Guidance

GN-06-033 Pedestrian Crossings

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**Purpose**

1. The purpose of this guidance document is to describe the issues to be considered when implementing a new pedestrian crossing. The Highway Services pedestrian crossings policy document should be referred to for details on where and why crossings might be needed.

2. This guidance applies to all pedestrian crossings on the island’s existing adopted highway network. It does not apply to proposed roads to be constructed, or partly built and not yet fully utilised, as part of new developments as there is no mechanism to assess and survey the need for a crossing on a road that is not already fully operational.

3. This document is intended to provide clarity on Highway Services requirements for pedestrian crossings, and it sets out the protocol for achieving this.

**Introduction**

4. It is the policy of Highway Services to introduce pedestrian crossings where necessary to assist pedestrians (and sometimes cyclists and equestrians) crossing the road, particularly where it would otherwise be difficult or potentially unsafe to do so. This is required to improve traffic management for all highway users, promote active travel and to keep the highway safe.

5. The provision of crossings is often targeted to serve the needs of vulnerable road users who tend to experience the most difficulty and are exposed to the greatest danger crossing the road. This includes pedestrians, children, the elderly, people with disabilities and cyclists. However, it should be noted that the provision of a crossing alone will not necessarily lead to an improvement in highway safety and a reduction in road accidents.

6. This guidance document describes the way in which Highway Services will consider requests for new crossings. The assessment process undertaken by Highway Services to establish this need is based on surveys of existing pedestrian and vehicle flows. The provision of a pedestrian crossing can result from one of the following requirements:

   ♦ To reduce traffic accidents involving vulnerable road users;

   ♦ To provide crossing facilities to mitigate the anticipated traffic impact of new developments and / or anticipated increases in pedestrian flows;

   ♦ To provide or improve facilities on key pedestrian or cycle corridors to encourage sustainable transport and aim to reduce travel by car;

   ♦ To encourage more children to walk and / or cycle to school, with less dependence on the use of the private car, by improving the safety of pedestrian and cycle routes; and

   ♦ In special local circumstances where it would be appropriate to provide a crossing.
Types of Pedestrian Crossings

7. There are various measures that can be implemented to assist pedestrians (or cyclists or equestrians) to cross the road. Some require a Statutory Notice to be produced and advertised to comply with statutory legislation prior to installation, so they can be subject to legal enforcement as necessary. Others do not need to follow any statutory process to be implemented. Highway Services Statutory Notice for pedestrian crossings procedure document should be referred to for information on the process to be undertaken to introduce a crossing that is subject to a Statutory Notice.

8. The different types of facilities that can be introduced to assist pedestrians (or cyclists or equestrians) to cross the carriageway are listed below:

- Dropped kerbs;
- Traffic management / traffic calming measures (may be used as alternative to a pedestrian crossing):
  - Road narrowings;
  - Pedestrian crossovers; and
  - Pedestrian refuges.
- Zebra crossings;
- Signal Controlled Crossings:
  - Pelican crossings;
  - Puffin crossings;
  - Toucan crossings; and
  - Equestrian crossings.
- Footbridges; and
- School crossing patrols.

9. Each of these is described in further detail below, including details of their advantages and disadvantages, and which type is appropriate in particular circumstances - depending on the nature and location of the site.

Dropped kerbs

10. Dropped kerbs are informal pedestrian crossing points placed at regular intervals on the highway. They provide easy access for wheelchair users, those with pushchairs and people with walking difficulties, and are commonly situated on main routes at or near junctions to facilitate crossing the side roads. They are also introduced on or near pedestrian desire lines to enable pedestrians to reach facilities such as shops, services, bus stops. Pedestrian desire lines are points where pedestrians currently cross or are likely to want to cross the carriageway in the future. They are usually the shortest, most direct route linking origin and destination.

11. Dropped kerbs should be sufficiently wide to accommodate wheelchairs or pushchairs and incorporate buff coloured tactile paving to enable blind pedestrians to be alerted to the
presence of the crossing point. The UK’s Department of the Environment Transport and the Regions (DETR) ‘Guidance on the use of Tactile Paving Surfaces’ document should be referred to for further information on the design of tactile paving at pedestrian crossings.

12. Footway / verge crossings with dropped kerbs that provide access to private driveways or vehicular accesses are unsuitable for use as pedestrian crossing points due to the potential conflicts between pedestrians and vehicles which they encourage. This is detrimental to highway safety. In addition, the kerb upstand is higher for vehicle crossings (a maximum of 25mm) than pedestrian crossings (0 - 6mm); the former being unsuitable for the disabled and mobility impaired.

13. Highway Services is likely to consider requests for dropped kerbs favourably if the need for them can be clearly established, as they promote sustainable transport.

Traffic management / traffic calming measures

14. Traffic management measures or a traffic calming scheme may be a suitable alternative to a pedestrian crossing and is often less expensive; although this does depend on the type of measures proposed. The use of traffic calming to reduce vehicle speeds may be effective enough to slow traffic sufficiently to create suitable gaps in the traffic flow to allow pedestrians to cross the road safely. It may also give more time for pedestrians to cross the carriageway without the need for a specific crossing facility. The same effect can also be achieved by narrowing the road through the use of traffic management or traffic calming measures to reduce the crossing time necessary.

