

MOVEMENT AND DEVELOPMENT GUIDELINES REVISION – APPLICATION OF THE MANUAL FOR STREETS PRINCIPLES IN A WORLD HERITAGE CITY

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ABSTRACT

The design of new urban streets could be on the brink of a revolution. Forty years of a motor traffic orientated approach to design has resulted in neighbourhoods which are often indistinct in character and practically inaccessible by all modes except the car. In recognition of this, new design guidance such as the Department for Transport's Manual for Streets is paving the way for local authorities to literally rewrite the rule book; to provide accessible – and interesting – places to live.

Development itself is changing. Environmental considerations and changing demographics mean that unconstrained, low density greenfield development is becoming less relevant and forms a lower proportion of the total. The location of higher density brownfield developments often means that car-focussed infrastructure simply cannot be sustained. Indeed, in the context of neighbourhoods in which people wish to live, such infrastructure is inappropriate and detracts from the sense of place which is desired.

The City of Edinburgh Council's guidelines for new roads already strove to build in support for walking, cycling and public transport. But in light of the need for increased focus on higher density brownfield development and the new UK design guidance, the Council has chosen to revise its Movement and Development guidelines, and to do so in a way which maximises their contribution to creating sustainable urban development.

Revision of such guidelines is not a simple task. Practitioners will be only too aware of the tensions between traffic engineers, transport policy officers and planners. On top of these issues, road safety and the needs of vulnerable users also need to be reconciled.

As part of this work, Edinburgh is seeking to replace the traditional roads hierarchy with an innovative street management framework, which sets out to balance the motor traffic movement and place functions of streets within the city.

This paper was initially intended to describe the new guidelines. But a delay in their drafting means that it now focuses on the background to and process of the revision, including the consultation process adopted, use of best practice from elsewhere and the challenge of adopting the principles of the Manual for Streets in a Scottish, World Heritage Site context.

1. BACKGROUND, APPROACH AND LOCAL POLICIES AND TRENDS

1.1 Approach to Project

The City of Edinburgh Council's Movement and Development Guidelines seeks to promote development consistent with the Council's strategies. In 2007, the Council identified that the current guidelines required updating to be closer to current Council policy and national best practice.

Under its Transport Planning Framework Services agreement, the Council approached Halcrow for assistance in rewriting the guidelines. The brief for the work was to:

- review best practice from across the UK, including the Manual for Streets commissioned by the DfT and the Scottish Executive's PAN 76;
- ensure compatibility with the Council's Local Transport Strategy, the Local Plan and other Council documents;
- revise Movement and Development in light of this and other developments; and
- undertake close liaison with relevant Council staff, including planning, development management and the streetscape committee.

Close liaison with relevant Council staff was identified at an early stage as being critical to success. Without the buy-in of all stakeholders there was a real risk that the revised document would not be universally adopted.

To ensure that this was the case, much of the work in preparing the new document has been undertaken on a secondment basis, with consultant and Council staff working closely together. This approach has made the arrangement of one-to-one interviews and workshop sessions far more effective.

Details of the findings of the various activities are given later in this paper, but firstly it is useful to understand the background to the requirements in transport planning terms.

1.2 Policy Context and Transport Trends In Edinburgh

Over the past two decades the provision of transport infrastructure within Scotland and the UK has moved away from the roads-orientated, 'predict and provide' approach of the past to a more balanced consideration of all modes.

