2003); Tyrer (2005)
So far, WCC has not applied this approach. This reason for that is because none of the agreed S106 agreements have needed to be enforced yet, either because buildings are still under construction or because buildings have not been occupied. Therefore, WCC does not know if this approach works or not. But the idea is to get organisations to take travel plans seriously. The threat of contributions should encourage occupiers to meet their car / employee target. WCC hopes that applying the contribution for failure to meet targets will not be necessary.

WCC uses S106 and conditions as the enforcement for all new developments and existing expansions. WCC does make some allowances and exemptions for non-standard developments. For example, some special purpose development like a football stadium which might attract many employees and visitors. Hospitals and colleges may also be eligible for exemptions.

WCC indicates that this methodology might be difficult to monitor because the S106 has been negotiated with the developer while a different occupier may seek to alter the terms of the agreement. In addition, the monitoring process may not be as straightforward as it appears on paper.
5. References


<table>
<thead>
<tr>
<th>Use Class</th>
<th>Use</th>
<th>Guidelines*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Supermarkets, Food superstores, Hypermarkets, Major retail developments, Retail warehouses, Warehouse clubs</td>
<td>All retailing developments listed</td>
</tr>
<tr>
<td>A3</td>
<td>Restaurants, Public houses</td>
<td>All food and drink proposals in excess of 200 sqm</td>
</tr>
<tr>
<td>B1</td>
<td>Offices, light industry</td>
<td>All offices in excess of 1,400 sqm</td>
</tr>
<tr>
<td>B1</td>
<td>Business Parks</td>
<td>All units in excess of 1,600 sqm</td>
</tr>
<tr>
<td>B2</td>
<td>Industry</td>
<td>All industry in excess of 1,000 sqm</td>
</tr>
<tr>
<td>B8</td>
<td>Warehousing</td>
<td>All warehousing in excess of 3,000 sqm</td>
</tr>
<tr>
<td>C1</td>
<td>Hotels</td>
<td>All hotels in excess of 20 beds</td>
</tr>
<tr>
<td>C2</td>
<td>Hospitals</td>
<td>All hospitals in excess of 1,300 sqm</td>
</tr>
<tr>
<td>C3</td>
<td>Residential: Dwellings, Flats</td>
<td>Over 25 units, Over 35 units</td>
</tr>
<tr>
<td>D1</td>
<td>Non-residential institutions</td>
<td>All such institutions in excess of 1,700 sqm</td>
</tr>
<tr>
<td>D1</td>
<td>Medical &amp; health services</td>
<td>All health facilities over 300 sqm</td>
</tr>
<tr>
<td>D2</td>
<td>Leisure centres, cinemas, concert halls/theatres, sports arenas, bowling alleys, ice rinks, bingo halls, night clubs</td>
<td>All leisure uses in excess of 1,300 sqm</td>
</tr>
<tr>
<td>D2</td>
<td>Multiplex cinemas</td>
<td>All multiplex cinemas in excess of 500 sqm</td>
</tr>
</tbody>
</table>

Note:

*All floorspace figures refer to gross floorspace

Table taken from LCC (1998).
### Appendix A2, Table of Scale Factors by Use Class: Leeds SPG 5 (1998)

<table>
<thead>
<tr>
<th>Use Class</th>
<th>SCALE FACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A1 Retail</strong> (sq m)</td>
<td>500-999</td>
</tr>
<tr>
<td><strong>A2 Pubs/Restaurants</strong> (sq m)</td>
<td>200-399</td>
</tr>
<tr>
<td><strong>B1 Offices</strong> (sq m)</td>
<td>1,400-2,799</td>
</tr>
<tr>
<td><strong>B1 Business Park</strong> (sq m)</td>
<td>1,600-3,199</td>
</tr>
<tr>
<td><strong>B2 Industrial</strong> (sq m)</td>
<td>1,000-1,999</td>
</tr>
<tr>
<td><strong>B3 Warehousing</strong> (sq m)</td>
<td>3,000-5,999</td>
</tr>
<tr>
<td><strong>C1 Hotels</strong> (beds)</td>
<td>20-39</td>
</tr>
<tr>
<td><strong>C2 Hospitals</strong> (sq m)</td>
<td>1,300-2,599</td>
</tr>
<tr>
<td><strong>C3 (dwellings)</strong></td>
<td>25-49</td>
</tr>
<tr>
<td><strong>C3 (flats for rent)</strong></td>
<td>35-69</td>
</tr>
<tr>
<td><strong>D1 Non-residential Institutions</strong> (sq m)</td>
<td>1,700-3,399</td>
</tr>
<tr>
<td><strong>D1 Medical/Health Services</strong> (sq m)</td>
<td>300-599</td>
</tr>
<tr>
<td><strong>D2 Multiplexes</strong> (sq m)</td>
<td>500-999</td>
</tr>
<tr>
<td><strong>D2 Other Leisure Uses</strong> (sq m)</td>
<td>1,300-2,599</td>
</tr>
</tbody>
</table>

**Note:**

Other uses and developments above scale 10 will be considered on their merits based on the number of trips generated.

