LONDON ASSEMBLY

Transport Committee

London's got the hump

A scrutiny on the impact of speed humps on Londoners' lives

April 2004

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Chair's foreword

Humps saved lives and serious injuries. They were cheap and quick to implement and spread like rashes across our boroughs.

We are some years on now from the first appearance of the hump on our streets. As they have proliferated – questions have began to arise about their effectiveness, the possibility that they cost lives through slowing down emergency vehicles, damage to cars and property, noise, pollution and discomfort caused to vulnerable passengers.

The clamour has grown to fever pitch as the Borough of Barnet has begun to remove humps from their roads and the London Ambulance Service has claimed that they could probably save more lives if the overall traffic flow were to be improved.

The purpose of the London Assembly's investigation is to examine the available evidence and bring some analysis and fact into a debate that has appeared at times to be more heat than light.

The evidence is overwhelming in terms of the success of humps in reducing death and serious injury. The challenge for this scrutiny has been to make recommendations that will help improve the design and implementation of traffic calming schemes in future years.

Humps are only one option in the hierarchy of traffic calming measures. Better use needs to be made of the range of speed reduction alternatives that now exist. The Boroughs and the emergency services must work together to create a local strategic road plan for each borough. And we need accurate monitoring of the effectiveness of each scheme and the dissemination of results and best practice across London.

I hope that this report sends out a strong message to London that humps save lives and that any borough removing humps must replace them with an equal or better alternative but – at the same time – that humps are neither the only nor necessarily the best tool in the box.

I commend it to you.

Lynne Featherstone
Chair, London Assembly Transport Committee

Membership of the Transport Committee

Lynne Featherstone	- Chair (Liberal Democrat)
John Biggs	- Deputy Chair (Labour)
Tony Arbour	- Conservative
Roger Evans	- Conservative
Sally Hamwee	- Liberal Democrat
Samantha Heath	- Labour
Jenny Jones	- Green
Eric Ollerenshaw	- Conservative
Val Shawcross	- Labour

The Transport Committee's general terms of reference are to examine and report on transport matters of importance to Greater London and the transport strategies, policies and actions of the Mayor, Transport for London, and the other Functional Bodies where appropriate. In particular, the Transport Committee is also required to examine and report to the Assembly from time to time on the Mayor's Transport Strategy, in particular its implementation and revision.

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Executive summary

This is the first time in London that a comprehensive cost-benefit assessment of the value of speed humps has been conducted by the London Assembly's Transport Committee.

Research has proved that speed humps have been successful in reducing vehicle speed, improving road safety and saving lives. The Transport Research Laboratory's research into the effectiveness of London's 20mph zones, which mainly use speed humps to reduce vehicle speed, has found that there has been a 57% reduction in killed and seriously injured casualties. Even so, in 2002 there were a total of 5,650 killed or seriously injured casualties in London, a reduction of 7% on the previous year. Out of this total, 614 were children, a reduction of 14% on 2001, but this still equates to about 12 children killed or seriously injured in London every week. Although there is a downward trend for killed and seriously injured casualties, more work still needs to be done in reducing the total number of fatalities and casualties further, so that London Boroughs can meet the Mayor's road safety targets of 40% reductions in Killed and Seriously Injured by 2010.

It should be recognised that technology has improved and there are now some alternative traffic calming measures, which could be considered along with traditional speed humps as a means of reducing vehicle speed and improving safety. Speed cushions are used at the moment but we have also heard from boroughs that they are trialling variable speed signs and ripple print textured surfaces. We have recommended that the Department for Transport (DfT) change regulations so that speed cameras can be trialled to enforce 20mph zones. We have also recommended that the boroughs establish pilot schemes to test the new vehicle responsive humps. These alternative measures would help to minimise the effect on the response times of the emergency services and address any environmental concerns from local residents.

The Transport Committee would like to see this good work continue. We would also like to see boroughs and the emergency services working closer together at a local level. Emergency services should ensure that they respond to borough consultations on traffic calming and boroughs in turn should take account of these responses.

The Transport Committee makes a number of recommendations in the report to Transport for London, the Association of London Government, London Boroughs, Department for Transport, the emergency services and the Pan London Road Safety Forum. The recommendations should assist these organisations in taking forward the important traffic calming work which will continue to improve road safety and save more lives in London. The Transport Committee recommends that:

- Given the overwhelming evidence of the reduction in deaths and serious injuries resulting from the presence of speed humps, any removal of speed humps by the boroughs should be accompanied by equivalent or more effective alternative speed reduction measures;
- Transport for London and London boroughs should continue working closely together to reach an agreement on the length of the funding process for traffic calming schemes, which would enable the boroughs to provide better design, consultation and implementation of the schemes;

- Transport for London should take more account of the boroughs' consultation process on traffic calming schemes to ensure that the emergency services and other stakeholders' views are given serious consideration by the boroughs before capital funding is allocated by TfL to the boroughs;
- The Metropolitan Police Authority, London Fire and Emergency Planning Authority and Department of Health should ensure that the emergency services respond fully to borough consultations on traffic calming and consistently attend and take part in local traffic management meetings held by the boroughs.
- The Pan London Road Safety Forum should be more proactive in publicising its work on road safety in London and should be used to discuss important issues that affect boroughs and the emergency services. It could: issue best practice guidance on the consultation process; ensure that information and best practice on traffic calming measures is shared across London; establish pilot schemes across London to test the vehicle responsive humps; establish a traffic calming framework and traffic calming data-base; and ensure that local strategic routes are agreed between boroughs and the emergency services;
- The Department for Transport should change the regulations to make it possible for London Boroughs to set up local pilot schemes which use speed cameras, or speed limiters, to enforce 20mph zones instead of speed humps or other engineering measures;
- The Association of London Government and London Boroughs should consider setting up several pilot studies across London, where noise levels are measured and photos of the exterior and interior of houses are taken before and after the implementation of traffic calming measures, including speed humps;
- The Association of London Government and Transport for London should ensure that all London boroughs collect and publish data to an agreed methodology to determine whether or not these schemes are effective at reducing accidents and saving lives. The ALG and TfL should ensure that this information is collated, published in an Annual Report with some analysis and circulated to boroughs.

1. Introduction

1.1 On 15 May 2003 the London Assembly's Transport Committee agreed their work programme, which included undertaking scrutiny work on the issue of speed humps. Currently in London, around 390km of roads have been treated with speed humps as part of the 137 20mph zones in London and about a further 1200 km have been treated with speed humps as part of other traffic calming schemes other than 20mph zones.[1] There is a variety of traffic calming measures and speed humps is just one of those measures which boroughs employ to change driver behaviour, reduce the speed of traffic and increase road safety. The Committee decided to concentrate on traditional speed humps, which are vertical devices across the entire carriageway and from kerb to kerb, rather than speed tables[2], speed cushions[3] and other forms of traffic calming, although these are explored to some extent in the chapter on alternative measures.

1.2 The Transport Committee launched its investigation into the impact of speed humps on the lives of Londoners in September 2003. This is the first time in London that a comprehensive cost-benefit assessment of the value of speed humps has been conducted by the London Assembly. The Transport Committee requested written evidence from a wide range of organisations including Transport for London, local authorities, the Department for Transport, emergency services, bus operators, motoring organisations, pedestrians, cycling and road safety groups and members of the public.

1.3 The Committee requested evidence on the following questions:

- Do speed humps affect delivery of emergency services?
- Do speed humps damage residential properties?
- Do speed humps increase air and noise pollution?
- Do speed humps increase congestion in residential areas?
- Do cars try to make up time by speeding between zones?
- Do speed humps damage cars?
- Are there any alternative cost effective measures to speed humps and if so, which measures would you favour?

  e.g home zones, safety camera technology, speed limiters.

- What is your experience of the effectiveness of road humps in preventing and reducing the number of fatal injuries and traffic collisions?

1.4 The Committee heard evidence from representatives of Transport for London, London Ambulance Service, Metropolitan Police Service and The Slower Speeds Initiative at the first evidentiary hearing on 11 December 2003 and subsequently

[1] Memorandum: Transport for London

[2] Speed tables are generally used at junctions and are larger in size than speed humps. They go from kerb to kerb and cover the entrance to the junction so that the whole of the junction is raised.

[3] Speed cushions are narrower than speed humps and do not go from kerb to kerb but are positioned in the middle of the road or the middle of the lane.

heard evidence from representatives from the London Borough of Bromley, London Borough of Camden, London Borough of Enfield and Hull City Council at the second evidentiary hearing on 5 February 2004.

1.5 These evidentiary hearings built upon the written submissions that had been received and allowed the Committee to discuss the following issues:

- Policies, funding and monitoring;
- Effects on safety, quality of life, emergency services, vehicles and other users;
- Consultation with emergency services, bus operators and the public;
- Possible effective alternatives; and,
- Strategic solutions.

These issues are explored in more detail in the following chapters.

