

Leicester  
City Council

**WARDS AFFECTED**  
**ALL**

**Report for consideration by:**

**Leader's Briefing**  
**Cabinet**

**24th June, 2002**  
**29th July, 2002**

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**A REVIEW OF PEDESTRIAN CROSSING  
JUSTIFICATION AND PRIORITISATION PROCEDURES**

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**Report of the Services Director – Highways and Transport**

**1 Purpose of Report**

To review the current pedestrian crossing request justification and prioritisation procedures in light of approved LTP strategies.

**2 Summary**

Current procedures for justifying pedestrian crossing facilities are predominantly based upon PV<sup>2</sup>, a numerical assessment based on average conditions over the 4 peak hours. This technique is still a useful assessment tool but there is no formal recognition of Local Transport Plan strategic policy objectives relating to walking and cycling, public transport and Safer Routes. This report recommends appropriate modifications to both the justification and subsequent prioritisation procedures.

**3 Recommendations**

That the Cabinet:

- a) Approves the revised justification procedure; and
- b) Approves the revised prioritisation procedure.

**4 Local Transport Plan Objectives.**

These recommendations will ensure that requests for pedestrian crossing facilities are assessed in a consistent manner which recognises and reflects the strategic objectives of the adopted "Walking and Cycling", "Bus" and "Safer Routes" strategies.

**5 Financial and Legal Implications**

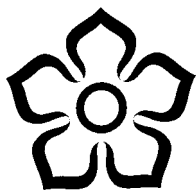
The recommendations may result in an increased number of “justified” pedestrian crossing facilities. However, implementation will always reflect the prioritised ranking list and be governed by approved budget allocations. There are, therefore, no direct financial and legal obligations associated with the recommendations.

**6 Report Author / Officer to contact:**

Stuart Maxwell, Client Officer – Sustainable Transport, Ext 6679.

**DECISION STATUS**

<b>Key Decision</b>	<b>Yes</b>
<b>Reason</b>	<b>Citywide impact on communities</b>
<b>Appeared in Forward Plan</b>	<b>Yes</b>
<b>Executive or Council Decision</b>	<b>Executive (Cabinet)</b>



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**SUPPORTING INFORMATION**

**1. INTRODUCTION.**

- 1.1 The current procedures for justifying and prioritising pedestrian facilities in the City were considered and approved by the, then, Urban Management Sub-Committee on 3<sup>rd</sup> February 1999.
- 1.2 This report reviews current practice to ensure that the systems in place produce consistent results which properly reflect conditions on-street and the policy objectives promoted within the Local Transport Plan, particularly the draft "Walking and Cycling" Strategy.
- 1.3 The report is also seen as an opportunity to record the extent of pedestrian provision within the City. (Appendix A)

**2. EXISTING PEDESTRIAN ASSESSMENT PROCEDURES**

- 2.1 At present, the justification of a crossing facility in Leicester is based on a long-established, numerical parameter known as "PV<sup>2</sup>" which represents:

**Pedestrian Flow x Vehicle Flow x Vehicle Flow**  
(averaged over the 4 peak hours in the day)

- 2.2 Although PV<sup>2</sup> no longer features in DTLR advice, it was retained by Leicester City Council, and many other Local Authorities, as it provides an objective assessment technique which is recognised and understood by Members.
- 2.3 Typically, a PV<sup>2</sup> value of more than  $0.7 \times 10^8$  would justify a pelican or zebra crossing, although a number of site specific factors could influence the final recommendation if the assessment just failed the numerical criteria.
- 2.4 The main failing of the existing system is that it does not properly consider, reflect and promote associated LTP policy areas and initiatives.

### 3. PROPOSED PEDESTRIAN ASSESSMENT PROCEDURES

3.1 Recommended revisions to the assessment procedure are discussed below.

#### ***Safer Routes***

3.2 A programme of area-wide projects is underway and will take a number of years to fully implement. In the meantime, individual requests for pedestrian facilities are often submitted by parents and teachers concerned about the safety of children walking to school and crossing at particular locations.

3.3 At present, the site specific  $PV^2$  value is an average taken over the 4 peak hours. However, at sites near schools, pedestrian activity is obviously focused around start and finish times. Outside, these times there may be no particular pedestrian problem. The 4hr average results can, therefore, be skewed by the low off-peak flows and mask the true scale of any crossing difficulties experienced by parents and children.