Road narrowings

15. Road narrowings are typically used as a cheaper alternative before pedestrian refuges are considered. They narrow one or both sides of the carriageway to reduce the pedestrian crossing time by effectively widening the footway and shortening the crossing distance. This can also have the added benefit of improving highway visibility if parked vehicles or other obstructions currently obstruct it, and also result in a reduction in vehicle speeds. Narrowing, or perceived narrowing, of traffic lanes can have a significant impact upon driver behaviour and speeds. The different types of road narrowings are described in more detail in the Highway Services traffic calming guidance document.

16. Road narrowings are unlikely to be introduced on routes subject to abnormal loads, a high frequency of buses and / or heavy goods vehicles and where the availability of on-street parking would be significantly reduced in an area with a high parking demand, unless there is a highway safety reason to justify it. They should not be considered on busy or heavily trafficked routes if vehicle delays would be created from vehicles waiting to pass each other (where the road is narrowed to one passing lane) as this would adversely impact on traffic management.

Pedestrian crossovers

17. Pedestrian crossovers are often used as part of a traffic calming scheme to allow pedestrians to cross the carriageway on a raised surface that is flush with the adjacent footways. They create a speed / raised table / hump to vehicular traffic which reduces vehicle speeds and highlights the presence of the crossing. Slowing down traffic makes it easier for pedestrians to cross and avoids the need for dropped kerbs and tactile paving as it creates a level surface which connects the footways on each side of the road.
18. Highway Services is unlikely to implement a pedestrian crossover unless it is on a pedestrian desire line and forms part of a wider traffic calming scheme. It is therefore inappropriate for use as a stand-alone measure.

**Pedestrian refuges**

19. A pedestrian refuge allows pedestrians (or cyclists) to cross the road in two stages by accommodating waiting pedestrians on an island in the centre of the carriageway between crossing movements. It halves the crossing width and reduces the crossing time, resulting in pedestrians only having to consider traffic approaching in one direction at a time. It can also assist in reducing vehicle speeds by narrowing the adjacent traffic lanes, and can prevent overtaking in the vicinity of the refuge.

20. Refuge islands are relatively inexpensive compared to other forms of crossing facilities. It is essential they are large enough to fully accommodate anticipated volumes of pedestrians and cyclists who are liable to use them at any given moment in time. Consequently, they are not used on roads unless they are of sufficient width. They must be at least 1.2 metres wide but may need to be considerably wider depending on the site location, particularly if they are to be used by cyclists. Highway Services is unlikely to install them outside schools or in town centres which generally attract high numbers of people that would want to use them.

21. Refuges can potentially cause problems for cyclists travelling along the road because of the reduced carriageway width available for other traffic to pass. They are therefore not usually implemented on routes subject to high cycle flows.

**Zebra crossings**

22. Zebra crossings tend to be introduced where a crossing is thought necessary, but pedestrian and traffic flows are relatively low and not high enough to warrant a signal controlled crossing. They have black and white striped carriageway markings and flashing orange Belisha beacons on the adjacent footways. Traffic must stop and give way to pedestrians on a zebra crossing, or waiting to cross on the adjacent footways; giving pedestrians priority. Unlike signal controlled crossings, zebra crossings minimise the delay to pedestrians rather than traffic.

23. The disadvantages of zebra crossings are that some drivers are reluctant to stop for pedestrians, and it is more difficult for pedestrians with visual impairments to use them. There is less certainty when traffic has stopped for pedestrians as unlike signal controlled crossings there is no audible signal for guidance, and the pedestrian is basing their decision about when it is safe to cross upon being able to hear that traffic has stopped. This is more challenging on routes with more than one traffic lane in each direction where the pedestrian may be unaware of the presence of additional traffic lanes. For this reason, zebra crossings will not usually be considered on wide roads with more than one traffic lane in each direction and where there are large numbers of vulnerable road users in the area. Central refuge islands can be used with zebra crossings where the carriageway is wide.

24. As a result of these characteristics, the pedestrian accident rate at zebra crossings can be higher than at similarly located signal-controlled crossings. Zebra crossings may therefore be considered for conversion to a signal controlled crossings on highway safety grounds where it can be demonstrated that a poor pedestrian injury record is likely to be improved.
25. The likely impact of a zebra crossing can be tested by checking the availability of gaps in the flow of traffic. Gaps of around five seconds are needed for an able person to cross a 7 metre wide carriageway. These should occur on a reasonably frequent basis. If insufficiently long gaps occur, or only very infrequently, a zebra crossing is unlikely to be appropriate, and could potentially be detrimental to highway safety. If gaps are too short to allow pedestrians adequate time to cross, or there are too few, thereby causing long waiting times, they prevent safe crossing which in turn can result in impatience and poor decision making.