2. Policies, funding and monitoring

Policies

2.1 In 2002, there were a total of 5,650 killed or seriously injured casualties in London, a reduction of 7% on the previous year.[4] Out of this total, 614 were children, a reduction of 14% on 2001, but this still equates to about 12 children killed or seriously injured in London every week. The Mayor published London's Road Safety Plan in November 2001, which contains road safety targets of a 40% reduction in people Killed and Seriously Injured by 2010. Many boroughs have confirmed that they are making good progress in meeting these targets. Some boroughs such as Bromley have taken a step further by signing a Public Service Agreement with central Government to hit a 50% reduction in accident rates.[5] However, although there is a downward trend for killed and seriously injured casualties, more work still needs to be done in reducing the total number of fatalities and casualties further, so that London Boroughs can meet the Mayor's road safety targets. Please refer to the table on page 6.

2.2 Most boroughs take a balanced approach to traffic calming and use a variety of measures, including speed humps, depending on the location. Bromley and Enfield have confirmed that they are not putting in any further speed humps at the moment but are introducing alternative traffic measures instead.[6]

2.3 Barnet has changed their policy from installing humps on residential streets to improving the movement of all traffic on the main road network, thereby reducing the desire for vehicles to use local residential streets as rat runs. They feel that their approach to improving traffic movement will reduce congestion. Barnet is concerned that: speed humps cause delays to traffic, including emergency services; traffic calming on one route could cause higher speeds and risk-taking by drivers elsewhere; and vehicles driving over speed humps create additional noise and air pollution.[7]

2.4 Camden support the recent study, commissioned by TfL, which showed that traffic calming is the single most effective tool in reducing speeds and therefore in reducing casualties. Since 2000/2001 Camden have expanded their 20mph zones to 17. These use speed humps to reduce vehicle speed. Camden believe that speed humps are an effective way of reducing speed and saving lives.

[4] "Towards the year 2010: monitoring casualties in Greater London", by Transport for London
[5] Memorandum: LB Bromley
[6] Transcript: Evidentiary Hearing 5 February 2004
[7] Memorandum: LB Barnet

Table: The percentage change in Killed and seriously injured casualties for 2002 compared with 2001 and the 1994-98 average

London Boroughs	% change in 2002 over 2001	% change in 2002 over 1994-98 average
Barking & Dagenham	-9%	-33%
Barnet	6%	-2%
Bexley	-10%	-17%
Brent	-3%	-25%
Bromley	13%	-8%
Camden	3%	-7%
City of London	-7%	-21%
Croydon	-10%	-4%
Ealing	-9%	-31%
Enfield	-12%	-11%
Greenwich	-10%	-8%
Hackney	-30%	-18%
Hammersmith & Fulham	-17%	-18%
Haringey	-8%	12%
Harrow	-17%	-29%
Havering	6%	-17%
Hillingdon	-12%	-33%
Hounslow	7%	-10%
Islington	-23%	-6%
Kensington & Chelsea	-2%	-13%
Kingston	-5%	-28%
Lambeth	6%	-11%
Lewisham	-5%	2%
Merton	-1%	-17%
Newham	-14%	-32%
Redbridge	-11%	-14%
Richmond	28%	-19%
Southwark	-11%	-7%
Sutton	-13%	-16%
Tower Hamlets	-6%	-19%
Waltham Forest	-22%	-12%
Wandsworth	-17%	-32%
Westminster	-10%	-18%

Source: Transport for London's report, "Towards the year 2010: monitoring casualties in Greater London, July 2003"

Funding

2.5 Currently, funding of traffic calming schemes (and all road safety engineering schemes) is agreed on an annual basis. TfL's budgets for road safety for 2003/4 are: £6.5m for the Transport for London Road Network (TLRN); £21.9m for local safety schemes in the boroughs; and £3m for 20mph zones on borough roads. Boroughs also make additional funds available for road safety and do not simply rely on TfL funding to achieve the targets.

2.6 However, we were told by representatives from Bromley, Camden and Enfield Councils that this puts pressure on boroughs to consult, design and implement schemes within a year, which can be difficult. They would prefer to see a much longer timeframe to plan schemes and allow for modifications, such as five to ten years. This would provide a more flexible approach, allow boroughs to explore the options fully and come up with schemes that would deliver value for money for Londoners.[8] They acknowledged that TfL had improved its consultation with boroughs and that it was willing to engage and listen to boroughs' concerns. TfL has confirmed that they are in discussion with the London boroughs, and are exploring alternatives to allow funding support for schemes to be spread over more than one year. They have said that initially allocating a proportion of the road safety budget for scheme design and consultation followed by a separate allocation to implement a scheme would assist both the boroughs and TfL. It helps the boroughs by allowing them sufficient time to carry out design and locally agreed consultation and it also helps TfL, as full funding support will only be given to designed schemes that are locally supported and likely to achieve good casualty reduction. It is encouraging that the boroughs and TfL are working closely together on these issues.

Recommendation 1:

Transport for London and London boroughs should continue working closely together to reach an agreement on the period covered by funding for traffic calming schemes, which would enable the boroughs to undertake better design, consultation and implementation of the schemes.

2.7 The actual funding of the traffic calming schemes works through the borough partnership. Boroughs produce draft schemes, which they put forward in their submissions to TfL each year. These are checked and, depending on budgets, some of these schemes are selected for funding. The design and consultation of the scheme will be considered and modifications made if required. TfL acknowledge that the consultation process is important and should be effective but ultimately it is the responsibility of the boroughs to consult. TfL does not get involved with the consultation process other than to ensure that it takes place.

2.8 The Metropolitan Police Service has informed us that boroughs receive their capital funding from TfL in advance of the consultation process.[9] The Committee raised this issue with TfL at the evidentiary hearing on 11 December,

[8] Transcript: Evidentiary Hearing 5 February 2004
[9] Memorandum: Metropolitan Police Service

to see if they could introduce a system whereby the funding approvals to borough schemes for traffic calming could have a technical input from all the emergency services before approval is granted. TfL acknowledged that this could be done and accepted that although they have frameworks and best practice in place they could take a more direct involvement in the boroughs' consultation processes to ensure that stakeholders' views were taken into account before approval for funding was granted.[10]

2.9 We appreciate that the consultation on traffic calming schemes is the responsibility of local boroughs. However, we would like to see TfL take more account of these consultations other than simply to ensure that they happen, particularly as they are providing funding for the schemes. It may be appropriate for TfL to check that the views of the emergency services and other key stakeholders are given serious consideration by boroughs before the capital funding for the schemes is provided by them.

Recommendation 2:

Transport for London should take more account of the boroughs' consultation process on traffic calming schemes to ensure that the emergency services and other stakeholders' views are given serious consideration by the boroughs before capital funding is allocated by TfL to the boroughs.

2.10 Enfield argued against the introduction of matched funding for traffic calming because it would favour the richer boroughs that could afford to match fund and work against those boroughs that could not. The 32 London boroughs and the Corporation of London have very different financial characteristics so matched funding would inevitably lead to funding inequalities.[11]

Monitoring

2.11 TfL currently monitors funding allocations using bi-monthly progress returns from the boroughs. These returns set out the progress of a scheme broken down into four elements: initial design; consultation; detailed design and construction. As mentioned in paragraph 2.7, TfL do not get involved in the boroughs consultation process. Following scheme implementation, TfL monitors its effectiveness in terms of change of casualty numbers. The London Road Safety Unit at TfL collects data on casualties in London reported by the police. This is analysed and forms the basis of an annual report on progress towards targets. The data is shared with the boroughs. The boroughs also undertake their own monitoring of traffic calming schemes and collect data on this. In addition, for 20mph zones, TfL has said that there is further 'outcome monitoring' reporting. This is administered by Borough Partnerships through the Borough Spending Plan Process. This requires additional information of changes to vehicle speed and usage.

2.12 Barnet believes that the reliance on cost-benefit assessment based on predicted accident savings has stifled the development of a broader approach to accident

[10] Transcript: Evidentiary Hearing 11 December 2003
[11] Transcript: Evidentiary Hearing 5 February 2004

reduction. They suggest that there is little work done to check the effectiveness of schemes following implementation to ensure accident savings have been delivered across London. They have said that TfL's monitoring of borough schemes is focused almost entirely on achieving spending profile targets rather than assessing the effectiveness of measures. Barnet's own analysis of sites with higher levels of accidents suggests that speed was not the main contributory factor and that individual characteristics of each site play a far greater part.[12]

2.13 The Automobile Association argues that good traffic calming schemes can significantly reduce personal injury accidents by controlling speed. However, the AA believes that it is essential to put in place traffic calming schemes where there are proven safety or traffic problems. They would like to see more statistical information made available before and after a scheme is considered or implemented. They say that "after" studies are necessary and schemes should be re-modelled in light of experience, but they suggest that this rarely happens.[13]

2.14 We are aware that some boroughs collect data before and after a traffic calming scheme is implemented so that they can monitor the effectiveness of their schemes, but we cannot be certain that this is a consistent practice across London. There would seem to be a role here for the Association of London Government and Transport for London to ensure that data is collected by all boroughs for their schemes to an agreed methodology to determine whether or not they are effective at reducing accidents and saving lives. They could then collate and publish this information in an Annual Report and circulate to the boroughs.