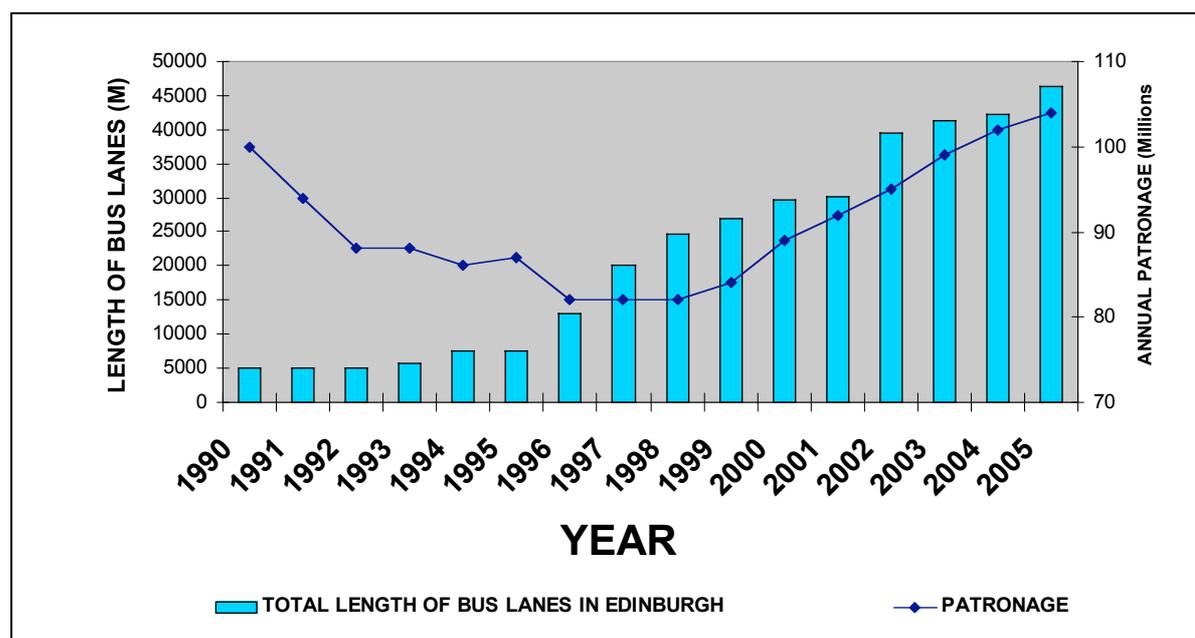
This has been clearly demonstrated in cities such as Edinburgh. The Council's LTS targets aim to increase the share of travel by public transport, walking and cycling.

2010 Local Transport Strategy Targets – Mode Share for all Journeys					
	Cycle	Walk	Public transport	Car (inc. passengers)	Other
2010 LTS Target	4	25	22	47	2

Source: City of Edinburgh Council

Since the early 1990s, projects such as the Greenways, the WEBS guided busway, implementation of park-and-ride and more recently, the tram system, have replaced road schemes as the main priorities on the transport agenda first of Lothian Regional and then the City of Edinburgh Council.

Data shows that such initiatives have had a positive impact on the use of public transport and cycling and have reduced the modal share of the private car, as indicated in the figures below from Edinburgh's current Local Transport Strategy.