26. Highway Services is unlikely to install a zebra crossing on a busy town centre street or outside premises that generate a high number of pedestrian movements, such as schools. This is likely to result in a constant stream of pedestrians claiming priority and dominating the facility. This could cause significant delays to traffic and adversely affect traffic management. A signal controlled crossing is likely to be more suitable in these circumstances. Each site should be dealt with on a case by case basis, however, a school crossing patrol may be more appropriate than a zebra crossing outside a school unless the crossing facility is needed for longer periods outside school opening and closing times.

27. Zebra crossings are not generally implemented on roads with a speed limit higher than 30 mph as pedestrians will require longer gaps in the traffic flow and be exposed to the risk of more serious injury due to the greater vehicle speeds. As a result, they should not be installed on roads with an 85th percentile speed of 35 mph or above.

28. If a zebra crossing is to be introduced, consideration should be given to installing additional measures such as road markings, traffic signage or traffic calming to highlight the presence of the crossing and encourage a reduction in approaching vehicle speeds. This should assist in increasing the safe and efficient use of the crossing.

**Signal controlled crossings**

29. Traffic signal controlled pedestrian crossings tend to be introduced on roads carrying significant volumes of traffic, where vehicle speeds are moderate to high and there are a large number of pedestrian crossing movements. Vehicles and pedestrians are both positively controlled by the signals, unlike zebra crossings where traffic must give precedence to pedestrians.

30. There are four types of signal controlled crossings, pelicans or puffins for pedestrians, toucans for cyclists and equestrian crossings for horse riders. Each type is described in the following sections of this document.

31. Signal controlled crossings are generally used in the following circumstances:

- Where vehicle speeds are high and other crossing options are considered unsuitable;
- Where there are a greater than average proportion of elderly or disabled pedestrians in the vicinity;
- Where vehicle flows are high and pedestrians have difficulty in crossing the road;
- Where there is a specific need for a crossing for cyclists or equestrians;
- Where other traffic management measures in the vicinity could confuse pedestrians and a crossing is considered to be the best alternative;
Where there is a need to link with adjacent signal controlled junctions or crossings as part of a UTC corridor; and

Where pedestrian flows are high and delays to vehicular traffic would be excessive without a signal controlled crossing.

**Pelican crossings**

32. A pelican crossing is a pedestrian light controlled crossing which tends to operate with fixed signal timings. It uses far-side pedestrian signal heads, with the pedestrian display flashing green at the end of the crossing period to inform pedestrians that the pedestrian symbol is about to turn to red but they should still have sufficient time to finish crossing. Pedestrians should not start to cross when the pedestrian symbol is flashing green as there will be insufficient time to fully cross before the pedestrian symbol turns red. While the green pedestrian display is flashing, the traffic lights turn to flashing amber indicating that vehicles can proceed provided that the crossing is clear of pedestrians. Pedestrians activate the crossing by using the nearside push button facility to change the traffic signals to red. The push button should be suitably positioned so it can be used by wheelchair users.

33. At pelican crossings there is a bleeping audible warning to indicate to the visibility impaired when the steady green pedestrian symbol is lit and it is safe to cross. However, they are not used at staggered crossings as there are two separate crossings in close proximity and their presence could cause confusion to pedestrians who would not be aware of which crossing was safe to use.

34. The time allocated for the pedestrian crossing movement on a pelican is based upon the width of the road and is fixed, regardless of the number of pedestrians crossing. The disadvantage of pelican crossings is that pedestrians will often push the button and then cross in a gap in traffic (despite the pedestrian signal being red) before the traffic signals turn to red and the green pedestrian symbol appears. The sequence of the signals will still continue and ultimately bring traffic to a halt without anybody crossing or waiting to cross. Pelicans can therefore cause unnecessary delays to traffic.

35. A pedestrian crossing stage can be included within an existing traffic control junction which operates in the same way as a pelican crossing. The pedestrian phase can apply to one or more arms of the junction. It may take the form of an all-red phase within the signals cycle when all traffic is stopped, or alternatively may involve a pedestrian facility that allows pedestrians to cross each arm of the junction independently as traffic is halted on the relevant junction arm.

36. This can be beneficial to traffic management as it allows some traffic to move through the junction at the same time as pedestrians are crossing a different arm. However, providing a pedestrian facility will reduce the capacity of a busy traffic signal junction and can result in vehicle queues. The provision of a pedestrian crossing facility on an existing signalised junction will therefore be carefully considered by Highway Services on a case-by-case basis. It is likely to be introduced when required for highway safety reasons, or to alleviate an existing problem with pedestrian accidents. Road safety takes precedence over traffic management and vehicle delays.
Puffin crossings

37. Puffin crossings are pedestrian user friendly intelligent crossings which are a variation on pelican crossings. They have one of two types of kerbside detectors. The first is a series of infra-red (microwave) detectors mounted above the footways at the crossing to detect whether there is a pedestrian waiting to cross once they have pressed the push button to activate the crossing. The second type of kerbside detector is an inductive loop below the tactile paving to identify if a pedestrian is waiting. Microwave detectors are usually preferred as inductive loops are ineffective if the pedestrian does not wait on the tactile paving, and they can be damaged during highway works by statutory undertakers.