Table taken from LCC (1998).
Appendix A3, Matrix of Developer Contributions to Infrastructure Costs Factored to Take Account of Scale and Location of Development: Leeds SPG 5 (1998)

<table>
<thead>
<tr>
<th>Distance from public transport stop (m)</th>
<th>Scale of Development (refer to Appendix A2)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>0-49</td>
<td>25</td>
</tr>
<tr>
<td>50-99</td>
<td>22.5</td>
</tr>
<tr>
<td>100-149</td>
<td>20</td>
</tr>
<tr>
<td>150-199</td>
<td>17.5</td>
</tr>
<tr>
<td>200-249</td>
<td>15</td>
</tr>
<tr>
<td>250-299</td>
<td>12.5</td>
</tr>
<tr>
<td>300-349</td>
<td>10</td>
</tr>
<tr>
<td>350-399</td>
<td>7.5</td>
</tr>
<tr>
<td>400-449</td>
<td>5</td>
</tr>
<tr>
<td>450-500</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Note:

Figures in GBP£,000

* Appendix A2 relates the scale factor to gross floorspace by use class;

The 400-500 metres distance factors apply to offices and leisure uses only;

For retail uses, the distance factors over 300 metres are not applicable.

Table taken from LCC (1998).
Appendix B1, Wycombe District Accessibility Zones

Wycombe District Accessibility Zones (WDC, 2004).
## Appendix B2, Wycombe District Local Plan – Parking Standards