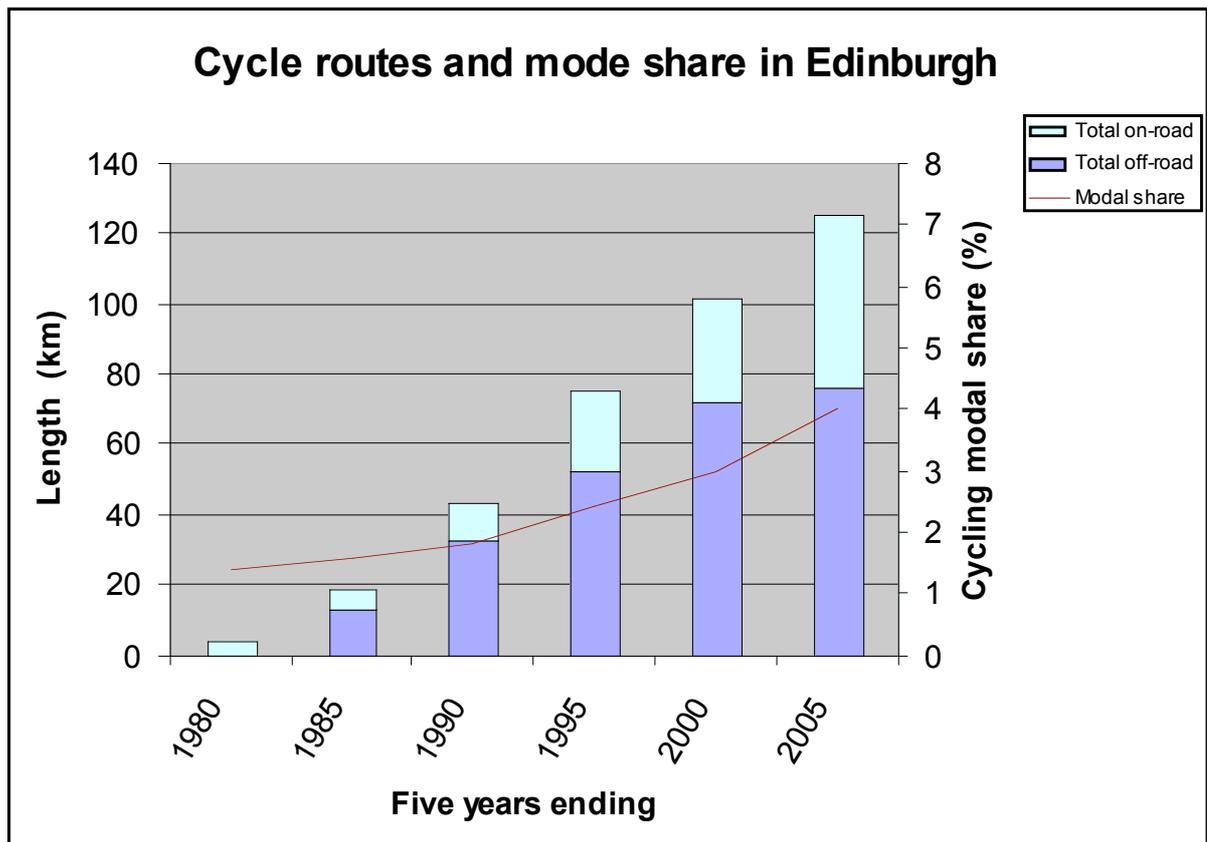
Source: City of Edinburgh Council

Journeys by Edinburgh's Residents (% by mode)					
	Cycle	Walk	Public transport	Car (inc. passengers)	Other
1999	2	24	16	57	2
2004	2	23	19	54	3
2010 LTS Target	4	25	22	47	2

Source: Scottish Household Survey/City of Edinburgh Council

It is considered likely that most of this success has been generated by changes to the existing road network backed up by restraint-based parking standards.

Whilst overall, cycling and walking trips have remained relatively static, gains have been made in certain areas. Of particular note is a marked increase in the mode share of cycle trips for journeys to work. The mode share has increased as the city's on and off-street cycle network has been improved and expanded, as shown in the graph below.



Sources: 1981, 1991, 2001 Census; 2003/4, 2005 Scottish Household Survey

Pressures for development in Edinburgh are currently intense. According to the Edinburgh and Lothian Structure Plan Monitoring Report (2005), Edinburgh's population is set to increase by 30,000, or 6.7% between 2000 and 2015. This will clearly mean large amounts of new development. The challenge is to create transport guidance that will mean that this development supports and reinforces other initiatives to encourage travel by sustainable forms of transport.

Land use planning will play a key part in addressing this issue. Ensuring that essential services such as schools, doctors' surgeries and shops are located such that they are accessible on foot and by bicycle from the associated residential districts they serve will be essential.

However, land use planning alone will not solve the issues. Provision of the appropriately located local services and facilities is one thing, but encouraging people to reach them in a sustainable way is another. There is a clear need to ensure the transport infrastructure - our streets - is designed such that people actually *want* to make these trips by the most suitable modes, i.e. by walking or cycling, and are easily accessible by public transport. At the same time the same streets need to accommodate movement and parking by car.

2. CONTEXT FOR THE NEW DESIGN GUIDANCE

2.1 Existing Edinburgh Movement and Development Guidelines

The infrastructure for most development in towns and cities in Scotland is defined by the local roads guidelines. In Edinburgh these are known as the *Movement and Development Guidelines*. Such guidelines have been generally based on principles similar to those established in Design Bulletin 32 (DB32), originally published in 1977.

Over the years, modifications have been made to Edinburgh's guidelines for new roads and streets in line with changing views in transport planning. The last rewrite, in 1999, introduced the concept of a hierarchy of transport modes, considering pedestrians first, then cyclists, followed by public transport and finally the private car. It also included allowance for frontage development on local distributor roads and minor amendments to geometric standards.

Whilst these changes represented a movement in the right direction, the fundamental design standards for development layout (in geometric terms) were broadly the same, and with it the inherent problems remained. The focus was still essentially on movement, and generally this meant the movement of vehicles, most notably the car.

This problem was not one exclusive to Edinburgh but was one recognised nationally by local authorities throughout the UK. It was clear that a step change in thinking was required to address these issues.

2.2 PAN 76

The problems with current local authority design guidance were highlighted by the Scottish Executive with the publication of PAN 76 in 2005:

"There is a growing concern that the design of housing layouts has become dominated by technical and engineering requirements of design. We need to change our approach towards street design in new development, if we are to realise our ambitions to produce better quality, more attractive and safe residential environments."