38. If the pedestrian has moved away, usually by crossing during a gap in the traffic when the pedestrian symbol is still on red, the signal sequence is cancelled and the traffic continues unhindered as the traffic signal aspect remains on green. Puffins therefore manage the traffic more efficiently than pelicans by preventing unnecessary delays to vehicles.

39. Puffin crossings have microwave on-crossing detectors to detect pedestrian movement in the centre of the road. If there are slow moving pedestrians on the crossing, the detectors allow the pedestrian time to be increased, with the traffic signal remaining on red, to allow them to finish crossing safely.

40. An isolated puffin crossing may have vehicle detectors in the carriageway traffic lanes on the approaches to the crossing. They are used for vehicle actuation to extend the traffic signal green time if necessary to allow traffic to have additional time to pass through and clear the crossing before the traffic signal turns to red. This is a safety benefit of puffins that does not apply to pelicans.

41. Puffins are safer than pelican crossings which do not have the detector facilities and only operate with a fixed crossing time. They differ from pelicans in that they do not have the flashing green pedestrian symbol (and associated flashing amber traffic signal) to highlight the approaching end of the pedestrian phase as the crossing time is automatically extended as necessary.

42. Although there are existing pelican crossings on the island, all new signal controlled pedestrian crossings provided by Highway Services will be puffin crossings rather than pelicans. This is because of the additional benefits they have in terms of pedestrian safety and improved traffic management.

43. Pelicans have the pedestrian signals on the far–side of the road mounted above pedestrian height which encourages pedestrians waiting at the crossing to look at the approaching traffic at the same time as looking at the pedestrian signal. However, puffin crossings have the pedestrian signals on the nearside only above the push button facility. In the past, puffins on the island have had a hybrid arrangement with both nearside and far-side pedestrian signals in place. This traditional layout of duplicate pedestrian signals is no longer being promoted for new puffins to be introduced in the future, in order to reflect best practice and guidance in the UK which only provides nearside pedestrian signals at puffins.

Toucan crossings

44. Toucan (two can cross) crossings are similar to puffin crossings except that they allow both cyclists and pedestrians to cross together, with cyclists being able to ride across. They are unsegregated signal controlled crossings that link both the on-footway cycle route and pedestrian footway systems on opposite sides of a carriageway. They are
generally used where the footway / cycleway passes across a main road. Toucan crossings exist because cyclists are unable to cross when mounted at zebra, pelican or puffin crossings.

45. Toucan crossings display a green cycle symbol alongside the green pedestrian symbol when cyclists and pedestrians can cross. The crossing time is established each time by on-crossing detectors in the same way as puffins. Kerbside detectors are also used to prevent traffic from having to stop whenever there are no cyclists or pedestrians waiting to cross.

46. Highway Services will only install a toucan crossing where there is a cycle route. Requests for a toucan will usually only be progressed where a demand for a reasonable number of cyclists to cross a road has been identified by Highway Services. The cost of a toucan is similar to that of a puffin and therefore fairly high compared to other types of crossing. Toucans will generally be implemented on roads subject to fairly high speeds or large volumes of traffic with limited gaps for cyclists and pedestrians to cross safely.

**Equestrian crossings**

47. Equestrian crossings are also known as pegasus crossings or equine crossings. They allow pedestrians and horse riders to cross. There are none on the island at present but they may be implemented in the future as mounted equestrians are unable to cross at zebra, pelican or puffin crossings.

48. Equestrian crossings are very similar to toucan crossings but they have a red / green horse symbol instead of the cycle symbol, in addition to the pedestrian symbol. They have higher mounted push buttons to allow horse riders to use them more easily, and tend to be fairly wide to accommodate both types of users.

49. It is likely that equestrian crossings will only be considered by Highway Services where a significant number of horse riders need to cross a busy main road. This will probably only apply in the vicinity of a bridle path where there is an existing or potential highway safety problem and the high cost of the crossing can be justified.

**Staggered Crossings**

50. Staggered signal controlled crossings are signal controlled crossings with a refuge island in the centre of the carriageway. They operate as two separate crossings with the refuge acting as a waiting area in between. They tend to be used on roads which are too wide to cross in one movement and there is adequate space to accommodate a sufficiently large refuge.

51. On two-way roads they should have a left handed stagger so that pedestrians on the central refuge are guided to face the approaching traffic stream. At some crossings a right handed stagger may be unavoidable due to the nature of the site location. In this scenario, particular attention must be paid to the view of the pedestrian signals during the design process to avoid potential confusion if the pedestrian signals can be seen simultaneously. Consideration should also be given to the use of "LOOK LEFT" or "LOOK RIGHT" carriageway markings to address this issue.

52. Staggered signal-controlled crossings are not recommended for one-way roads as drivers can weave on the approach to the crossing, to either side of the refuge, particularly where the road is wide. If their use is unavoidable, such as within a town centre gyratory
system, then adequate road markings and signage should be provided to deter drivers from weaving and to inform pedestrians of their nature.

53. Staggered crossings are unsuitable for equestrians due to the safety risk of animals waiting in the centre of the road.