<table>
<thead>
<tr>
<th>Type of Accommodation</th>
<th>Accessibility Zone 1</th>
<th>Accessibility Zone 2</th>
<th>Accessibility Zone 3</th>
<th>Accessibility Zone 4</th>
<th>Accessibility Zone 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) 1 bedroom units</td>
<td>0.5 space per dwelling</td>
<td>1 space per dwelling, plus 2 visitor spaces per 10 dwellings</td>
<td>1 space per dwelling, plus 3 visitor spaces per 10 dwellings</td>
<td>1 space per dwelling, plus 4 visitor spaces per 10 dwellings</td>
<td>1 space per dwelling, plus 5 visitor spaces per 10 dwellings</td>
</tr>
<tr>
<td>(ii) 2 bedroom units</td>
<td>1 space per 2 residents</td>
<td>1 space per 3 residents</td>
<td>1 space per 4 residents</td>
<td>1 space per 4 residents</td>
<td>1 space per 4 residents</td>
</tr>
<tr>
<td>(iii) Sheltered</td>
<td>0.25 space per bed</td>
<td>0.25 space per bed</td>
<td>0.25 space per bed</td>
<td>0.25 space per bed</td>
<td>0.25 space per bed</td>
</tr>
<tr>
<td>(iv) Multiple</td>
<td>0.25 space per bed</td>
<td>0.25 space per bed</td>
<td>0.25 space per bed</td>
<td>0.25 space per bed</td>
<td>0.25 space per bed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use</th>
<th>Accessibility Zone 1</th>
<th>Accessibility Zone 2</th>
<th>Accessibility Zone 3</th>
<th>Accessibility Zone 4</th>
<th>Accessibility Zone 5</th>
</tr>
</thead>
</table>
| (ii) B1 and B2  
(Business/General Industry)  
This Council may accept a reduced parking standard for B1(c) and B2, provided that an 
appropriate design agreement is entered into restricting the change of use. | 1 space per 55m² of gfa | 1 space per 40m² of gfa | 1 space per 35m² of gfa | 1 space per 50m² of gfa | 1 space per 25m² of gfa |
| (iv) RETAIL/WAREHOUSING/STORAGE | First 240m² gfa; 1 space per 65m² of gfa  
Additional floor space above 240m²  
gfa: 1 space per 250m² gfa of additional space.  
Separate provision to be made for loading, unloading and manoeuvring of delivery vehicles | First 240m² gfa; 1 space per 40m² of gfa  
Additional floor space above 240m²  
gfa: 1 space per 220m² gfa of additional space  
1 space per 500m² of gfa including site area given over to storage  
Separate provision to be made for loading, unloading and manoeuvring of delivery vehicles | First 240m² gfa; 1 space per 35m² of gfa  
Additional floor space above 240m²  
gfa: 1 space per 200m² gfa of additional space  
1 space per 500m² of gfa including site area given over to storage  
Separate provision to be made for loading, unloading and manoeuvring of delivery vehicles | First 240m² gfa; 1 space per 50m² of gfa  
Additional floor space above 240m²  
gfa: 1 space per 100m² gfa of additional space  
1 space per 500m² of gfa including site area given over to storage  
Separate provision to be made for loading, unloading and manoeuvring of delivery vehicles | First 250m² gfa; 1 space per 25m² of gfa  
Additional floor space above 250m²  
gfa: 1 space per 100m² gfa of additional space  
1 space per 500m² of gfa including site area given over to storage  
Separate provision to be made for loading, unloading and manoeuvring of delivery vehicles |
| (iv) A1 RETAIL  
(a) Shops with GFA less than 1000m²  
(b) Large stores, the first 1000m² as (a), the next gfa between 1000m² and 2500m²  
(c) "Superstores", the first 2500m² as (a) and (b), the next gfa over 2500m²  
(d) Retail warehouses (DIY/Home Improvement/ 
Garden Centres) | 1 space per 65m², plus operational parking to be provided on site.  
1 space per 45m², plus operational parking to be provided on site.  
1 space per 30m², plus operational parking to be provided on site.  
1 space per 15m², plus operational parking to be provided on site.  
In all the above cases, provision should be made within the site for the loading, unloading and manoeuvring of delivery vehicles, and for the overnight parking of such vehicles where appropriate.  
"Floor area" includes those outdoor display areas used for displaying goods/ plants etc. for sale. | 1 space per 40m² of gfa | 1 space per 35m² of gfa | 1 space per 30m² of gfa | 1 space per 25m² of gfa | 1 space per 20m² of gfa |
| (iv) A2  
(Financial and Professional Services) | 1 space per 65m², plus operational parking to be provided on site. | 1 space per 40m² of gfa | 1 space per 35m² of gfa | 1 space per 50m² of gfa | 1 space per 25m² of gfa |
| (iv) A3  
(Food and drink) | 1 space per 20m², plus operational parking to be provided on site.  
Plus facilities within the site for loading, unloading and manoeuvring of goods vehicles | 1 space per 15m² of gfa | 1 space per 10m² of gfa | 1 space per 5m² of gfa | 1 space per 5m² of gfa |
<table>
<thead>
<tr>
<th>Use</th>
<th>Accessibility Zone 1</th>
<th>Accessibility Zone 2</th>
<th>Accessibility Zone 3</th>
<th>Accessibility Zone 4</th>
<th>Accessibility Zone 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(vi) HOTELS/MOTELS/GUEST HOUSES</td>
<td>1 space per bedroom (excluding rooms for the use of resident staff)</td>
<td>1 space per bedroom (excluding rooms for the use of resident staff)</td>
<td>1 space per bedroom (including rooms for the use of resident staff)</td>
<td>1 space per bedroom (including rooms for the use of resident staff)</td>
<td>1 space per bedroom (including rooms for the use of resident staff)</td>
</tr>
<tr>
<td></td>
<td>No additional parking for members of non-resident staff</td>
<td>No additional parking for members of non-resident staff</td>
<td>Plus 1 space per 2 equivalent member of non-resident staff</td>
<td>Plus 1 space per full-time equivalent member of non-resident staff</td>
<td>Plus 1 space per full-time equivalent member of non-resident staff</td>
</tr>
<tr>
<td></td>
<td>For facilities open to non-residents: Appropriate A3 (food and drink) standards</td>
<td>For facilities open to non-residents: Appropriate A3 (food and drink) standards</td>
<td>For facilities open to non-residents: Appropriate A3 (food and drink) standards</td>
<td>For facilities open to non-residents: Appropriate A3 (food and drink) standards</td>
<td>For facilities open to non-residents: Appropriate A3 (food and drink) standards</td>
</tr>
<tr>
<td></td>
<td>Plus facilities within the site for the loading, unloading and manoeuvring of delivery vehicles</td>
<td>Plus facilities within the site for the loading, unloading and manoeuvring of delivery vehicles</td>
<td>Plus facilities within the site for the loading, unloading and manoeuvring of delivery vehicles</td>