Source: Planning Advice Note 76, Scottish Executive (November 2005)

The note also goes on to state that to achieve this, closer working between planners and engineers will be required. It is clear that to achieve the objectives of PAN 76, this will be of critical importance.

The note goes on to say:

"It is anticipated that those local authorities yet to revise their standards will respond to this PAN in line with the good practice outlined."

The target for local authorities such as the City of Edinburgh was therefore made clear.

However, as discussed previously, the City of Edinburgh had already revised its guidelines in an attempt to meet such needs. PAN 76 advocates innovation, but in practical terms the Council felt that there were problems in implementing this approach in design.

In an increasingly litigious society, there is a great concern that something not designed 'to standard' will place an authority at risk of future legal action. In addition, engineering culture places often places safety above all other objectives. The danger is where the recommendations of processes such as the Road Safety Audit disproportionately outweigh equally important objectives in societal terms.

Quite understandably, in such circumstances it is difficult to convince engineers to accept such innovation in designs and there is a natural resistance to approve anything other than standard layouts. This is a problem has been recognised by the most recent guidance, as described below.

2.3 The Manual for Streets

To empower engineers to be able to create and be responsible for more innovative road solutions, it was clear that the concepts being advocated by documents such as PAN76 required the back-up of an objective evidence base. In recognition of this, and to make the step change required to bring Design Bulletin 32 in line with current thinking, the Department for Transport commissioned the creation of the *Manual for Streets*.

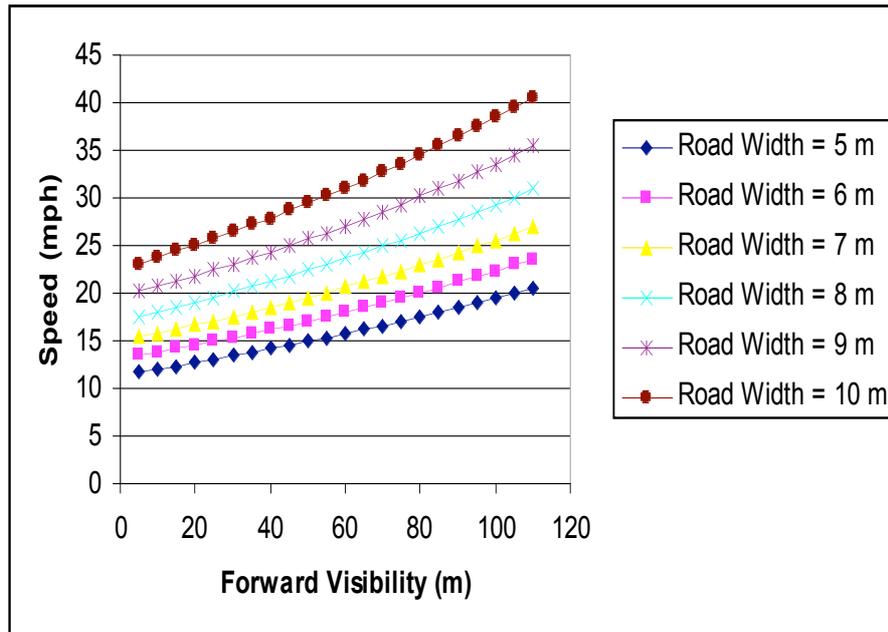
As part of the preparation of the Manual for Streets, a substantial amount of research was undertaken by the appointed consultants. Central to this were three key questions:

- Are junction geometries and road widths that do not meet DB32 standards safe in terms of recorded casualties?
- Are more permeable highway layouts such as grids associated with higher levels of casualties than spine and cul-de-sac layouts?
- Does there appear to be a relationship between design/environmental quality and driver behaviour?

Source: TRL Report 661 – The Manual for Streets: Evidence and Research

The findings of this research are well documented elsewhere and in the Manual for Streets itself. However, the key conclusions with respect to the Movement and Development Guidelines were as follows:

- Drivers adopt their speed to their conditions. There is no relationship between forward visibility and casualties. Increasing forward visibility and road width increases speed:



Source: The Manual for Streets, DfT

- There is no correlation between junction visibility and casualties. In fact there is evidence to suggest that increased 'Y' distances (distance back from give-way line at which desired visibility is achieved) increases rear-end shunts on the minor arm.
- Previous values adopted for driver reaction time are very conservative and are inconsistent with modern vehicle performance and other international standards.
- Paving surfaces such as block paving reduce vehicle speeds by 1.3 to 4.4mph – a point particularly relevant for Edinburgh's setted streets.
- Parking reduces speeds by 1.5 to 4.8mph, although weakly correlates with higher casualties.
- Shared surfaces help control driver speed and are effective up to flows of 100 vehicles per hour.