Urban Traffic Control (UTC) schemes

54. An urban traffic control (UTC) system links the operation and signal timings of traffic signal junctions in fairly close proximity to each other to smooth the flow of traffic along the defined UTC corridor. They improve the efficiency of junction operation with the aim of reducing overall congestion and delays on the network throughout busy periods. UTC corridors allow vehicles to travel along them in one uninterrupted movement in ‘platoons’ with consistent and extended green signals, rather than having to stop at a red signal for every junction on the route.

55. Where a signal controlled crossing is proposed close to a signal junction, a linked UTC system should be considered. A suitable distance between signalised junctions and crossings varies depending on the traffic conditions, but 100 metres is generally considered to be an appropriate minimum. A spacing less than this may be unsuitable as queuing traffic could block back past adjacent junctions / crossings.

56. Signal controlled crossings within the boundary of an UTC area may remain on an isolated control when coordination is not justified or would not be beneficial to traffic management. This can apply on either a permanent or a part-time basis depending on the traffic flow throughout the day and during the week. It is sometimes only used part-time during peak periods.

Footbridges

57. Highway Services has the legal powers to introduce a footbridge over the adopted highway under Section 20 of the Highways Act 1986. Footbridges are very expensive to design and maintain compared to other types of crossings and therefore only tend to be used as a last resort. However, they may be used where this is likely to be the only safe option, where pedestrians need to cross a high speed road.

School Crossing Patrols

58. A school crossing patrol (SCP) may be appropriate where children need assistance crossing the road at school opening and closing times but there is little demand outside these periods. It can assist in providing gaps for pedestrians to cross. The Isle of Man Government’s (IoMG) Road Safety Unit are responsible for undertaking SCP assessments as necessary to identify whether the criteria is satisfied for the provision of such.

Assessment of Requirement for a Pedestrian Crossing

59. Requests for pedestrian crossings are dealt with by Highway Services on a case-by-case basis based on a detailed assessment. Highway safety is the primary consideration followed by the need for a crossing and whether the appropriate design standards can be met.

60. A survey of the requested site shall be undertaken by Highway Services to establish if the site should be fully assessed for a potential crossing. It is usually carried out during the morning peak hour at most sites as this tends to be the busiest period. This survey will identify the following information:
Whether there is and what is the pedestrian desire line;

♦ The number and types of vehicles passing the site in 30 minutes;

♦ The number of pedestrians crossing within 50 metres either side of the site in the same 30 minute period as the vehicle count; and

♦ The number of pushchairs, elderly persons, unaccompanied children, wheelchair users, mobility impaired, visually impaired or blind persons, crossing cyclists, equestrians and any other types of vulnerable road users.

61. The count data should be recorded in consecutive 5 minute periods at the time of the heaviest traffic flow at the site. From this information a PV² value is obtained to provide an indication of the degree of pedestrian / vehicle conflict.

62. The PV² assessment will be undertaken by Highway Services to assist in determining if the request for a crossing can be justified. It is based on the number of pedestrians crossing per hour over a 50 metre length section of the road (P) which is multiplied by the number of vehicles per hour (V) squared. From this information, a brief site assessment report will be produced with a recommendation to either carry out a detailed assessment or not.

63. A PV² value of less than 0.5 will not justify a crossing so no further assessment for a crossing will be undertaken. A PV² value over 1 will require a more detailed assessment for a crossing. Between 0.5 and 1 indicates that there is a potential issue to be considered so a detailed assessment will be carried out.

64. A PV² assessment would not be carried out if a crossing is to be implemented as part of a new development, a highway maintenance / improvement scheme or as an accident remedial measure to reduce the traffic accident record at the site.

65. If a detailed assessment is required, at least 2 further surveys should be undertaken, preferably in different weather conditions, to calculate new PV² values for comparison purposes and to produce a robust assessment. Depending on the nature of the site and the surrounding uses that will affect the numbers and times of pedestrian crossing movements, the additional surveys may need to be undertaken at different times on different days. The surveys should be carried out at the most appropriate time of year to reflect the worst case scenario in terms of the highest pedestrian and vehicle numbers.

66. The detailed assessment for a potential crossing will be undertaken by Highway Services based on engineering judgement and go beyond the PV² count. It will consider additional factors to determine if a crossing facility is required, and if so identify what type of crossing is the most appropriate. This is dependent on the site location and the uses / other facilities in the area that will generate a high number of pedestrians and an associated demand for pedestrian crossing movements such as schools, nursing homes, shops and local / community facilities.

67. The additional factors to be considered in a detailed pedestrian crossing assessment following a PV² calculation are listed below. They will apply a weighting to the PV² value as evidence to justify the recommendation to be made by Highway Services on whether or not a crossing should be installed:

♦ Carriageway type and width;
Footway type, width and gradient on both sides of road;

Characteristics of site location:

- Facilities in area that attract a high number of crossing movements, i.e. schools, sheltered housing, nursing homes, hospitals, surgeries, community centres, shops, leisure / entertainment facilities, cycle or equestrian facilities etc.;
- Parking / loading / stopping restrictions;
- Traffic calming and traffic management measures;
- Road markings and signage;
- Street furniture;
- Bus / tram / rail stops / stations;
- Proximity to junctions and accesses;
- Type and location of other crossing facilities; and
- School crossing patrols operating in the vicinity.