3.4 With regard to the type of facility provided, under the existing procedures a refuge would normally be recommended for a  $PV^2$  value of between 0.4 and 0.7. However, pedestrian flows outside schools are concentrated over short periods and often include a high proportion of parents with pushchairs. Refuges can only accommodate a limited number of pedestrians at any one time and may not, therefore, provide the most appropriate solution. In such circumstances, zebra crossings should be considered with complementary traffic calming measures, if required. It is worth noting that the cost of a basic zebra crossing is comparable to that of a pedestrian refuge.

3.5 Under the Safer Routes strategy, schools are encouraged to develop travel plans to promote walking and cycling to school. A successful travel plan can increase walking by up to 20%. The proposed pedestrian assessment procedures recognise this by reducing the  $PV^2$  threshold for schools that agree to develop and implement a school travel plan for the first time. For example, if a plan is predicted to increase walking by 10%, the  $PV^2$  threshold would be reduced by 10%, to 0.36.

3.6 To summarise, bearing in mind the Safer Routes objectives, it is more appropriate to consider school-related requests on the basis of:

- The normal 4hr  $PV^2$  assessment with a 0.7 justification threshold.
- A 2 hour  $PV^2$  associated with school start & finish times and a  $PV^2$  threshold of  $> 0.4 \times 10^8$  for pelicans / zebras
- A reduced 2 hour  $PV^2$  threshold for schools implementing a School Travel Plan for the first time.
- A general presumption in favour of zebra crossings, particularly when the  $PV^2$  value is  $< 0.7 \times 10^8$

#### ***Cycle Facilities.***

3.7 Occasionally, pedestrian facilities will be requested at sites which form part of an existing or proposed cycle route. Toucan crossings are normally funded

from capital budgets to promote and enhance the City's cycle route network. The decision to fund and install a particular toucan crossing is based on the strategic requirements of the cycle network. Unlike pelican crossings, they are not subject to a formal justification procedure. Therefore, when a pedestrian crossing request would clearly serve an existing or proposed cycle route, it is recommended that:

- A toucan crossing be approved, in principle,
- the site be prioritised using the pedestrian crossing ranking procedure
- the relevance to the cycling strategy be acknowledged in the ranking process.

### ***Pedestrian Level of Service***

3.8 The "Draft Walking and Cycling Strategy" aims to provide a pedestrian facility where major pedestrian routes cross a major road. This is related to the issue of severance, which is not considered objectively in the existing pedestrian crossing justification procedure. The current reliance on  $PV^2$  as a justification tool can again result in significant peak hour pedestrian problems being overlooked.

3.9 For example, on some routes in the City peak hour flows can reach levels which result in almost total severance i.e. it is almost impossible for pedestrians to cross in safety. However, the 4hr average  $PV^2$  value can be as low as  $0.1 \times 10^8$ . In such circumstances, there is a danger that the request is rejected and no further action is taken. To be consistent with the "Walking and Cycling Strategy", it is important that the pedestrian crossing justification procedure recognises these problem sites and ensures that they are, at the very least, subjected to more rigorous scrutiny in an effort to find an appropriate solution.

3.10 It is therefore recommended that a site is approved, in principle, when:

- There is reason to believe that pedestrians are being seriously inconvenienced and there is **significant suppressed demand**
- Peak hour flows on a single carriageway exceed a one-way total of 800 veh/hr or a 2-way total of 1100 veh /hr
- Peak hour flows on a dual carriageway exceed a one-way one lane total of 800 veh /hr or a one way, multi-lane total of 1100 veh /hr.

3.11 The assessment of suppressed demand will remain subjective but will include issues such as:

- The existence of recognised pedestrian routes linking to the proposed crossing point
- The distance to any adjacent pedestrian facilities and their relevance to pedestrian desire lines in the area
- The proximity of local centres and facilities e.g. community centre, surgery etc

### ***Public Transport.***

- 3.12 Good pedestrian access to bus stops and interchanges is essential to promote the use of public transport and the LTP objective of creating an integrated transport system. As in the example of schools above, the existing PV<sup>2</sup> based justification procedure will underestimate the peak period crossing difficulties experienced by passengers trying to join or leave bus services.
- 3.13 It is recommended that crossing requests which are directly associated with the provision of good pedestrian access to bus stops are:
- approved in principle when peak hour flows on a single carriageway exceed a one-way total of 800 veh / hr or a 2-way total of 1100 veh / hr
  - approved in principle when peak hour flows on a dual carriageway exceed a one-way single lane total of 800 veh / hr or a one way multi-lane total of 1100 veh/hr.
  - prioritised using the pedestrian crossing ranking procedure with due acknowledgement of the bus strategy benefits.
- 3.14 It is important to note that it may be necessary to consider the relocation of bus stops to obtain the optimum solution to any public transport / pedestrian crossing related problem. Local residents would, of course, be consulted on this issue.