Most importantly, the Manual uses this information to define that streets should have both a *movement* and a *place* function. Design choices need to respect each function and are key to influencing how people travel.

It notes that designing a place should come before designing routes and that designers must understand how the design can influence how people choose to travel. To achieve this, neighbourhoods should be self-contained with a range of facilities within a 10 minute walk, or approximately 800m.

The manual strongly recommends that pedestrians and cyclists should generally be accommodated on streets rather than routes segregated from traffic. Large block sizes create obstructions for pedestrians and cyclists and to overcome this it advocates that street networks be internally permeable and well connected to adjacent street networks.

Broadly speaking, the Manual for Streets and PAN 76 align well with the City of Edinburgh's aspirations for the Movement and Development guidelines.

But moving from high level national guidance to detailed local guidance still presents significant challenges, as outlined in section 3.

2.4 Current Development in Edinburgh

Edinburgh's population has grown significantly over recent years, and as described earlier in this paper is anticipated to continue growing over the next decade. By 2015, the population will have grown by nearly 7% above the levels at the turn of the century. In the context of the Movement and Development guidelines, it is important to consider where this development will be located and its likely density.

The existing Movement and Development evolved from guidelines for Lothian Region and implicitly assumes that most new residential development will be relatively low density.

However in recent years the value of land, limits on green belt development and the desire to regenerate brownfield sites have meant that residential development in Edinburgh has tended to be higher density, flatted developments, largely within the urban area. This is likely to continue. Such developments are often completed on a piecemeal or infill basis and linking such developments into the existing urban structure can be problematic.

2.5 The Edinburgh Street Framework

Edinburgh's Local Transport Strategy 2007-2012 introduced a new concept for the city in terms of road network definition: the *Edinburgh Street Framework*.

The intention of the Street Framework is to make the Council's approach to maintenance and network management more open. The framework recognises that roads have different purposes and should be managed in different ways accordingly.

The framework shows that the importance of a road is not necessarily a function of the volume of traffic that it carries. Factors such as public transport, pedestrian volumes and the actual use to which a street is put are all equally important considerations.

Specifically, the draft framework presented in the LTS is based on three broad characteristics of streets:

- the extent to which they have a strategic role for public transport or general traffic, and whether they have any other specific traffic roles;
- the nature of the development fronting the road/street and the amount of pedestrian activity; and
- the role of the street in the heritage of Edinburgh and whether it warrants the use of special materials.

The first uses of the framework are to inform maintenance prioritisation and assist in the setting of speed limits. From a maintenance perspective, priority will be given to roads with greatest movement and economic importance. On speed, the framework will be used to extend the provision of 20mph zones in the city to the most important areas, including appropriate shopping streets.

Beyond maintenance and speed limit requirements, the framework is also intended to form the basis of user provision for new streets. There are clear overlaps here between the Council's aspirations for the Movement and Development guidelines and indeed the Manual for Streets, which advocates a similar approach.

The current draft street management framework is shown in the table below.

DRAFT STREET MANAGEMENT FRAMEWORK: STREET CATEGORISATION ^a					
	Character of street frontage/role for pedestrians				
	Shopping streets - High pedestrian flows	Tenements and minor shopping - Medium pedestrian flows	Low density frontages - Low pedestrian flows	Main urban roads with limited frontage access / Few junctions	Rural roads
	Streets/roads with many junctions			Roads with few junctions	
Role of street for public transport and other traffic	Street category number ^c				
Strategic Network: 'A' class roads, roads with intensive bus services or the highest general traffic levels, or roads signed as strategic routes into or out of the city/city centre.	1H	1M	1L	1F	1R
Secondary network: Other roads, important for public transport and/or with a more than local role for general traffic.	2H	2M	2L	2F	2R
Local Streets and minor rural roads: Other urban streets (except type 4) – mainly residential streets, also minor rural roads ^b .	3H	3M	3L		3R
Service roads and Lanes: Roads mainly providing service/rear access to businesses or houses			4		
Cycleways			5		
Footpaths			6		

Notes

- a Streets important to Edinburgh's heritage. Appropriate road types will have a conservation or heritage sub-category for streets or paths important to Edinburgh's heritage.
- b Local streets used by a bus service or being key emergency service routes would form a sub-category of type 3
- c Numbers/letters are for use in referring to street type. See text on application of street management framework.