Recommendation 3:

The Association of London Government and Transport for London should ensure that all London boroughs collect and publish data to an agreed methodology to determine whether or not the scheme in question is effective at reducing accidents and saving lives. The ALG and TfL should ensure that this information is collated, published in an Annual Report with some analysis and circulated to boroughs.

[12] Memorandum: LB Barnet
[13] Memorandum: Automobile Association

3. Effects on safety, quality of life, the emergency services, vehicles and other users

a) Effects on Safety

3.1 TfL and most boroughs that have provided evidence to the Committee believe that speed humps are an effective and relatively economical way of reducing speeds and saving lives. For instance, Enfield have stated that there has been 57% reduction in injury accidents, 47% reduction in serious casualties and 57% reduction in child casualties in their borough.[14]

3.2 TfL recently commissioned the Transport Research Laboratory (TRL) to conduct research into London's 20mph zones, which primarily use speed humps for traffic calming.[15] TRL's conclusions were:

- The installation of 20 mph zones in London has reduced the frequency of road user casualties within the zones by about 45% and reduced the frequency of killed and seriously injured (KSI) casualties by about 57%;
- Traffic flows in the treated streets fell by around 15%; and,
- Accident migration onto surrounding roads was not found to be a problem.

A detailed breakdown by road user class is shown in table 1.

Table 1: Before and after -- Casualties per year per site by road user class

Road User Class	All Casualties per year per site[1]			KSI casualties per year per site[1]		
	Before[2]	After[3]	% Reduction	Before[2]	After[3]	% Reduction
All Casualties	4.96	2.66	46%	0.79	0.32	60%
Pedestrians	1.37	0.83	40%	0.32	0.16	50%
Child Pedestrians	0.75	0.39	48%	0.19	0.07	61%
Pedal Cyclist	0.64	0.43	33%	0.10	0.05	50%
Child Pedal Cyclist[4]	0.25	0.10	59%	0.04	0.02	60%
P2Ws[5]	0.53	0.32	41%	0.14	0.05	68%
Car Occupants	2.23	0.95	57%	0.21	0.05	77%
Child Car Occupants[6]	0.19	0.09	51%	0.01	0.00	47%

1. Before and after figures rounded to two decimal places
2. Before has been measured over 4,680 site-months
3. After period measured over 2,930 site-months
4. Small sample size means that KSI data for child pedal cyclists is not statistically significant
5. P2W = Powered Two Wheelers (includes scooters, mopeds and motorcycles)
6. Small sample size means that data for child car occupants is not statistically significant

[14] Memorandum: LB Enfield
[15] Memorandum: Transport for London

3.3 The DfT have said that 20mph zones with speed humps have been effective.[16] Research by TRL has shown that average speeds reduced by 9mph, annual accident frequency fell by 60%, overall accident reduction in child accidents of 67%, overall reduction in accidents to cyclists of 29% and traffic flows within the zones were reduced by 27%. The Boroughs of Brent[17], Camden[18] and Lewisham[19] also support 20mph zones and have found that they have reduced vehicle speed, reduced accidents, deterred rat running by vehicles through residential areas and encouraged greater use of walking and cycling. As a result their residents have supported these schemes. In fact, Camden will have seventeen 20mph zones by the end of 2003/4. The Slower Speeds Initiative (SSI)[20] believe that there is an overwhelming case for area-wide 20mph speed limits particularly in London where pedestrians and cyclists accounted for 72% of deaths and serious injuries on the capital's roads in 2002.[21] The Health Development Agency[22] would like to see speed cut to 20mph on residential roads to reduce children's deaths and injuries by 67%. They say that at 20mph, 1 in 20 child pedestrians are killed but at 40mph this rises to 17 in 20.[23] Sustrans[24] favour 20mph home-zones[25], which employ a range of techniques to reduce speed and create an environment of equality for all road users, including cyclists and pedestrians.[26] Living Streets[27] would like to see 20mph home-zones, with some streets designated as 10mph zones encouraged across London, particularly where child pedestrian casualties are higher.[28]

3.4 However, we have been informed that home zones can be expensive to implement compared with speed humps because of the re-designing of the road network that needs to take place. Harrow said that home-zones can cost between £200,000-£300,000 per street or £1000 per metre of road for retro-fit schemes, which is more than 10 times the cost of speed humps.[29] Merton also believes that home zones are costly and for a similar level of investment speed humps can effectively traffic calm a whole area.[30]

3.5 In light of the overwhelming evidence that traffic calming, including speed humps, contributes to the reduction in deaths and serious injuries, we would be concerned if local authorities simply removed speed humps without replacing them with an effective alternative. We have mentioned in paragraph 2.3 Barnet's new policy of removing speed humps and relying on improved traffic flows on the main road network to prevent rat-running on residential roads. A

[16] Memorandum: Department for Transport
[17] Memorandum: LB Brent
[18] Memorandum: LB Camden
[19] Memorandum: LB Lewisham
[20] SSI campaign for lower and better enforced speed limits, speed reduction initiatives, development of speed control technology and changes to the law to convict speeding drivers who kill and maim
[21] Memorandum: Slower Speeds Initiative
[22] HDA is the national authority on what works to improve people's health and to reduce health inequalities
[23] Memorandum: Health Development Agency
[24] Sustrans is a charity which works on projects to encourage people to walk and cycle in order to reduce motor traffic
[25] A home-zone is a street or group of streets designed primarily to meet the interests of pedestrians and cyclists rather than motorists, opening up the street for social use
[26] Memorandum: Sustrans
[27] Living Streets works to improve streets and public spaces for people on foot
[28] Memorandum: Living Streets
[29] Memorandum: LB Harrow
[30] Memorandum: LB Merton

borough should at least provide independent research to show that it was safe to remove traffic calming on a road if they didn't intend to replace it with any alternative measures. However, we would strongly argue that improved safety was due to the traffic calming measures in the first place and removal of these measures would jeopardise the safety and lives of Londoners.

Recommendation 4:

Given the overwhelming evidence of the reduction in deaths and serious injuries resulting from the presence of speed humps, any removal of speed humps by the boroughs should be accompanied by equivalent or more effective alternative speed reduction measures. If speed humps were not to be replaced then the boroughs should provide independent research to show that it was safe for their removal. However, we would argue that improved safety is due to traffic calming measures and if they were removed then this would jeopardise the safety and lives of Londoners.

b) Effects on quality of life

Possible damage to property

3.7 The Transport Research Laboratory (TRL)[31] has undertaken extensive research on ground-borne vibration associated with road humps. TRL explain that vibration can be measured in terms of the peak amplitude of particle velocity in mm/s. They have said that traffic induced vibrations from speed humps are very much lower and state that it rarely exceeds 1.5mm/s at the foundations of a property. The complaint level for ground-borne vibration tends to be around 1mm/s. They have said that since the building damage threshold for even minor damage is around 10mm/s the risk of damage from smaller levels of traffic vibration at 1mm/s is minimal. TRL have undertaken tests involving a range of heavy goods vehicles with levels of vibration measured over different distances and soil types. They discovered that to obtain the relatively high level of 10mm/s, which would correspond to minor building damage, then it has been predicted that the distance of the hump would need to be less than 1m from a property on London clay soil. To obtain the lower level of 1mm/s, the threshold which would trigger complaints, then the hump would need to be approximately 5m from the property. The results of TRL's study on noise and ground-borne vibration, which was commissioned by the Department of Transport, Environment & the Regions (DETR), are contained in Traffic Advisory Leaflet 10/00, Table 2.

3.8 We have heard from some residents that traffic constantly driving over speed humps may have caused possible structural damage to their properties. Councillor Clyne[32] has undertaken some of his own research on this and has measured the vibration to be 4mm/s in his house, which is located 6.5m from the speed table. This is four times greater than TRL's predicted 1mm/s level for complaints and is further than the 5m which TRL states would only produce vibration levels of 1mm/s. He disagrees with the results from the TRL study outlined in paragraph 3.6. TRL have said that it should be noted that

[31] Memorandum: Transport Research Laboratory
[32] Memorandum: Cllr Clyne, LB Lambeth

measurement of ground-borne vibration in dwellings requires equipment to be set up very accurately, and strict procedures to be followed to avoid erroneous readings.