<td>Plus facilities within the site for the loading, unloading and manoeuvring of delivery vehicles</td>
<td>Plus facilities within the site for the loading, unloading and manoeuvring of delivery vehicles</td>
</tr>
<tr>
<td></td>
<td>Plus provision as in Residential (i) to (iv) for any self contained residential accommodation such as for a manager</td>
<td>Plus provision as in Residential (i) to (iv) for any self contained residential accommodation such as for a manager</td>
<td>Plus provision as in Residential (i) to (iv) for any self contained residential accommodation such as for a manager</td>
<td>Plus provision as in Residential (i) to (iv) for any self contained residential accommodation such as for a manager</td>
<td>Plus provision as in Residential (i) to (iv) for any self contained residential accommodation such as for a manager</td>
</tr>
<tr>
<td>(vii) HOLIDAY DEVELOPMENT</td>
<td>Self-catering accommodation 1-2 bedroom units 2 spaces per unit</td>
<td>Self-catering accommodation 1-2 bedroom units 2 spaces per unit</td>
<td>Self-catering accommodation 1-2 bedroom units 2 spaces per unit</td>
<td>Self-catering accommodation 1-2 bedroom units 2 spaces per unit</td>
<td>Self-catering accommodation 1-2 bedroom units 2 spaces per unit</td>
</tr>
<tr>
<td></td>
<td>3 or more bedrooms 2 spaces per unit</td>
<td>3 or more bedrooms 2 spaces per unit</td>
<td>3 or more bedrooms 2 spaces per unit</td>
<td>3 or more bedrooms 2 spaces per unit</td>
<td>3 or more bedrooms 2 spaces per unit</td>
</tr>
<tr>
<td>(viii) REPAIR GARAGES/MOTOR SHOWROOM</td>
<td>On site only: 1 space outside per 40m² of workshop and maintenance/storage office/ ancillary areas</td>
<td>1 space outside per 50m² of workshop and maintenance/storage office/ancillary areas</td>
<td>1 space outside per 50m² of workshop and maintenance/storage office/ancillary areas</td>
<td>1 space outside per 50m² of workshop and maintenance/storage office/ancillary areas</td>
<td>1 space outside per 50m² of workshop and maintenance/storage office/ancillary areas</td>
</tr>
<tr>
<td></td>
<td>1 space outside per 125m² of car display/colour storage area</td>
<td>1 space outside per 125m² of car display/colour storage area</td>
<td>1 space outside per 125m² of car display/colour storage area</td>
<td>1 space outside per 125m² of car display/colour storage area</td>
<td>1 space outside per 125m² of car display/colour storage area</td>
</tr>
<tr>
<td></td>
<td>Plus facilities within the site for the parking of breakdown/repair vehicles and for the loading, unloading and manoeuvring of delivery vehicles</td>
<td>Plus facilities within the site for the parking of breakdown/repair vehicles and for the loading, unloading and manoeuvring of delivery vehicles</td>
<td>Plus facilities within the site for the parking of breakdown/repair vehicles and for the loading, unloading and manoeuvring of delivery vehicles</td>
<td>Plus facilities within the site for the parking of breakdown/repair vehicles and for the loading, unloading and manoeuvring of delivery vehicles</td>
<td>Plus facilities within the site for the parking of breakdown/repair vehicles and for the loading, unloading and manoeuvring of delivery vehicles</td>
</tr>
<tr>
<td>(ix) PUBLIC ASSEMBLY BUILDINGS</td>
<td>1 space per 100m² of public accommodation, or 1 space per 25m² of public floor space, plus operational parking to be provided on site</td>
<td>1 space per 800m² of public accommodation, or 1 space per 20m² of public floor space, whichever is the greater</td>
<td>1 space per 800m² of public accommodation, or 1 space per 150m² of public floor space, whichever is the greater</td>
<td>1 space per 400m² of public accommodation, or 1 space per 100m² of public floor space, whichever is the greater</td>
<td>1 space per 400m² of public accommodation, or 1 space per 100m² of public floor space, whichever is the greater</td>
</tr>
<tr>
<td></td>
<td>Plus facilities for parking and manoeuvring of coaches and delivery vehicles</td>
<td>Plus facilities for parking and manoeuvring of coaches and delivery vehicles</td>
<td>Plus facilities for parking and manoeuvring of coaches and delivery vehicles</td>
<td>Plus facilities for parking and manoeuvring of coaches and delivery vehicles</td>
<td>Plus facilities for parking and manoeuvring of coaches and delivery vehicles</td>
</tr>
<tr>
<td></td>
<td>by staff members, plus operational parking to be provided on site.</td>
<td>by staff members, plus operational parking to be provided on site.</td>
<td>by staff members, plus operational parking to be provided on site.</td>
<td>by staff members, plus operational parking to be provided on site.</td>
<td>by staff members, plus operational parking to be provided on site.</td>
</tr>
<tr>
<td>(x) LIBRARIES</td>
<td>1 space per 100m² of public floor space Plus 1 additional parking space for every 2 staff.</td>
<td>1 space per 100m² of public floor space Plus 1 additional parking space for every 2 staff.</td>
<td>1 space per 100m² of public floor space Plus 1 additional parking space for every 2 staff.</td>
<td>1 space per 100m² of public floor space Plus 1 additional parking space for every 2 staff.</td>
<td>1 space per 100m² of public floor space Plus 1 additional parking space for every 2 staff.</td>
</tr>
<tr>
<td></td>
<td>Plus facilities for parking of mobile library van where appropriate</td>
<td>Plus facilities for parking of mobile library van where appropriate</td>
<td>Plus facilities for parking of mobile library van where appropriate</td>
<td>Plus facilities for parking of mobile library van where appropriate</td>
<td>Plus facilities for parking of mobile library van where appropriate</td>
</tr>
<tr>
<td>(xi) SURGERIES (including veterinary surgeries)</td>
<td>1 space per full-time equivalent member of operational staff plus 3 spaces per consulting/treatment or similar room.</td>
<td>1 space per full-time equivalent member of operational staff plus 3 spaces per consulting/treatment or similar room.</td>
<td>1 space per full-time equivalent member of operational staff plus 3 spaces per consulting/treatment or similar room.</td>
<td>1 space per full-time equivalent member of operational staff plus 3 spaces per consulting/treatment or similar room.</td>
<td>1 space per full-time equivalent member of operational staff plus 3 spaces per consulting/treatment or similar room.</td>
</tr>
</tbody>
</table>