### ***Summary of Revised Justification Criteria.***

- 3.15 The proposed pedestrian crossing justification criteria are summarised in Appendix B. It is important to note that this represents justification “in principle”. The installation of pedestrian facilities at an individual site will be subject to the proposed prioritisation procedure and a satisfactory detailed design.

## **4. PROPOSED PRIORITISATION PROCEDURE.**

### ***Existing Procedure.***

- 4.1 The existing ranking procedure uses a points system and a total of ten assessment categories. The main problems with the existing system are:
- It does not recognise and acknowledge support for other LTP strategies
  - Although it considers pedestrian flow, it does not necessarily reflect the true delays and difficulties experienced by pedestrians

### ***Proposed Amendments.***

- 4.2 The revised ranking system uses a reduced number of parameters that focus more clearly on pedestrian delays, pedestrian safety and any associated transport strategy issues.
- 4.3 The most important prioritisation criteria are considered to be:

- Pedestrian Delay
- Accident record
- Latent demand / Special Factors
- Support for other LTP strategies.

4.4 The new prioritisation form is shown in appendix C.

## 5. DETAILS OF RESEARCH & CONSULTATION

5.1 Current LTP strategy documents, Local Transport Note 1/95 (The Assessment of Pedestrian Crossings) and existing assessment techniques have been reviewed.

5.2 The following have been consulted:

Area Traffic Control; City Consultants; Officers responsible for implementing cycling, bus, and Safer Routes strategies; the Director of Education; The Chief Constable; Fire and Ambulance Services; and the Disabled Persons' Access Officer.

5.3 Responses have been supportive with concerns raised by only two groups. The Disabled Persons' Access Officer would prefer pelican crossings as a minimum standard and is concerned that zebra crossings are a preferred solution in certain circumstances. Zebra crossings are, however, only recommended at sites with moderate to low pedestrian flows when existing traffic speeds or complementary calming measures permit. It is also important to note that there is no significant difference between the pedestrian injury accident records for pelican and zebra crossings.

5.4 The Cycling Officer raised general concerns about the use of pedestrian refuges as these can create undesirable "pinch-points" for cyclists. This issue must be given careful consideration during the detailed design of any scheme.

## 6. FINANCIAL AND LEGAL IMPLICATIONS

6.1 The recommendations may result in an increased number of "justified" pedestrian crossing facilities. However, implementation will always reflect the prioritised ranking list and be governed by approved budget allocations. There are therefore no direct financial and legal obligations associated with the recommendations.

## 7. OTHER IMPLICATIONS

Other Implications	Yes / No	Paragraph References with Supporting Information.
<b>Equal opportunities</b>	Yes	Improved access for vulnerable road users
<b>Policy</b>	Yes	Ensures assessment procedures are consistent with Policy.

<b>Sustainable and Environmental</b>	Yes	The revised procedures will support sustainable and environmental policy objectives.
<b>Crime and Disorder</b>	No	
<b>Human Rights Act</b>	No	
<b>Elderly People / People on Low Income</b>	No	

## 8. BACKGROUND PAPERS

Report to Highways and Transportation Scrutiny Committee, 16<sup>th</sup> May 2001.  
 Report to Planning Committee, 14<sup>th</sup> August 1990 – “ A Review of Pedestrian Crossings in the City”  
 Report to Urban Management Sub-Committee, 3<sup>rd</sup> February 1999 – “Pedestrian Facilities Assessment and Prioritisation Procedures”  
 Local Transport Note 1/95 – The Assessment of Pedestrian Crossing Facilities.  
 Report to Cabinet: “Safer Routes Strategy, Road Safety Strategy and Casualty Targets”, 15<sup>th</sup> January 2001.