3.9 Enfield[33] and Hillingdon[34] have said that there is no conclusive evidence that properties have been damaged structurally by speed humps. We have been told that Lewisham's district surveyor has carried out some research on the possible structural damage to buildings due to speed humps and could find no substantiated case of this happening.[35]

Noise

3.10 Some residents have complained about the incessant noise caused by vehicles constantly driving over speed humps positioned directly outside their houses. It seems that the main problem is with noise from empty vans and lorries when they go over the speed humps. The DfT has said that where traffic flows consist of all cars substantial reductions in noise would be expected, but where the percentage of commercial vehicles and buses rises then noise does increase.[36] The Boroughs generally do not see vehicles driving over speed humps as a noise problem, although they accept that there may be isolated noise issues that they need to deal with on specific schemes. We also heard that some residents would prefer to have speed humps and put up with a small amount of noise rather than be harassed by speeding vehicles. Hull confirmed that in the past ten years they have only received one complaint about noise caused by an empty vehicle driving over speed humps early in the morning. They found that overall noise levels were reduced when they introduced speed humps because there was a decrease in traffic.[37]

Proposed *Pilot Studies*

3.11 As mentioned in paragraphs 3.7-3.10, Boroughs have informed us that there is no research or evidence to show that vehicles driving over speed humps has led to increases in noise levels and structural damage to those properties close to the humps. We also acknowledge and appreciate the extensive research conducted by TRL on noise and ground-borne vibration and the Traffic Advisory leaflet 10/00, which they have issued on behalf of the Government. However, we have also received complaints from residents about the increases in noise and damage to their properties as a result of vehicles driving over speed humps. Therefore, as there is no conclusive evidence available to challenge TRL's standards, it would seem appropriate to at least set up pilot studies across London, where noise levels are measured and photos of the exterior and interior of houses are taken before and after the implementation of traffic calming measures, including speed humps.

[33] Memorandum: LB Enfield
[34] Memorandum: LB Hillingdon
[35] Memorandum: LB Lewisham Environment Select Committee
[36] Memorandum: Department for Transport
[37] Transcript: Evidentiary Hearing 5 February 2004

Recommendation 5:

The Association of London Government and London Boroughs should set up several pilot studies across London, where noise levels are measured and photos of the exterior and interior of houses are taken before and after the implementation of traffic calming measures, including speed humps.

Air quality

3.12 Boroughs have said that they are not aware of any air quality statistics or research that suggests that pollution is caused by traffic calming. We were told that they have not received any particular complaints from residents about this issue.[38] TfL has confirmed that the evidence for air pollution caused by traffic calming is mixed, with small decreases in nitrogen dioxide and small increases in fuel consumption.[39] Department for Transport (DfT) research has indicated that emissions from vehicles may increase with the implementation of traffic calming measures, however, the reduction in the volume of traffic caused by these traffic calming measures means that overall changes in air quality are neutral.[40] We are surprised that some local authorities are unaware of this DfT research. It may be appropriate for the DfT to check its systems for communicating the results of commissioned research to the ALG and Boroughs across London to ensure that these authorities are kept fully informed and are aware of any implications arising from the research.

Recommendation 6:

The Department for Transport should consider checking its systems for communicating the results of commissioned research to the ALG and Boroughs across London to ensure that these authorities are kept fully informed and are aware of any implications arising from the research.

c) Effects on the response times of emergency services

3.13 TfL has said that speed humps have a minor influence on emergency services response times, adding about 3 seconds to travel time.[41] However, the emergency services are concerned that speed humps cause delay to their response times to emergency situations. For instance, the Department of Health requires the London Ambulance Service (LAS) to attend 75% of life threatening calls within eight minutes. The LAS explains that they have to use residential roads for most of their journeys to attend emergencies because there is too much congestion on main roads particularly during the day. They have said that there are too many traffic calming measures, such as speed humps, on these residential roads, which impede and prevent them from achieving their target. The LAS confirmed in their written evidence that, "this Service believes that it could probably save more lives if the overall traffic flow were to be improved. Just among the 5000 cardiac care victims that we try to resuscitate this could

[38] Transcript: Evidentiary Hearing 5 February 2004
[39] Memorandum: Transport for London
[40] Memorandum: Department for Transport
[41] Memorandum: Transport for London

possibly save about 500 lives. In addition a minute gained in reaching other life threatening cases could potentially save hundreds of lives."[42] However, the LAS could not provide any evidence to substantiate their claim of possibly saving 500 lives should speed humps be removed. There is a lack of evidence on the detailed reasons why ambulances face traffic delays and how much other measures such as traffic reduction, or eliminating unnecessary road works, would help speed up response times. The London Fire & Emergency Planning Authority (LFEPA) said that 1.2% of all attendances by the London Fire Brigade indicated a delay due to traffic calming measures, which included speed humps.[43] The Metropolitan Police Service (MPS) also believe that traffic calming does impede them and increases their response times to emergency situations.[44]

3.14 Sustrans have said that speed cushions as opposed to speed humps could be installed to minimise the delay to emergency response vehicles. However, they said that the number of heart attack victims transported by ambulance could be significantly reduced if Londoners were encouraged to walk or cycle some of the 20% of car trips which are less than two miles. They also said that traffic calming, including speed humps, has reduced speed and the number of accidents, which may result in fewer emergency call outs.[45]

3.15 The SSI finds it hard to believe that traffic calming conflicts with health service objectives and suggests that traffic reduction and the use of cycling paramedics could be ways of improving the Ambulance Service's targets.[46] RoadPeace[47] also supports the introduction of motorcycle and bicycle paramedics, equipped with heart starting defibrillators, which have been found to have faster response times than the ambulances.[48] The LAS confirmed that they were the first ambulance service in England to introduce cycling paramedics and have had them in central London for several years.[49] Camden said that medics on motorcycles and bicycles in central London reached emergencies before the ambulance in 88% of cases.[50] These have now been introduced in other parts of the UK, such as in York, where cycling paramedics have proved successful in improving the target performance of the local ambulance services because they can reach patients quickly and give life saving aid before the ambulance arrives.

3.16 We understand that there is no reliable data or empirical evidence to demonstrate that more lives could be saved if speed humps were removed and traffic flows improved, as claimed by the LAS. However, we do acknowledge that longer journey times for the emergency services could have a potential significance for critical incidents, such as heart attacks or terrorist attacks on the public transport network. It may be that better consultation between the emergency services and the boroughs on traffic calming proposals may improve the situation. Consultation is discussed further in section 4.

[42] Memorandum: London Ambulance Service
[43] Memorandum: LFEPA
[44] Memorandum: MPS
[45] Memorandum: Sustrans
[46] Memorandum: SSI
[47] RoadPeace is a national charity for road traffic victims
[48] Memorandum: RoadPeace
[49] Transcript: Evidentiary Hearing 11 December 2003
[50] Transcript: Evidentiary Hearing 5 February 2004

d) Effects on vehicles, drivers, passengers, cyclists and pedestrians

Damage to v*ehicles*

3.17 TfL say that damage should not happen to vehicles driving over speed humps if they travel at an appropriate speed i.e less than 20mph.[51] The SSI has said that damage to vehicles and discomfort to drivers and passengers are the fault of drivers and suggest better education and training for all vehicle drivers.[52] The current Department for Transport (DfT) guidance for the design of road humps takes account of vehicle design.

3.18 However, we have heard from the emergency services that they are concerned with damage to their vehicles. The Metropolitan Police Service (MPS) said in their evidence that 34 vehicles were possibly damaged due to traffic calming features over the previous three months costing about £7,500.[53] At the evidentiary hearing on 11 December 2003 they confirmed that they did not have conclusive information to confirm that this damage was directly caused by speed humps or any other traffic calming measures. The London Ambulance Service has also complained about damage to their vehicles. They would prefer speed cushions to be used rather than speed humps but even the design of these have caused some problems.[54] LFEPA also said that fire engines have been damaged by speed humps and the risk for the costs of this damage has been taken into account.[55]

3.19 Stagecoach London also mentioned that damage has occurred to their buses through constant driving over the traffic calming measures, which has increased their costs. However, they did admit that some drivers got frustrated and disregarded speed limits when negotiating speed humps, cushions or tables.[56] First Group confirmed that their new buses had been speed limited to 30mph so they were unable to break the general speed limit in residential areas. They said that there were exceptions on some routes, which used dual carriageways and the buses on these routes were speed limited to 40mph.[57]

Discomfort to drivers and passengers

3.20 First Group and Stagecoach London mentioned the injuries and discomfort caused to passengers and drivers from speed humps, which has led to some industrial relations problems with trade unions who believe that driving over 1000 speed humps a week is unacceptable for drivers and passengers. First Group did acknowledge that TfL had introduced bus friendly designs of speed humps, cushions and tables, which made bus journeys more pleasurable for drivers and passengers. Barnet has also suggested that speed humps can reduce journey time reliability of buses and cause great discomfort to bus passengers when buses travel over the humps.[58]

[51] Memorandum: Transport for London
[52] Memorandum: SSI
[53] Memorandum: MPS
[54] Memorandum: LAS
[55] Memorandum: LFEPA
[56] Memorandum: Stagecoach London
[57] Memorandum: First Group
[58] Memorandum: LB Barnet

3.21 The LAS has also mentioned the discomfort and pain caused to their seriously ill patients when ambulances have to drive over many speed humps.[59] We have also received correspondence from members of the public who have complained about the discomfort when being transported to hospital in ambulances which have to negotiate speed humps.