Vehicular / pedestrian flow and composition (i.e. traffic / pedestrian counts, the type and proportion of vulnerable road users, number of cyclists and equestrians, number of large vehicles, crossing desire line, effect on road capacity and potential traffic delays and queuing if a crossing introduced etc.);

- Vehicle speed (speed limit and 85th percentile speed);
- Average crossing time (for various highway users);
- Difficulty of crossing (for various highway users);
- Site accident record (number, type and severity of personal injury accidents over the last 3 years);
- Highway visibility;
- Street lighting;
- Skid resistance of carriageway;
- Representations from the Police, public or politicians;
- Community severance;
- Cost (installation and maintenance);
68. If any of these other factors are applicable to the potential crossing site, particularly if they are in a location that is quite severe, then this may be sufficient to justify a crossing facility of some type depending on the engineering judgement of the Highway Services staff member undertaking the assessment. The more factors that apply, and the greater their significance, the more likely the justification of the provision of a crossing facility.

69. The UK government’s Department for Transport (DfT) ‘Local Transport Note 1/95 The Assessment of Pedestrian Crossings’ document contains details on the issues to be considered when undertaking a pedestrian crossing assessment.

70. During the detailed assessment, Highway Services will consider the possibility that the present situation may suppress the crossing demand due to the difficulty in crossing the road to access services. Where appropriate, this suppressed demand will be estimated from an appraisal of local circumstances and compared to the actual pedestrian and / or cycle / equestrian figures obtained from the surveys. The predicted increase, and associated assumptions made, will be noted in the detailed site assessment report to be produced to determine whether or not a crossing should be provided.

71. The pedestrian count should be weighted to reflect the number and type of vulnerable road users and the degree of difficulty they experience when crossing the road. This is dependent upon the number and lengths of gaps in the traffic flow as vulnerable road users will usually require longer gaps to be able to cross. This is influenced by factors such as the road width, the number of traffic streams (one way, two way, single or multi-lane), vehicle speeds, the proportion of large vehicles and highway visibility.

72. Buses and heavy goods vehicles can intimidate pedestrians, particularly vulnerable road users, because of increased fears of these types of vehicles failing to stop quickly in an emergency situation. This leads to longer gaps in the traffic flow being required before a perceived acceptable gap is identified by the pedestrian; increasing the delay to pedestrians and the severance effect of the road.

73. Once the assessment of whether or not a crossing is to be implemented is complete, irrespective of whether a detailed assessment has been done in addition to a brief initial one, the person who made the request should be informed of the outcome. Highway Services should provide an explanation if a crossing will not be introduced, or if an alternative scheme such as a refuge island or traffic management measures are to be installed as a more appropriate option.

74. If the criteria are met and a crossing facility is implemented, it is highly unlikely that the crossing would be removed. However, the crossing may be upgraded to an alternative type of facility in the future to take account of issues such as an increase in the volume of traffic and / or pedestrians, to address a road safety problem etc. In these circumstances the assessment process and a public consultation exercise would need to be carried out similar to that for a proposed new crossing.
Identification of Appropriate Location and Design of a Pedestrian Crossing

75. The IoMG documents ‘Zebra Pedestrian Crossings Regulations 1972’ (and subsequent amendments in 1990 and 1996), ‘Pelican Pedestrian Crossings Regulations 1990’ and ‘Puffin Pedestrian Crossings Regulations 2000’ must be referred to for detailed information on the requirements, design and specification for such crossings.

76. The Manual for Manx Roads (MMR) has design information on pedestrian crossings. This is supplemented by the UK’s DfT ‘Local Transport Note 2/95 The Design of Pedestrian Crossings’ which considers practical difficulties such as the proximity of the proposed crossing to junctions, highway visibility, the skid resistance of the approaches to the crossing, street lighting, bus stops, statutory undertakers’ equipment, nearby crossings, the needs of vulnerable pedestrians and the operation of the crossing. This includes information on proposed signal timings for signal controlled crossings.

77. Drivers must have a clear view of at least one (primary) signal head on approaching a signal controlled crossing and when stationary at the stop line. Highway visibility on the crossing approaches and the siting of the traffic signals is therefore a key aspect of the design process. Crossings should not be installed on highway bends or adjacent to junctions where there is limited forward visibility as it would be detrimental to highway safety. Adequate visibility may be achievable in certain locations by relocating street furniture, building out the kerb line, or providing parking restrictions for crossings that are not protected by zig-zag markings (i.e. facilities other than signal controlled and zebra crossings).

78. All new crossings should be fully accessible for people with disabilities and be of a sufficient width to accommodate its users. They should include tactile paving, flush kerbs and where applicable audible warnings to inform blind pedestrians when it is safe to cross. However, audible warnings cannot be used where there is more than one signal controlled crossing, or it is staggered, as it could cause confusion about which crossing should be used at any given time. In this scenario, a rotating cone should be provided underneath the push buttons which move when the traffic signals have turned to red and the crossing is available to use. Where audible warnings are used, a time switch may be incorporated to enable the sound to be reduced or switched off at night to avoid disturbance to local residents.