**EXISTING PEDESTRIAN FACILITIES**

The pedestrian facilities in the City consist of:

Total Number of Traffic Signal Junctions	165
Traffic Signal Junctions without any controlled pedestrian facilities	20
Traffic Signal Junctions with controlled pedestrian facilities	145
Traffic Signal Junctions with tactile devices / audible facilities	99
Traffic Signal Junctions with TOUCAN cycle facilities	25
Pelican crossings	188
Toucan crossings (stand-alone facility)	36
Zebra crossings	18
Pedestrian Refuges	not available

PEDESTRIAN CROSSING JUSTIFICATION CRITERIA				
STRATEGY	ASSESSMENT CRITERIA	TYPE OF CARRIAGEWAY		COMMENTS
		SINGLE	DUAL	
<b>WALKING &amp; CYCLING</b>				
<b>Walking</b>	On an identified "Major" pedestrian route	Facility approved in principle.	Facility approved in principle	
	4 hr $PV^2 > 0.7 \times 10^8$	Pelican / Toucan /Zebra	-	
	4hr $PV^2 > 1.4 \times 10^8$	Pelican / Toucan	Pelican / Toucan	
	Peak Hr Flows exceed:			
	800 veh / hr in single lane	Facility approved in principle.	Facility approved in principle.	Refuges / Zebras preferred where conditions permit. Cycling issues to be considered.
	1100 veh / hr 2-way or multi-lane one-way	Facility approved in principle.	Facility approved in principle.	
<b>Cycling</b>	Identified controlled crossing point on an existing or proposed cycle route.	TOUCAN Facility approved in principle.	TOUCAN Facility approved in principle	
<b>SAFER ROUTES</b>				
	2 hr $PV^2 > 0.4 \times 10^8$	Pelican / Toucan /Zebra	Pelican / Toucan	Zebras preferred where suitable.
	2 hr $PV^2 > 0.32 \times 10^8$	Pelican / Toucan /Zebra	Pelican / Toucan	0.8 reduction in threshold if new School Travel plan will increase walking by 20%. (PRO-RATA adjustment)
<b>BUS STRATEGY</b>				
	Peak Hr Flows exceed:			
	800 veh / hr in single lane	Facility approved in principle.	Facility approved in principle.	Refuges preferred. Bus stop locations to be reviewed to ensure optimum solution.
	1100 veh / hr 2-way or multi-lane one-way	Facility approved in principle.	Facility approved in principle.	

PEDESTRIAN CROSSING RANKING FORM			
SITE:			
REF No.			
Assessment Date:		Traffic Survey Date:	
Assessment By:		Waiting Survey Date:	

1. Pedestrian Crossing Delay			
Period	Average Waiting Time	Pedestrian Flow	Total Pedestrian Delay
	s	no	s
Peak Traffic Conditions ( See note 1)			
Off Peak Traffic Conditions ( See note 1)			
<b>TOTAL 12hr DELAY</b>	N/A	N/A	

2. Weighting Factor: Pedestrian Accident Record	
Pedestrian Accidents (in previous 3 years)	Weighting Factor = (No. Accidents –1) x 3 (see note 2)
No.	(%)

Note: Pedestrian crossing delays are based on Peak and Off-Peak sample surveys.

3. Weighting Factor: Latent Demand / Special Factors			
	Criteria	Weighting Factor	Site Factor
		%	%
	Nearby Community Centre / Home for Elderly or Elderly / Infirm > 10% of Total Flow	3	
	On pedestrian route to / from hospital, surgery, opticians etc	3	
	Busy shopping area, post office	3	
	Road divides a substantial community	3	
	<b>SPECIAL FACTORS TOTAL</b>		

4. Weighting Factor: Strategic Issues			
	Criteria	Weighting Factor	Site Factor
		%	%
	<b>Walking:</b>		
	On a strategic pedestrian route	15	
	<b>Cycling:</b>		
	On an identified cycle route	5	
	<b>Public Transport:</b>		
	Directly assists access to bus stops	10	
	<b>Safer Routes:</b>		
	Directly assists access to school, community centre etc	10	
	<b>STRATEGIC FACTORS TOTAL</b>		

5.	TOTAL PEDESTRIAN DELAY (1)	sec
6.	TOTAL WEIGHTING FACTOR (2+3+4)	%
7.	PEDESTRIAN RANKING DELAY (5x6)	sec

(Note 1:- For assessment, off peak conditions occur when the hourly flow falls below 80% of the peak hour flow )  
 (Note 2: (No. Accidents –1) reflects average accident rate of 1ped injury in 3 years. No distinction between severity.)