### Appendix B3, Expected Daily Traffic Movements per Parking Space

Typically expected daily traffic movements per Parking Space By Category Of New Development

<table>
<thead>
<tr>
<th>Development</th>
<th>Typically expected daily traffic movements Per Parking Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td></td>
</tr>
<tr>
<td>1 Bedsets/studio/ 1 bedroom</td>
<td>4</td>
</tr>
<tr>
<td>2 2 or 3 bedroom</td>
<td>4</td>
</tr>
<tr>
<td>3 4 bedroom</td>
<td>3</td>
</tr>
<tr>
<td>4 5 bedrooms or more</td>
<td>3</td>
</tr>
<tr>
<td>5 Elderly person’s accommodation:</td>
<td></td>
</tr>
<tr>
<td>(i) 1 bedroom units</td>
<td></td>
</tr>
<tr>
<td>(ii) 2 bedroom units</td>
<td>2</td>
</tr>
<tr>
<td>Elderly person’s home</td>
<td>2</td>
</tr>
<tr>
<td>Any other schemes of specialist provision</td>
<td>-</td>
</tr>
<tr>
<td>6 Houses in multiple occupation (HMO)</td>
<td>8</td>
</tr>
<tr>
<td>Non-Residential</td>
<td></td>
</tr>
<tr>
<td>7 B1 (Business/General Industry)</td>
<td>4</td>
</tr>
<tr>
<td>7a B2 (Business/General Industry)</td>
<td>4</td>
</tr>
<tr>
<td>8 B3 (Warehousing)</td>
<td>4</td>
</tr>
<tr>
<td>9 A1 (Retail)</td>
<td></td>
</tr>
<tr>
<td>a) Less that 1,000 sqm.gfa</td>
<td>-</td>
</tr>
<tr>
<td>b) Large stores, first 1,000 and 2,500 sqm.gfa</td>
<td>-</td>
</tr>
<tr>
<td>c) Superstores, first 2,500 sqm.gfa as a) and b), then greater than 2,500 sqm.gfa</td>
<td>-</td>
</tr>
<tr>
<td>d) Retail warehouses</td>
<td>-</td>
</tr>
<tr>
<td>10 A2 (Financial and Professional Services)</td>
<td>5</td>
</tr>
<tr>
<td>11 A3 (Food and Drink)</td>
<td>-</td>
</tr>
<tr>
<td>12 Hotels/Motels/Guest Houses</td>
<td>7</td>
</tr>
<tr>
<td>13 Holiday Development –self catering</td>
<td></td>
</tr>
<tr>
<td>1-2 bedroom units</td>
<td>-</td>
</tr>
<tr>
<td>3 or more bedroom units</td>
<td>-</td>
</tr>
<tr>
<td>14 Repair Garages/Motor Showrooms</td>
<td>5</td>
</tr>
<tr>
<td>15 Public Assembly Buildings</td>
<td>7</td>
</tr>
<tr>
<td>16 Libraries</td>
<td>-</td>
</tr>
<tr>
<td>17 Surgeries and Veterinary Surgeries</td>
<td>9</td>
</tr>
<tr>
<td>18 Schools</td>
<td>10</td>
</tr>
<tr>
<td>19 Colleges and other Educational Institutions</td>
<td>3</td>
</tr>
</tbody>
</table>