79. The siting of a proposed crossing should be on the pedestrian desire line, or as close as possible to it, to ensure that it is likely to be used. Once a crossing is installed the site will become a focus of concentration for drivers, and the areas either side of it could become potentially hazardous for pedestrians. Accidents do tend to occur on the approaches to crossings. It may therefore be appropriate to prevent pedestrians from crossing the road either side of the actual crossing. This can be achieved by installing pedestrian guardrails to channel pedestrians to cross on the crossing which has the added benefit of guiding blind and partially sighted pedestrians to the crossing. However, the introduction of guardrails should not reduce the remaining available footway width to an inappropriate level. Both the pedestrian flow along the footway and a large enough area for those waiting to use the crossing will still need to be accommodated.

80. A pedestrian crossing may be sited near a bus stop, particularly if required to facilitate access to the stop, provided that it does not adversely affect highway visibility or safety. Highway Services will need to consult the Police during the design process if a bus stop is to be relocated to allow a crossing to be implemented. A bus stop is usually better sited on the exit of a crossing rather than the approach so it avoids vehicles from overtaking
when a bus is stopped. However, a stop should not be located so close to a crossing on the exit side that it could cause vehicles to queue back and block the crossing, as this may result in pedestrians weaving between stopped vehicles which is unsafe. Similarly, crossings sighted close to junctions, particularly signal-controlled crossings, should avoid queuing back across the junction unless suitable mitigation measures are installed at the same time such as ‘KEEP CLEAR’ road markings.

81. Where a crossing is being considered because of a high accident record, the nature of the accidents, and any associated trends or patterns, should be fully investigated before undertaking an assessment for a pedestrian crossing. This should identify any similar causes of the accidents which may be able to be suitably addressed by more appropriate measures, such as traffic calming or improving visibility, to resolve the problem which may also be less expensive than a crossing.

82. Where the 85th percentile speed is greater than 50mph, serious consideration should be given to speed reduction or other physical measures before installing an at-grade crossing. This may be a cheaper alternative that is equally or more effective in terms of road safety and making provision for crossing movements. Surface crossings are not generally installed on high speed roads as they require long lengths of forward visibility to be suitably safe. This can be difficult to achieve in many locations. If visibility is limited then a footbridge may be the only safe option; incurring substantial design, construction and ongoing maintenance costs.

83. Local street lighting may need to be upgraded when installing a crossing to provide sufficient visibility for approaching drivers and pedestrians on the crossing. If required, this will need to be discussed with the local authority who is responsible for street lighting.

84. The use of a refuge at a non-staggered crossing is not recommended as their use can be confusing for both pedestrians and drivers, and there is often insufficient space to install them with appropriate capacity to accommodate wheelchairs, pushchairs and cyclists. They should only be used if the road width cannot be increased to accommodate a staggered crossing. If used the refuge should be provided with push buttons and signals as required.

General Requirements for Pedestrian Crossings

85. Appropriate traffic signage and / or road markings are required to ensure that pedestrian crossings are clear to all road users and well respected, which must be installed exactly as specified in the relevant legislation. Further information on this can be found in The Traffic Signs (Application) Regulations 2003 document.

86. Those installing pedestrian crossings will always be employed by Highway Services as no other organisation has the authority to make changes to the highway network.

Parking Enforcement At / Near Pedestrian Crossings

87. The Police and traffic wardens are solely responsible for the enforcement of all stopping and parking offences at pedestrian crossings. This includes the approaches to crossings that are denoted by zig-zag markings upon which vehicles cannot legally park or stop.

Procedures for Implementing Pedestrian Crossings

88. Appendix 1 shows the process for introducing pedestrian crossings. Highway Services Statutory Notice for pedestrian crossings procedure document should be followed for
information on how pedestrian crossings must be implemented and the statutory legislation involved for certain types of crossings. Highway Services consultation policy and guidance documents should be referred to when determining who should be consulted on the proposals, and which methods of consultation are likely to be the most effective and suitable in each circumstance.

89. Requests received by Highway Services for introducing pedestrian crossings will be assessed against the criteria summarised in this document. Highway Services will consider the needs of all road users, the type of route, local conditions, the speed limit of the road and the most appropriate type of crossing to be installed, when identifying whether it is appropriate to implement one.

References

90. Highway Services pedestrian crossings policy document that is to be read in conjunction with this pedestrian crossings guidance report, DP-06-020
91. Highway Services Statutory Notice for pedestrian crossings procedure report, OP-06-048
92. Highway Services consultation policy report, DP-06-017
93. Highway Services consultation guidance report, GN-06-030
94. Highway Services traffic calming guidance report, GN-06-029
95. Traffic Signs (Application) Regulations 2003
96. The Manual for Manx Roads (MMR)
97. Highways Act 1986
98. Zebra Pedestrian Crossings Regulations 1972
100. Puffin Pedestrian Crossings Regulations 2000
101. The UK’s DETR Guidance on the use of Tactile Paving Surfaces
102. The UK’s DfT Local Transport Note 1/95 The Assessment of Pedestrian Crossings
103. The UK’s DfT Local Transport Note 2/95 The Design of Pedestrian Crossings

Definitions

104. A **pelican crossing** is a pedestrian signal controlled crossing with a push button facility for a pedestrian to trigger the signals to illuminate red for traffic and the green man signal to allow pedestrians to cross.