3.22 The AA has received complaints from motorists who consider that there are far too many humps, which have caused damage to their cars. They have also received complaints from motorists stating that those with arthritis have found that humps have aggravated their condition.[60] We have also received complaints from disabled drivers who find it painful when driving over speed humps.

Effects on cyclists and pedestrians

3.23 The London Cycling Campaign (LCC) emphasise the importance of good design and construction of speed humps so that their impact on cycle users is minimised.[61] They advocate smooth sinusoidal humps[62] as the most cycle friendly. The LCC say that speed cushions are helpful to cyclists but they don't slow down larger vehicles, which can be noisy and intimidating. They have said that drivers can make sudden manoeuvres to avoid speed cushions which can pose a risk to cyclists, other cars and pedestrians and also, poor placement of speed cushions can push cyclists into the path of following or approaching traffic. Living Streets would like traffic engineers to receive better training on understanding the needs of pedestrians and improving the walking experience.[63] Sustrans feel that many speed hump schemes in the UK have delivered reduced speeds and improved safety alongside increased levels of walking and cycling. They feel that they do provide value for money and are the most cost effective measures at present.[64] Wandsworth Cycling Campaign also feel that speeds humps are a cost effective way of reducing vehicle speeds but good speed hump design is important so that they work for all road users. They note that some drivers in London have learned to drive more safely and sensibly due to the presence of speed humps.[65]

3.24 We acknowledge that poor design of traffic calming measures, such as speed humps, may contribute to the damage caused to vehicles. However, we are content that the current Department for Transport (DfT) guidance for the design of road humps takes account of vehicle design. We believe that damage should not occur if drivers of all vehicles took greater care and drove at an appropriate speed over the humps i.e 20mph. This would also mean that their passengers would not suffer from discomfort and pain and they should have a more pleasurable journey.

[59] Memorandum: LAS
[60] Memorandum: Automobile Association
[61] Memorandum: London Cycling Campaign
[62] Sinusoidal humps are similar to round-top humps but have a shallower initial rise and are standard in the Netherlands
[63] Memorandum: Living Streets
[64] Memorandum: Sustrans
[65] Memorandum: Wandsworth Cycling Campaign

4. Consultation

Consultation by the boroughs

4.1 Local authorities are required to consult emergency services, TfL, bus operators and residents on traffic calming proposals under the Highways (Traffic Calming) (Amendment) Regulations 2000. Many local authorities have informed us that their consultation processes are good and that the consultees are generally happy with the traffic calming schemes introduced.

4.2 Boroughs can use consultation with their residents to ascertain whether or not they are in favour of schemes before they are introduced. Enfield's extensive survey of residents affected by traffic calming schemes showed that over 80% of residents questioned were in favour of proposed speed hump schemes.[66] Richmond upon Thames conducted a similar survey, which found that 75% of residents surveyed were in favour of speed humps.[67] Hull said that they have benefited from extensive public consultation, which included presentations, questionnaires and leaflets. They found that between 75 and 95% of residents who responded to questionnaires were in favour of speed humps. Hull has set up a road safety partnership, which includes the emergency services, transport operators, health authorities and residents and this has been successful in ironing out any potential problems with traffic calming schemes during the consultation process. As a result these stakeholder groups are more supportive of the schemes when they are implemented.[68]

4.3 TfL confirmed that bus operators were consulted by local authorities regarding traffic calming measures and some attended the traffic liaison group meetings. They said that generally bus operators were satisfied with the measures that are implemented on bus routes. TfL is not aware of any one of the six hundred bus routes in London going over speed humps although buses do go over other types of traffic calming such as speed cushions and speed tables.[69]

Consultation issues

4.4 Although they are consulted, the emergency services complain that their views on traffic calming are not taken seriously by the boroughs. The MPS have said that the boroughs' consultation is a "fait accompli." They would like to see more meaningful consultation as early as possible.[70] The LAS has also complained that their views have not been taken into account, which is why they don't feel that it is useful to respond to consultations.[71] The SSI suggest that any problems faced by the emergency services could be as a result of defective consultation processes by local authorities.[72]

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[66] Memorandum: LB Enfield
[67] Memorandum: LB Richmond
[68] Memorandum: Hull City Council
[69] Transcript: Evidentiary Hearing 11 December 2003
[70] Memorandum: MPS
[71] Memorandum: LAS
[72] Memorandum: SSI

4.5 Camden told us that it is difficult to obtain detailed responses from the London Ambulance Service (LAS), unlike the other emergency services, and also the LAS fail to turn up at regular Traffic Management Liaison meetings. Bromley has had similar experiences in dealing with the LAS. They told us that despite consulting the LAS on all their traffic calming schemes in Bromley, the LAS has chosen not to comment on any of them during the last 10 years. Bromley told us that they have raised this issue with the LAS at an ALG meeting but the LAS have done nothing to improve the situation.[73]

4.6 Boroughs have said that the police and fire brigade seem to be more willing than the LAS to engage with the boroughs on traffic calming issues. They said that the LAS have a blanket objection to traffic calming schemes, particularly those with speed humps, and do not seem to want to engage with boroughs to find a solution. The Boroughs confirmed that they are keen to have a dialogue with the LAS to iron out these issues.[74]

4.7 We welcome the fact that both the MPS and London Fire Brigade contribute usefully to consultations and have built up a positive working relationship with the boroughs. We believe that the LAS should also do the same. The boroughs have confirmed that they are willing to have a dialogue with the emergency services. We would like to see the Metropolitan Police Authority, London Fire & Emergency Planning Authority and Department of Health ensure that the emergency services respond to borough consultations and consistently attend and take part in local traffic management meetings held by the London boroughs.

Recommendation 7:

The Metropolitan Police Authority, London Fire and Emergency Planning Authority and Department of Health should ensure that the emergency services respond fully to borough consultations on traffic calming and consistently attend and take part in local traffic management meetings held by the boroughs.

4.8 In 2000 the Association of London Government (ALG) established a Pan London Road Safety Forum, which includes the boroughs, TfL, emergency services, DfT, motoring organisations and road safety groups. The Forum has a steering group consisting of the ALG, TfL, MPS and the boroughs and further sub-groups which discuss monitoring, targeting, new initiatives, campaigns and education surrounding road safety in London. They share research and road safety data and disseminate best practice advice through joint working and partnership across all the stakeholders. There are usually three or four meetings a year, including an annual conference.[75]

4.9 We are surprised that this Forum was not mentioned by any organisations when submitting evidence, particularly as we believe that it has an important co-ordinating role on road safety issues. It may be that the work of the Forum needs to be publicised more within member organisations, so that more people

[73] Transcript: Evidentiary Hearing 5 February 2004
[74] Transcript: Evidentiary Hearing 5 February 2004
[75] "London Road Safety Plan 2001" – Transport for London

are aware of its work. The Forum could be used to discuss important issues that affect the boroughs and emergency services, by discussing and issuing best practice guidance on the consultation process; discussing and resolving traffic calming issues that affect both inner and outer boroughs; and, also ensuring that best practice is shared across London. We have been told that the Pan London Road Safety Forum is already doing this work, however, the evidence we have received shows that there are still unresolved issues and the work of the Forum seems to have gone unnoticed. We would like to see the Forum be more proactive in tackling these important issues.

Recommendation 8:

The Pan London Road Safety Forum should be more proactive in publicising its work on road safety in London and should be used to discuss important issues that affect boroughs and the emergency services. It could: discuss and issue best practice guidance on the consultation process; discuss and resolve traffic calming issues that affect both inner and outer boroughs; and, also ensure that best practice on traffic calming is shared across London.

5. Possible effective alternatives

Speed cameras

5.1 At present the police are the only authority which can enforce the law on speed limits. Some boroughs are happy for this to remain, but are concerned about restrictions on how speed cameras can be used. Some would like to use them to enforce 20mph zones for instance. Boroughs are currently lobbying the DfT to change the regulations to remove some of the restrictions on speed cameras. Obviously, this may raise concerns with some people about civil liberties. TfL said that speed cameras are able to detect speeds below 30mph and could enforce low speeds but currently it is not possible to re-invest the income in road safety.[76] Camden is interested in using speed cameras for enforcing speeds in 20mph zones but due to current regulations this would be a limited option at present for most borough roads.[77] The SSI believe that speed humps are cost effective but they also advocate the use of speed cameras on strategic routes. Brent support the use of speed cameras where there is a history of speed related traffic accidents and also on routes where traditional forms of traffic calming would not be acceptable to the emergency services.[78] Transport 2000 say that speed cameras have been shown to slow traffic down and save lives. The government's evidence has shown that on average speed cameras reduce the number of people killed and seriously injured at camera sites by 35%. However, it wouldn't like to see other forms of traffic calming removed altogether.[79] RoadPeace are in favour of alternative measures, which do not rely on voluntary compliance. They say that 20mph limit signs without any physical traffic calming measures were found to have no effect on vehicle speeds.[80]

5.2 We would like to see the DfT change the regulations to make it possible for London Boroughs to set up local pilot schemes which use speed cameras, or speed limiters, to enforce 20mph zones instead of speed humps or other engineering measures. We are aware that some local authorities would like the opportunity to do this.