*Where no figure is given, it has not been possible to specify a typical value, and individual cases should be considered with the Development Control Case Officer in liaison with the County Highway Authority.

Table taken from WDC (2005).
Appendix B4, Wycombe Transportation Strategy Area: Collection/Spending Zones

Wycombe Transportation Strategy Area: Collection/Spending Zones (WDC, 2005).
Appendix C, West Berkshire Council SPG: Delivering Investment from Sustainable Development – Design Standards and Typical Level of Contribution for Land Use

<table>
<thead>
<tr>
<th>Class</th>
<th>Development</th>
<th>£ per sqm</th>
<th>£ per bedroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Food</td>
<td>&gt;85</td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>Bulky Goods</td>
<td>40-80</td>
<td></td>
</tr>
<tr>
<td>A2</td>
<td>Office</td>
<td>40-50</td>
<td></td>
</tr>
<tr>
<td>A3</td>
<td>Food/Drink</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>B1a</td>
<td>Office</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>B1b</td>
<td>Business</td>
<td>40-50</td>
<td></td>
</tr>
<tr>
<td>B1c</td>
<td>Light Ind.</td>
<td>30-40</td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>Industrial</td>
<td>20-40</td>
<td></td>
</tr>
<tr>
<td>B8</td>
<td>Warehouse</td>
<td>20-35</td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>Hosp/Hotel</td>
<td>15-30</td>
<td>700-1000</td>
</tr>
<tr>
<td>C3</td>
<td>Residential</td>
<td></td>
<td>500-800</td>
</tr>
<tr>
<td>D1</td>
<td>Education</td>
<td>15-30</td>
<td></td>
</tr>
<tr>
<td>D2</td>
<td>Social</td>
<td>25+</td>
<td></td>
</tr>
<tr>
<td>SG</td>
<td>Other</td>
<td>15-30</td>
<td></td>
</tr>
</tbody>
</table>

* determine in each case

Residential Parking

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>Persons/HH</th>
<th>Cars</th>
<th>Allocated</th>
<th>Communal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bedroom</td>
<td>1.4</td>
<td>0.84</td>
<td>1.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2 Bedroom</td>
<td>1.9</td>
<td>1.14</td>
<td>1.00</td>
<td>0.20</td>
</tr>
<tr>
<td>3 Bedroom</td>
<td>2.3</td>
<td>1.38</td>
<td>1.00</td>
<td>0.40</td>
</tr>
<tr>
<td>4 Bedroom</td>
<td>2.8</td>
<td>1.68</td>
<td>1.00</td>
<td>0.70</td>
</tr>
<tr>
<td>5 Bedroom</td>
<td>3.3</td>
<td>1.98</td>
<td>2.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Average</td>
<td>2.5</td>
<td>1.50</td>
<td>1.5/HH</td>
<td></td>
</tr>
</tbody>
</table>

Small Developments

Typical contribution per bus passenger (AM Peak) = £3500 urban, £7000 rural
Assume public transport provision to be 6% of staff/residents; 10-20% of pupils;
Road Safety Improvements costs itemised below
Contribution of around £1,700 per car/parking space
Contribution of around £2500 per HGV/lorry space
Garage Sizes: absolute minimum 2.5 x 5.0m internal; Desirable 2.9 x 5.6m

Notes
* Services should include evenings and weekends
# usually includes shift work thus services may need to reflect this
Cycle Parking provision for not less than 10% staff; 25% pupils; 10% of car parking provision
Changing room provision should be for 5% of staff (10% cycle, 30 mins change time)
Shower provision for 2.5% of staff (10% cycle, 15 mins shower time)
Locker provision to be not less than 10% of staff
The above cycle provisions relate to the National Cycling Strategy
Traffic Calming