Source: City of Edinburgh Local Transport Strategy 2007-2010

3. DEVELOPMENT OF THE NEW STANDARDS

3.1 Stakeholder Requirements – Consultation Process

Previous sections have detailed the policy background to the work undertaken on the Movement and Development guidelines rewrite. However, as described in the introduction to this paper, obtaining the buy-in of those that actually use the document was considered as essential to its success. To this end, a fully inclusive consultation process was undertaken with representatives from various parts of the Council.

The aims of this consultation were:

- to understand from key stakeholders what the issues with the current document are;
- to identify where the current document sits within the suite of current CEC guidance; and
- to agree way forward for document development and identify next steps.

The consultation consisted of one-to-one interviews with key officers within the Council and two workshop sessions.

The interviews were held during late summer 2007 with key officers from Transport Policy, Development Control and Planning. Originally such interviews were scheduled to be held after an initial workshop; however, due to diary constraints the workshop was postponed and the interviews carried out regardless.

Despite being unintentional, this approach was actually quite fortuitous. It was clear from the interviews that tensions and differences existed between sections of the Council and by undertaking the consultation in this way these could be captured efficiently and accurately.

Had these discussions been attempted at an initial workshop session, there would have been a real danger that internal differences could have distracted consultees from the matter in hand and skewed or imbalanced the session. There were also clear benefits in the consultation being led by an external consultant, as this meant there was a degree of impartiality in overseeing matters, with no political ties.

The interviews were conducted on the basis of a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of the current guidance. Some of the key themes that emerged from the discussions were as follows:

- Transport document for transport requirements - need to establish link with Standards for Streets and other Edinburgh documentation
- The hierarchy of streets needs to be flexible – currently reflects Greenfield development and does not reflect current development types

- Clearer guidance on crossings/build outs/radii/traffic calming required
- Parking coverage poor – needs to reflect on street/off street balance, allocated/unallocated, quality of car parking, lighting, CCTV etc
- Safety/liability issues need to be dealt with, safety often considered too dominant. Road safety audits briefly covered and unclear.
- Home zones currently poorly addressed and guidance on 20mph zones required
- Servicing arrangements (e.g. turning heads) inappropriate – refuse collection procedures outdated. “Tesco van” may be possible new design vehicle in many situations.
- Coverage of cycling fragmented and confusing to some users of document
- Car free development/car clubs – policy unclear
- Pedestrians covered generally ok
- Standards grey – needs clarifying - not explicit enough
- TA/ Legal/RCC guidance etc should be up front – definition of application process currently lacking
- Document generally difficult to navigate and lots of errors
- Current arrangements can result in resource/communication issues with implementation. Stronger management steer needed between planning/transport.

It can be seen from this list that several of the themes are very similar to those discussed earlier in this paper.

Following the one-to-one sessions, a workshop session was held in September 2007 to discuss the interviews, review emerging best practice and guidance and debate the issues involved. The workshop resulted in consensus on most of the issues listed above and it was agreed that these issues should be covered in the document review.

The workshop reviewed the other documentation available in the development process to identify where Movement and Development was positioned in the process. This analysis looked at both the documents and their perceived current users as shown in the table below.

Document	Users						Goals of Document and Comments
	Developers	Transport Dev. Control	Planning	Transport Design	Services for Communities	Transport Policy	
LTS/ Local Plan/ RTS/ Development Plan	✓	✓	✓	✓	✓	✓	Parent Policy documents
DMRB	✓	✓		✓	✓		Baseline design standards (but concentrates on movement alone)
CEC Bus Friendly Design Guide	✓	✓		✓			Sets out context and design guidance for bus infrastructure
CEC Cycle Friendly Design Guide	✓	✓		✓			Sets out context and design guidance for cycles
CEC Walking Strategy			✓		✓	✓	Summarises walking action plan
CEC Standards for Streets	✓	✓	✓	✓	✓		Achieve joined up approach to street design. (Std. details missing and focus is on existing streets)
CEC Standards for Housing	✓	✓	✓			✓	Provision of best quality of housing. X-ref to M and D
CEC Standards for Sustainable Buildings	✓		✓				Sustainability of buildings (But refers to transport, parking etc.)
CEC Parking Standards	✓	✓	✓	✓		✓	Apply policy and advise developers. Funding leverage.