Recommendation 9:

The Department for Transport should change the regulations to make it possible for London Boroughs to set up local pilot schemes which use speed cameras, or speed limiters, to enforce 20mph zones instead of speed humps or other engineering measures.

[76] Memorandum: TfL
[77] Memorandum: SSI
[78] Memorandum: LB Brent
[79] Memorandum: Transport 2000
[80] Memorandum: RoadPeace

Variable speed signs

5.3 The Police suggested reactive road signing to highlight excessive speed, which has led to a reduction in traffic speeds.[81] TfL agree that variable speed signs have been shown to be effective in reducing speeds, but their effectiveness tends to decrease over time. The evidence indicates that variable speed signs are not suitable as replacements for permanent restraint measures, such as physical engineering or safety cameras, but can be useful as part of an area-wide speed management programme.[82] Bromley has been trialling the use of electronic speed signs to educate and inform drivers when they are driving too fast for the road conditions. They said that they frequently move these variable speed signs around their borough so they spread the message in various parts of the borough at different times.[83]

Speed cushions

5.4 The LAS believes that speed humps, chicanes, width barriers, pedestrian areas and blocked streets all delay emergency response times. They prefer speed cushions to traditional road humps, as these are not as severe in reducing the speed of their vehicles.[84]

Speed limiters

5.5 Transport 2000 also support the introduction of speed limiters on vehicles. They feel that government agencies should progress more quickly the development and testing of this technology. They have suggested that bursaries could be offered by government to those opting to buy a speed limited car.[85] Living Streets said they would like to see speed limiters used to enforce speed limits, and these could make speed humps redundant.[86] TfL and SSI also support developing technology with speed limiters in vehicles.

Rippleprint textured surface

5.6 From the evidence available from research conducted by TRL, Camden believes that traffic calming is the single most effective tool in reducing speeds and reducing casualties. However, Camden is also interested in alternative measures. It currently has plans to trial "rippleprint", a textured surface which reduces vehicle speeds by creating noise in the vehicle but apparently causing no noise nuisance to adjoining properties.[87] Enfield is interested in exploring other alternatives to speed humps, and are trialling pilot schemes using speed cameras and vehicle activated signs.[88]

[81] Mmeorandum: MPS
[82] Memorandum: TfL
[83] Transcript: Evidentiary Hearing 5 February 2004
[84] Memorandum: LAS
[85] Memorandum: Transport 2000
[86] Memorandum: Living Streets
[87] Memorandum: LB Camden
[88] Memorandum: LB Enfield

Vehicle responsive humps

5.7 The Corporation of London is currently trialling vehicle responsive road humps in a small side street in the City of London at Puddle Dock. The humps are a series of connected air-filled rubber cells, which partially deflate when a vehicle passes over them at slow speed. However, if the approach speed of the vehicle is greater than the "street design speed" then the hump remains solid and is an effective physical deterrent to speeding vehicles. The Corporation has said that they only take a few hours to install in comparison with traditional humps. Generally the "big picture" costs of conventional and responsive road humps appear similar.[89] We have been told that the trial has been successful with no accidents or complaints recorded since the trials began in February 2001. Although it must be noted that the vehicle responsive humps are currently being trialled on a relatively quiet side road and it would be useful to see them trialled on a busier route. The manufacturers trialled a new prototype of this speed hump at the Transport Research Laboratory in March 2004 and key organisations including the boroughs and emergency services attended this event. This innovative design of speed hump may be the way forward. Depending on the outcome of the trial, it may be worth the members of the Pan London Road Safety Forum taking this work forward together with pilot schemes across London.

Alternative measures used in other cities

5.8 SSI mention good practice in other cities such as Hull with their 20mph zones and Graz in Austria who have developed the concept of gentle mobility which avoids extensive re-engineering of streets and relies on signs, gateways and publicity to remind drivers that they are entering a 30kph (19mph) speed limit.[90] Transport 2000 suggest that we may be able to learn from the Netherlands regarding new approaches to traffic calming. They have started to alter the way that residential roads are designed and engineered using reduced sight lines for drivers, narrower carriageways, chicanes, shared surfaces for all road users and better use of landscaping such as trees to encourage drivers to reduce speed.[91] Wandsworth Cycling Campaign said that mobile speed cameras were used effectively in Western Australia to affect driver behaviour positively and make drivers reduce their speed.[92]

Sharing information and best practice

5.9 There seems to be a wide range of work going on by the boroughs looking at various traffic calming alternatives to traditional speed humps. The Pan London Road Safety Forum should ensure through its membership that this information and best practice is shared amongst local authorities across London. The Forum could also discuss the possibility of establishing pilot schemes across London to test the vehicle responsive humps.

[89] Memorandum: Corporation of London
[90] Memorandum: SSI
[91] Memorandum: Transport 2000
[92] Memorandum: Wandsworth Cycling Campaign

Recommendation 10:

The members of the Pan London Road Safety Forum should ensure that they share information and best practice about the alternative traffic calming measures across London. They should also establish pilot schemes across London to test the new vehicle responsive humps.

6. Strategic solutions

Strategic routes for the emergency services

6.1 It was clear from the evidence given to us by the emergency services that the strategic road network as defined by the Department for Transport often bears little relationship to routes that the emergency services consider strategic to their needs on the ground in each borough. They would therefore like to see agreement on the local strategic routes regularly used by the emergency services, so that traffic calming is not introduced on these roads.[93] The LAS is criticised by the boroughs for not providing them with information on the routes they use, for example Camden has said that the police and fire services have provided them with a map of their key routes but the LAS has declined to do this.[94] In answer the LAS has said that they may need to use most roads in London to reach an emergency. Most boroughs have said that they only install speed humps on local access roads and wherever possible only use speed cushions rather than full width speed humps, so reducing the adverse impact on the response times of emergency services.

6.2 The evidence that we have received points to the need for greater co-operation between local authorities and the local emergency services in agreeing their local strategic road network. We are aware that some local authorities and emergency services have a good working relationship and have regular meetings but this good practice should be introduced consistently across London. We see this as a way forward and should ensure that traffic calming is only introduced where necessary on these routes and helps to minimise the impact on the emergency services. We feel that the Pan London Road Safety Forum could have a role to play here in more proactively discussing the issue of strategic routes for emergency services.

Recommendation 11:

Each London Borough together with the emergency services should agree on their own local strategic road network. This recommendation should be taken forward by the Pan London Road Safety Forum.

Traffic calming framework and data-base

6.3 The police feel that homezones and 20mph limits could be expanded but only under a road safety strategy with improved consultation. They have said that traffic calming seems to have been introduced on an ad-hoc basis on roads with no previous accident history. They advocate the adoption of a London wide Traffic Calming framework by the boroughs, which would be discussed and agreed with the emergency services and other stakeholders through the consultation process.[95] The SSI said that they would also like to see a more

[93] Transcript: Evidentiary Hearing 11 December 2003
[94] Transcript: Evidentiary Hearing 5 February 2004
[95] Memorandum: MPS

comprehensive and planned approach to traffic calming rather than the current piecemeal approach.[96]

6.4 The police also said that TfL and the boroughs should establish a data-base containing existing traffic calming data so it was clear where they are situated on London's roads, which would help the emergency services.[97]

6.5 We agree that there is a need for a London-wide framework for the implementation of traffic calming measures, with agreement by the boroughs, emergency services and other stakeholders. It would also seem sensible for to establish a data-base of existing traffic calming measures, so that boroughs and stakeholders are able to ascertain the location of these measures and delays to the emergency services are kept to a minimum. The Pan London Road Safety Forum may be the most suitable organisation to take forward this work with the help of the boroughs and other main stakeholders.

Recommendation 12:

The Pan London Road Safety Forum should discuss and agree the implementation of a traffic calming framework and the establishment of a traffic calming data-base for traffic calming schemes across London.

[96] Memorandum: SSI
[97] Memorandum: MPS

7. Schemes in other UK cities

Gloucester

7.1 The Gloucester Safer City Project implemented a SPECS speed camera system as a traffic calming measure to improve road safety along three main routes in the Podsmead area of the city: Podsmead Road (30mph), Tuffley Avenue (30mph) and Seymour Road (20mph). SPECS is a digital safety camera system providing point-to-point speed enforcement based on calculation of average speed.