800 Cushions (pair)
1200 Humps
2000 Table Tops
4 to 8000 Plateaus
6 to 8000 Central island/Pedestrian Refuge
10000+ Mini Roundabout
2000 Chicane
3000+ Gateways

Extracted from WBC (2004b).
Appendix D, Integrated Transport Measures and Developers’ Contributions: Interim Transport Planning Statement

Greater Nottingham - (City, Beestow, Rushcliffe, Gedling and Hucknall area of Ashfield)

Table 1

<table>
<thead>
<tr>
<th>Development Factor</th>
<th>Suggested Minimum Size</th>
<th>Within City Centre &amp; extended City Centre Car Parking Standards (Areas adopted in 1997/Local Plan)</th>
<th>Within and edge of other Central Areas such as District Centres and Local Centres</th>
<th>Within Village Envelopes &amp; named settlements, within and adjoining main urban areas and along Public Transport Corridors</th>
<th>Elsewhere</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOOD RETAIL Per 1.000m²/ha</td>
<td>1,000m²/ha</td>
<td>30 K</td>
<td>65 K</td>
<td>120 K</td>
<td>180 K</td>
</tr>
<tr>
<td>NON-FOOD RETAIL Per 1.000m²/ha</td>
<td>1,000m²/ha</td>
<td>15 K</td>
<td>30 K</td>
<td>60 K</td>
<td>90 K</td>
</tr>
<tr>
<td>RESIDENTIAL Per Net Developable Hectare (or per 1.5 bedrooms for developments greater than 123 bedrooms per hectare e.g. apartments)</td>
<td>50 bedrooms or 0.4 Net Developable Hectare - whichever is smaller</td>
<td>7.5 K</td>
<td>15 K</td>
<td>30 K</td>
<td>45 K</td>
</tr>
<tr>
<td>B/Q OFFICE EMPLOYMENT Per 1.000m²/ha</td>
<td>2,500m²/ha</td>
<td>5 K</td>
<td>10 K</td>
<td>20 K</td>
<td>30 K</td>
</tr>
<tr>
<td>OTHER B'USE EMPLOYMENT Per 1.000m²/ha</td>
<td>5000m²/ha</td>
<td>2 K</td>
<td>4 K</td>
<td>8 K</td>
<td>12 K</td>
</tr>
<tr>
<td>COMMERCIAL, LEISURE, TOURISM, HEALTH AND EDUCATION</td>
<td>DETERMINE LOCALLY</td>
<td>DETERMINE LOCALLY</td>
<td>DETERMINE LOCALLY</td>
<td>DETERMINE LOCALLY</td>
<td>DETERMINE LOCALLY</td>
</tr>
</tbody>
</table>

The boundaries of these development locations should be specified in Development Plans. Edge of centre refers to the PPG6 definition of 500m walking distance.

North Nottinghamshire (Notterm and Sherwood, Bassetlaw, Mansfield and remainder of Ashfield)

Table 2

<table>
<thead>
<tr>
<th>Development Factor</th>
<th>Suggested Minimum Size</th>
<th>Within and edge of Central Areas such as Town/District Centres and Local Centres</th>
<th>Within Village Envelopes &amp; named settlements, within and adjoining main urban areas and along Public Transport Corridors</th>
<th>Elsewhere</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOOD RETAIL Per 1.000m²/ha</td>
<td>1,000m²/ha</td>
<td>30K</td>
<td>60K</td>
<td>90K</td>
</tr>
<tr>
<td>NON-FOOD RETAIL Per 1.000m²/ha</td>
<td>1,000m²/ha</td>
<td>15K</td>
<td>30K</td>
<td>45K</td>
</tr>
<tr>
<td>RESIDENTIAL Per Net Developable Hectare (or per 1.5 bedrooms for developments greater than 123 bedrooms per hectare e.g. apartments)</td>
<td>50 bedrooms or 0.4 Net Developable Hectare - whichever is smaller</td>
<td>7.5K</td>
<td>15K</td>
<td>22.5K</td>
</tr>
<tr>
<td>B/Q OFFICE EMPLOYMENT Per 1.000m²/ha</td>
<td>2,500m²/ha</td>
<td>5K</td>
<td>10K</td>
<td>15K</td>
</tr>
<tr>
<td>OTHER B'USE EMPLOYMENT Per 1.000m²/ha</td>
<td>5,000m²/ha</td>
<td>2K</td>
<td>4K</td>
<td>6K</td>
</tr>
<tr>
<td>COMMERCIAL, LEISURE, TOURISM, HEALTH AND EDUCATION</td>
<td>DETERMINE LOCALLY</td>
<td>DETERMINE LOCALLY</td>
<td>DETERMINE LOCALLY</td>
<td>DETERMINE LOCALLY</td>
</tr>
</tbody>
</table>

The boundaries of these development locations should be specified in Development Plans. Edge of centre refers to the PPG6 definition of 500m walking distance.