The analysis demonstrated that whilst there are several guidance documents or standards that can be referred to during the development process, not all documents are used by all stakeholders. In addition there are clear overlaps between certain documents. Therefore, the importance of cross-referencing where appropriate and consistency between documents was agreed to be particularly important.

The workshop was concluded with a list of output actions (in no particular order), as shown below:

1. Better process definition
2. Improve presentation and layout

3. Home zones inclusion – how to design/what are their role
4. Traffic calming – more diagrams/photos
5. Redefine roads hierarchy as per Street Management Framework
6. Relevant advice for high density developments
7. Clear policy on parking location and control and relationship with density and quality
8. Clearer treatment of cycling
9. Errors to be corrected
10. Clarity on road safety audit process and scope
11. Cross referencing with other standards
12. Design-in public transport and associated infrastructure
13. Revision of geometric standards based on findings of Manual for Streets
14. Planning enforcement
15. More prescriptive approach
16. Management steer/context required
17. Car club/car free development clarification
18. Incorporation of parking standards

On the basis of the above, following the September workshop, further work was undertaken to reformat the current document and mark-up those areas requiring change. A new contents page was drawn up to reflect the proposed new document format and details of the chapter contents drawn up.

A follow-up meeting was held with the stakeholders in January 2008. At this meeting, the changes were agreed by all stakeholders and work formally began on revision of the document text.

4. THE WAY FORWARD

At the time of writing work is underway on the revision of the document text. Whilst the principles for the revision have been established and agreed, there are some areas which require further research and consultation with the stakeholders

These issues include:

- Revision to geometric standards – what values are suitable for Edinburgh? How is the interface between existing and new development roads addressed?
- Location of parking – on-street versus courtyard versus underground parking. Where are the boundaries in terms of size and what are the economic viability implications on developers?
- Home zone/traffic calming guidance – in a rapidly developing field how can best practice be captured and prescribed whilst allowing freedom to innovate? What are the best case studies?
- What are the implications of the new Planning Act in terms of the status of the new Movement and Development guidelines and the other CEC guidance documents?

- How best to take account of the Council's Street Management Framework.

It is anticipated that these issues will be addressed and the new document completed by the summer of 2008. It is envisaged that key aspects of the new standards are likely to be:

- Enabling traditional urban street patterns with a high degree of connectivity – but with some features (e.g. partial road closures) to prioritise cyclist and pedestrian movement.
- Seeking underground parking in higher density developments but permitting on-street parking as a means of meeting standards in medium density developments – except on key traffic/public transport streets
- Reduced geometric standards particularly junction geometry
- Permitting frontage development on all classes of road
- Encouragement of Home Zones
- Clear definition of the application process, providing cross referencing to other Council guidance and documentation as appropriate.

5. SUMMARY AND CONCLUSIONS

Through its transport policies the City of Edinburgh has achieved success in recent years in influencing the modal split of travel within the city. Considerable effort has been expended in modifying the existing street network, particularly to prioritise public transport. This has met with a significant degree of success, with car mode share falling in recent years though overall traffic volumes continue to grow.

Edinburgh is under considerable development pressure at present and this is likely to continue. The Council wishes to see this development in the form of sustainable neighbourhoods, where residents can walk and cycle to local facilities and services. It has set out to revise its Movement and Development guidelines to help achieve this aim.

The issue of the Manual for Streets and the research it brings forward has presented Edinburgh with the evidence base required to revise its guidelines in line with its higher level objectives. One of the main ways in which this will be achieved is the replacement of the traditional roads hierarchy with Edinburgh's Street Framework.

The Street Framework will provide a more appropriate model for the maintenance, management and design of streets within the city. For the first time, it will allow engineers and planners to take account formally of the actual use of a street, and not just its movement function. This is an approach closely in line with that advocated by the Manual for Streets.

The consultation process undertaken as part of the work on revising the standards revealed some tensions and differences between engineers and

planners; however, all have bought in to revising the document to meet a common goal.

Work is still to be completed, but it is intended that Edinburgh's new Movement and Development guidelines will represent a step change the developmental design process. The intention is to produce guidelines that encourage sustainable movement and reinforce planning guidelines aimed at creating fully functioning new urban neighbourhoods.

6. REFERENCES

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