Enforcement figures for last year (2003) were as follows:

Podsmead Road (30mph)	174 offences January to September
Tuffley Avenue (30mph)	25 offences September to December
Seymour Road (20mph)	0 offences (no enforcement selected)

7.2 The system can only be used on a single route at a time and works by matching registration numbers entering and leaving the route. By measuring time between matchings, the system can calculate average speed between the two cameras. However, the system can only monitor one pair of cameras at a time and requires manual switching from one route to the next. This switching is carried out by the police and hence last year the system was operational on Podsmead Road from January to September and Tuffley Avenue from September to December. There was no enforcement selected for Seymour Road.

7.3 We have been informed that the system is generally well received by the public. The roads in question mostly carry local traffic and compliance with the speed limit appears to be good, though a small proportion of drivers have clearly realised that they can speed without detection if they turn off the route before the second camera. It would seem from the evidence so far that this latest digital speed camera technology offers an alternative to traditional speed humps, which is beneficial to bus and emergency services.

For further information about this scheme please contact David Radford, Road Safety Manager, Gloucestershire County Council at:
david.radford@gloucestershire.gov.uk

Hull

7.4 Hull has implemented over a hundred 20mph zones. The vast majority of these use speed humps to reduce traffic speed and have been successful in reducing accidents and fatalities. The Institute of Public Policy Research (IPPR) have quoted the traffic calming schemes in Hull as a model of good practice.

7.5 Since 1994, road crash casualties in Hull have fallen by 14% (2002 figs) from 1,546 to 1,329. Nationally there was a reduction of 1%. The IPPR established that since 1994 Hull's 20 mph zones have already saved about 200 serious injuries and about 600 minor ones. Monitoring of recent crash data in Hull's zones has shown that there has been a reduction in injury accidents of approximately 56%, fatal injuries reduced by 90%, and child casualties by 70%.

The following table shows the decrease in road crash casualties in Hull and Great Britain since 1994:

Comparator Figures – Road Crash Casualties in Hull and Great Britain

	Hull			Great Britain		
	1994	2002	Change	1994	2002	Change
All casualties	1546	1329	-14%	306020	302605	-1%
Child casualties	292	192	-34.2%	45151	34689	-23.2%
All pedestrians	388	217	-44.1%	48653	38784	-20.3%
Child pedestrians	174	97	-44.3%	19263	14234	-26.1%
Adult pedestrians	212	120	-43.4%	28091	23258	-17.2%
All cycle casualties	296	234	-20.9%	24813	17107	-31.1%
Child cycle casualties	68	50	-26.5%	8075	4809	-40.4%
Adult cycle casualties	228	184	-19.3%	16074	11712	-27.1%

7.6 Hull City Council works in partnership with the emergency services, community safety representatives, residents, Primary Care Trusts and NHS providers to deliver road safety improvements. The Kingston upon Hull Road Safety Partnership is chaired by Hull's Traffic Services Group Manager and has representation from Humberside Police, Humberside Fire and Rescue Service, Tees and North Yorkshire Ambulance Service (TENYAS), the NHS, Community Safety, East Riding of Yorkshire Council. The partnership provides another opportunity to discuss issues such as traffic calming and to incorporate the views of all the partners.

For further information about this please contact Tony Kirby, Traffic Projects Manager, Hull City Council at: tony.Kirby@hullcc.gov.uk

Nottingham

7.7 Nottingham City Council has been piloting, for over three years now, an average speed enforcement camera system on 30mph and above limits. The scheme has successfully reduced casualties, collisions and speeds. The City Council told us that there has been a 33% reduction in Killed or Seriously injured casualties and a 33% reduction in slight casualties.

7.8 On the A610, a four lane single carriageway 30mph arterial route, 56% of vehicles exceeded the limit before any cameras were installed. This reduced to 42% when the cameras were installed further along the road (not enforcing at the speed monitoring location) and to 12% when cameras were installed to enforce the monitoring location. The overall traffic flow monitored decreased

by 11% between the first survey conducted in February 2000 and the most recent survey conducted in November 2003. Similarly on the A6514(T), the 40mph dual carriageway Nottingham Ring Road, before any cameras were installed 41% of vehicles exceeded the limit, reducing to 25% when cameras where installed further along the road and 7% when cameras were installed enforcing the monitoring location. As a result traffic flows decreased by 4%.

7.9 Throughout Nottinghamshire, Nottingham City Council are currently installing an extensive network of these cameras and within a few months will be enforcing on the 30mph residential single carriageways, 40mph residential single carriageway trunk road, 50mph dual carriageways, 60mph single carriageway trunk roads and 70mph dual carriageway trunk road.

For further information about this scheme please contact Scott Talbot, Project Co-ordinator, Nottingham City Council at: scott.talbot@nottinghamcity.gov.uk

York

7.10 The City of York Council's Speed Management Plan, adopted in 1997, aims to reduce traffic speeds in a way that is acceptable to the public. At its heart are three road categories, each with a target speed and an indication of the measures which could be used to reduce traffic speeds and road casualties without compromising the services of key stake holders especially emergency services and companies. These are:

(a) Traffic routes

Defined as: the busy main roads important for getting about the city and also the main bus and emergency vehicle routes; and the target is greater compliance with speed limits.

Measures to achieve the target: 'soft traffic calming' such as pedestrian crossings and cycle lanes, junction changes, reviewing speed limits and co-ordinating traffic lights. This network is generally free from vertical measures (e.g. road humps).

(b) Mixed priority routes

Defined as: also important for getting around but which go through villages and past schools, where slower speeds are appropriate; target speed 30mph (20-25 mph at schools and shops).

Measures to achieve the target: some vertical measures (speed cushions, road humps, bus friendly measures and horizontal features) targeted at areas where there are safety concerns.

(c) Residential areas

Defined as: all the other roads on the plan, where the needs of residents will generally have priority over traffic; target speed 20mph.

Measures to achieve the target: a full range of traffic calming measures could be applied (road humps, chicanes, mini-roundabouts etc) where there are casualty problems and residents support the measures.

7.11 Since implementation, the Speed Management Plan has proved to be useful in discussion with York residents, by providing an understandable framework for what types of measure are likely to be appropriate for each type of road.

Studies into speed and crash data were undertaken at sites where there had been traffic calming between 1991 and 1996. At these locations there had been on average a 52% reduction in crash injuries and an 11 mph reduction in speed. York City Council is reviewing the SMP and will be monitoring speed and casualty data. They have site specific data which are showing similar improvements to those above.

For further information about this please contact Colette Watson, Road Safety Officer, York City Council at: colette.watson@york.gov.uk

Annex A: Recommendations

Recommendation 1:
Transport for London and London boroughs should continue working closely together to reach an agreement on the period covered by funding for traffic calming schemes, which would enable the boroughs to undertake better design, consultation and implementation of the schemes.

Recommendation 2:
Transport for London should take more account of the boroughs' consultation process on traffic calming schemes to ensure that the emergency services and other stakeholders' views are given serious consideration by the boroughs before capital funding is allocated by TfL to the boroughs.

Recommendation 3:
The Association of London Government and Transport for London should ensure that all London boroughs collect and publish data to an agreed methodology to determine whether or not the scheme in question is effective at reducing accidents and saving lives. The ALG and TfL should ensure that this information is collated, published in an Annual Report with some analysis and circulated to boroughs.

Recommendation 4:
Given the overwhelming evidence of the reduction in deaths and serious injuries resulting from the presence of speed humps, any removal of speed humps by the boroughs should be accompanied by equivalent or more effective alternative speed reduction measures. If speed humps were not to be replaced then the boroughs should provide independent research to show that it was safe for their removal. However, we would argue that improved safety is due to traffic calming measures and if they were removed then this would jeopardise the safety and lives of Londoners.

Recommendation 5:
The Association of London Government and London Boroughs should set up several pilot studies across London, where noise levels are measured and photos of the exterior and interior of houses are taken before and after the implementation of traffic calming measures, including speed humps.

Recommendation 6:
The Department for Transport should consider checking its systems for communicating the results of commissioned research to the ALG and Boroughs across London to ensure that these authorities are kept fully informed and are aware of any implications arising from the research.

Recommendation 7:
The Metropolitan Police Authority, London Fire and Emergency Planning Authority and Department of Health should ensure that the emergency services respond fully to borough consultations on traffic calming and consistently attend and take part in local traffic management meetings held by the boroughs.

Recommendation 8:
The Pan London Road Safety Forum should be more proactive in publicising its work on road safety in London and should be used to discuss important issues that affect boroughs and the emergency services. It could: discuss and issue best practice guidance on the consultation process; discuss and resolve traffic calming issues that

affect both inner and outer boroughs; and, also ensure that best practice on traffic calming is shared across London.

Recommendation 9:
The Department for Transport should change the regulations to make it possible for London Boroughs to set up local pilot schemes which use speed cameras, or speed limiters, to enforce 20mph zones instead of speed humps or other engineering measures.

Recommendation 10:
The members of the Pan London Road Safety Forum should ensure that they share information and best practice about the alternative traffic calming measures across London. They should also establish pilot schemes across London to test the new vehicle responsive humps.