Table taken from NCC (2002).
Appendix E, London Borough of Croydon Planning Obligations Summary: Transport, Access and Highways

<table>
<thead>
<tr>
<th>Subject</th>
<th>Threshold</th>
<th>Criteria</th>
<th>Requirement</th>
<th>Formula</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Transport</td>
<td>• Residential developments with 10 or more units</td>
<td>Borough wide</td>
<td>Contribution</td>
<td>Residential development:</td>
<td>Cost per small unit = GB£700</td>
</tr>
<tr>
<td></td>
<td>• Non-residential developments with 250sqm or over located in areas of low public transport accessibility (PTAL*&lt;=3)</td>
<td></td>
<td></td>
<td>• Number of 1-2 bed units x cost per small unit</td>
<td>Cost per large unit = GB£1,000</td>
</tr>
<tr>
<td></td>
<td>• Non-residential schemes with 500sqm or over located in areas with moderate to good public transport accessibility (PTAL&gt;=4)</td>
<td></td>
<td></td>
<td>• Number of 3+ bed units x cost per large unit</td>
<td>These are consistently applied costs which may be amended or updated depending on the success of implementation and the cost of resulting projects.</td>
</tr>
<tr>
<td></td>
<td>• Any development identified as requiring a Transport Assessment (LBS, 2006)</td>
<td></td>
<td></td>
<td>Non-residential contributions will be calculated on a case by case basis, based on the highest number of vehicle trips forecast for any network peak period for non-residential schemes</td>
<td>Wherever possible the per unit costs will reflect the cost of potential projects and their division amongst likely development, depending on the scale and impact of the development.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Opportunities for match funding and pooling of contributions to achieve the requirements in the Council’s Local Implementation Plan (currently being drafted) will be identified and required wherever possible.</td>
</tr>
<tr>
<td>Highway Works</td>
<td>All development proposals.</td>
<td>Proposals creating an impact on the transport network within the borough.</td>
<td>Works which could include:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Provision and maintenance of highways improvements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Acquisition/dedication of land for highways improvements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Highway/transport infrastructure.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Improvement of highway to ensure it is an adoptable standard.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Contribution to increase capacity in public transport nodes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Traffic management.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Provision of bus stops and facilities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Minor works including contribution for loss of parking bays, approval of plans and inspection of highways works etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(This list is not exhaustive. Requirements will depend on the impact of each proposal).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No formula. If a financial contribution is required estimates of costs will be provided by the Council’s Planning and Transportation Department.

In the majority of proposals the works will be required to be carried out by the developer. The cost for Council inspection and supervision will be 6% of the total cost of the works.

If the Council has the resources available to undertake the works themselves the developer will be required to pay the full cost of the works and the cost to the Council to provide a Highways Works Estimate. This must be paid prior to implementation of the works and it cannot be deducted from the cost of the works. The cost of providing the Estimate will not be returned to the developer if the development does not proceed.
<table>
<thead>
<tr>
<th><strong>Public Rights of Way</strong></th>
<th>All developments.</th>
<th>A diversion of an existing right of way or a new right of way is required for the development to proceed.</th>
<th>Contribution.</th>
<th>No formula. Any contribution will be calculated on a case by case basis depending on scale and impact of the development.</th>
<th>The Council Transport engineers will provide an estimate of the costs.</th>
</tr>
</thead>
</table>
| **Travel Plans**        | • Non residential developments that are likely to generate significant amount of *vehicle based movement*. | Several examples include:  
  • Workplaces.  
  • Schools and nurseries.  
  • Medical centres.  
  • Large shopping and leisure facilities. | Submit Travel Plan for approval by the Council. An outline should be submitted with the application for approval and which is suitable for attachment to the Section 106 agreement. | Measures could include:  
  • corporate/management commitment and promotion of the package of initiatives to reduce the number of trips by car;  
  • a designated Travel co-ordinator;  
  • consultation on the Plan;  
  • Travel Surveys;  
  • challenging but achievable targets based on the survey results to reduce car usage over a defined period; and  
  • monitoring procedures. | Detailed *Travel Plan guidance* (LBC, 2006) is being prepared by the Council’s Planning and Transportation Department. |

Note: *PTALs: Public Transport Accessibility Levels*

Table taken from LBC (2005).