Recommendation 11:
Each London Borough together with the emergency services should agree on their own local strategic road network. This recommendation should be taken forward by the Pan London Road Safety Forum.

Recommendation 12:
The Pan London Road Safety Forum should discuss and agree the implementation of a traffic calming framework and the establishment of a traffic calming data-base for traffic calming schemes across London.

Annex B: Evidentiary Hearings and Written Evidence

1. Evidentiary Hearings

Evidentiary Hearing 1 – 11 December 2003
Witnesses:

Chris Lines – Head of London Road Safety Unit, Transport for London (TfL)
Kevin Gardner – Assistant Director for Bus Priority, TfL

Sigurd Reinton – Chair of the London Ambulance Service (LAS)
Dave Jervis – Director of Communications, LAS
John Mullin – Team Leader, Islington Ambulance Station, LAS
Mark Belchamber – Training Officer and Operational Paramedic, LAS

Superintendent Neil Haynes – Traffic Operational Command Unit, Metropolitan Police Service (MPS)
PC Clive Treacher – Transport Operational Command Unit, MPS

Paige Mitchell – The Slower Speeds Initiative (SSI)

Evidentiary Hearing 2 – 5 February 2004
Witnesses:

Gareth Davies – Assistant Director (Transportation Planning), London Borough of Bromley

Doug Amer – Head of Street Policy, London Borough of Camden
Sam Monck – Traffic Strategy Manager, London Borough of Camden

Councillor Ann Zinkin – London Borough of Enfield
John Pryor - Director of Environment, Street Scene and Parks, London Borough of Enfield

Gary Horth – Principal Engineer Traffic Projects, Hull City Council
Tony Kirby – Traffic Projects Manager, Hull City Council

2. Written Evidence

Written evidence was received from the following:

Organisations:
Age Concern Islington
Automobile Association
Biggin Hill Society
Bourne Society
British Transport Police
Brockley Society
Bromley Borough Roads Action Group

Bruce Grove South Residents Association
City of Westminster
Corporation of London
Department for Health
Department for Transport
First Group
Go Ahead Group
Health Development Agency
Herne Hill Society
Hull City Council
Islington Residents Association
Living Streets
London Ambulance Service
London Borough of Barnet
London Borough of Brent
London Borough of Bromley
London Borough of Camden
London Borough of Croydon
London Borough of Ealing
London Borough of Enfield
London Borough of Greenwich
London Borough of Haringey
London Borough of Harrow
London Borough of Havering
London Borough of Hillingdon
London Borough of Lewisham
London Borough of Lewisham Environment Select Committee
London Borough of Merton
London Borough of Newham
London Borough of Richmond Scrutiny Committee
London Borough of Southwark
London Borough of Wandsworth
London Cycling Campaign
London Fire & Emergency Planning Authority
London Health Observatory
London Transport Users Committee
MC Motorcycles
Metropolitan Police Service
Oxford Brookes University
Rediweld Rubber & Plastics Limited
RoadPeace
Slower Speeds Initiative
Southwark Cyclists
Stagecoach London
Sustrans
Transport 2000
Transport for London
Transport Research Laboratory
Walpole Residents Association
Wandsworth Cycling Campaign
White House Drive Residents

Members of the public:

George Ackland
Lola Aleyideino
David Appleyard
R Armstrong
Chris Attride
Gwyn Audritt
Peter Babler
Penny Baker
Charles Barclay
M Beales
Jane Boardman
Brian Boyce
Sally Brocklebank
Dr D Brown
Irene Burks
Colin Clarke
Councillor J Clyne
John Conolly
Ross Corben
Maurice Cottom
Joseph Craig
Lynnette Craig
Helen Cramer
Ian Dean
James Delap
Joan Deshpande
Martin Dilly
Tee Dobinson-Morris
Edward Egan
Jonathan Eley
Professor Emeritus
Tony Emerson
John Essam
Richard Evans
Anna Ferris
David Garfield
Patrick Gaskell-Taylor
Kathy Gayle
Charles George
B Goodchild
Richard Goodman
Roger Green
Anne Griffiths
J Hayes
Judith Hanna
Stephen Harris
George Hatjoulis
Bill Hollis
Elizabeth Horgan
C Howes
Richard Huie
P Jackson
Peter Kendall
Mike Jones
Bharat Lad
Elizabeth Lawrence
Mrs A Levy
James Levy
Mrs R Levy
Stuart Lorkin
Peter Losch
Paul Luton
Katie Mallett
Bryan Matthews
Richard Maury
Alex McWhirter
Kim Meadows
I Millar
Mrs L Mitchell
Ault Nathanielsz
Stuart Neal
Colin Newman
Ashley Nissim
Madeline Palm
Chris Parry
Don Paterson
Lilian Penn
Maria Petrou
Lauren Petschek
H Phillips
Carl Pittam
Stephen Plowden
Marlene Price
Mrs H Randall
Chris Reilly
Frances Renton
Sara Robin
Mary Robinson
D Rothbart
Julia Samson
Mary Sanders
Chris Saunders
Jacqueline Saunders
Oliver Schick
Miles Seaman
Melvyn Sears
Tim Simons
Anne Slatford
Michael Slatford
Desmond Steadman
Dr Adrian Stokes
Mrs C Struthers
Richard Tayler
Andrea Taylor
Mr H Thompson
John Wharton
John White
Ann Whitelaw
Terry Whitney
Geoffrey Whittington
Charles Wicksteed
Emily Wilcox
Steve Willcox
Pamela Wilson
Rachel Wrangham
Daniel Zylbersztajn

Annex C: Orders and translations

For further information on this report or to order a bound copy, please contact:

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London SE1 2AA
richard.davies@london.gov.uk
tel. 020 7983 4199

If you, or someone you know, needs a copy of this report in large print or Braille, or a copy of the summary and main findings in another language, then please call 020 7983 4100. You can also view a copy of the Report on the GLA website: http://www.london.gov.uk/approot/assembly/reports/index.jsp.

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[illegible] 020 7983 4100 [illegible] assembly.translations@london.gov.uk [illegible]

Haddii adiga, ama qof aad taqaanid, uu doonaayo inuu ku helo koobi ah warbixinta oo kooban iyo talooyinka ku waaweyn ama farta qofka indhaha la' looga talagalay, ama luuqadooda, oo bilaash u ah, fadlan nagala soo xiriir telefoonkan 020 7983 4100 ama email-ka cinwaankiisu yahay assembly.translations@london.gov.uk

Annex D: Principles of London Assembly scrutiny

The powers of the London Assembly include power to investigate and report on decisions and actions of the Mayor, or on matters relating to the principal purposes of the Greater London Authority, and on any other matters which the Assembly considers to be of importance to Londoners. In the conduct of scrutiny and investigation the Assembly abides by a number of principles.

Scrutinies:

- aim to recommend action to achieve improvements;
- are conducted with objectivity and independence;
- examine all aspects of the Mayor's strategies;
- consult widely, having regard to issues of timeliness and cost;
- are conducted in a constructive and positive manner; and
- are conducted with an awareness of the need to spend taxpayers money wisely and well.

More information about the scrutiny work of the London Assembly, including published reports, details of committee meetings and contact information, can be found on the GLA website at http://www.london.gov.uk/assembly/scrutiny/index.jsp

Annex E: List of Transport Committee publications

The Transport Committee has produced the following scrutiny reports, which can be downloaded free at: http://www.london.gov.uk/assembly/reports/transport.jsp

London's got the hump – a scrutiny on the impact of speed humps on Londoners' lives, April 2004

Tram, trolley or guided bus: what are the best choices for London? April 2004

Congestion Charging: A First Review, February 2004

Congestion Charging - Westward Expansion? December 2003

Access Improved Progress on parking in Central London for people with mobility problems, November 2003

Building bridges? A London Assembly response to the Thames Gateway Bridge consultation, August 2003

Flying into the future - The Transport Committee's response to the Government's consultation on air transport in the south-east, July 2003

Transport in Paris - A delegation's visit to Paris, July 2003

An Accident Waiting to Happen? - A Transport Committee investigation into the Chancery Lane derailment, June 2003

Getting the Public On Board - A Transport Scrutiny Update, April 2003

Mind the Gap – between what Londoners want and what Londoners get - Report of the Future Tube Priorities Investigative Committee, January 2003

Congestion Charging: the public concerns behind the politics, December 2002

Access Denied? – parking in Central London for people with mobility problems, July 2002

Alternatives to Congestion Charging, April 2002

Transport for All of London, March 2002

All Change? - Report of the Transport Operations Scrutiny Committee's Informative Review of Mainline Rail Services in London, February 2002

Safer Routes Home, July 2001

Improving London's Bus Services, June 2001

Scrutiny of the Mayor's draft Transport Strategy, April 2001

Scrutiny of the Mayor's Congestion Charge Proposals, November 2000

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