105. A **puffin crossing** (pedestrian user friendly intelligent crossing) is a pedestrian signal controlled crossing that has kerbside pedestrian detectors to identify and cancel pedestrian demands from the push button facility where the pedestrian has crossed before the green man illuminates. This prevents unnecessary delays to vehicular traffic by avoiding the need for vehicles to stop when no-one is crossing / waiting to cross.
106. A **toucan crossing** is a signal controlled crossing that allows both cyclists and pedestrians to cross together, with cyclists being able to ride across.

107. An **equestrian crossing** (also known as a **pegasus crossing** or **equine crossing**) is a signal controlled crossing that allows both horse riders and pedestrians to cross together.

108. **Traffic Regulation Orders (TROs)**, otherwise known as **Traffic Orders** or **Traffic Management Orders**, are legal processes designed to regulate, restrict or prohibit the use of a road, or any part of a road, by parked vehicles.

109. **Parking Restrictions** are mandatory parking restrictions that require a legal process to be implemented (i.e. a TRO).

110. **Loading restrictions** (or **loading bans**) prohibit vehicles from loading, unloading, stopping or waiting on a specified length of road.

111. The **adopted highway** is the road infrastructure, including footpaths, that is maintainable at public expense by Highway Services as the Highway Authority for the Isle of Man Government.

112. A **Statutory Notice** is a legal document used to advertise certain types of proposed pedestrian crossings and to inform the public, stakeholders and any partnering organisations that they are planned to be introduced.

113. **Vulnerable road users** are pedestrians, cyclists, children, the elderly and the mobility impaired.

114. A **dropped kerb** is a pedestrian crossing point on the footway edge to provide flush and easy access for wheelchair users, pushchairs and people with walking difficulties to cross the road.

115. A **pedestrian desire line** is a route providing the most direct route between pedestrian origin and destination points. Crossings may be required where these cross roads - where pedestrians currently cross the road or are likely to want to cross in the future.

116. **Traffic calming measures** (otherwise known as **speed management measures**) are measures that deliberately slow traffic, usually in residential areas, by constructing road humps or other obstructions.

117. A **road narrowing** is a point on a road at which the carriageway width is reduced (compared to either side of it) to help slow traffic.

118. A **pedestrian crossover** is a raised surface across the carriageway that is flush with the adjacent footways and allows pedestrians to cross. It creates a speed / raised table to vehicular traffic to reduce vehicle speeds and highlight the presence of the crossing.

119. A **pedestrian refuge (island)** allows pedestrians to cross the road in two stages by accommodating waiting pedestrians on an island in the centre of the carriageway between crossing movements.

120. **Tactile paving** is a system of textured ground surface indicator found on footpaths to assist pedestrians who are visually impaired.
121. **Highway visibility** refers to visibility splays at a junction and sight lines along a highway which allow motorists to see cyclists, vehicles and pedestrians and be seen if the visibility splay or sight line is unobstructed. Appropriate visibility splays or sight lines provide road users with sufficient time to see oncoming traffic, pedestrians or vehicles and be able to react to any potential incident.

122. An **abnormal load** is a non-standard vehicle that is particularly large or heavy.

123. A **speed / raised table** is an artificially raised surface on a road which, in combination with one or more ramps, is designed to control the speed or route (or both) of vehicles.

124. A **Belisha beacon** is a flashing orange light mounted on a post adjacent to a zebra crossing.

125. An **urban traffic control (UTC) system** links the operation and signal timings of traffic signal junctions in fairly close proximity to each other to smooth the flow of traffic along the UTC corridor. They improve the efficiency of how the junctions operate with the aim of reducing congestion and delays on the network at busy periods.

126. A **kerbside detector** identifies if a pedestrian standing on a footway is waiting to cross the road at a signal controlled crossing.

127. An **on-crossing detector** identifies if a pedestrian walking across a signal controlled crossing requires more time on the green pedestrian phase to finish crossing before it turns to red.

128. A **vehicle detector** in the carriageway on the approaches to a signal controlled crossing identifies if the traffic requires additional green signal time to pass through the crossing before it turns red.

129. A **staggered crossing** is a signal controlled crossing with a refuge island in the centre of the carriageway. It operates as two separate crossings with the refuge used as a waiting area in between.

130. A **PV^2 count** (or **PV^2 assessment**) is a calculation to determine if the introduction of a pedestrian crossing can be justified. It is based on the number of pedestrians crossing per hour over a 50 metre length section of the road (P) which is multiplied by the number of vehicles per hour (V) squared.

131. The **85th percentile speed** is the speed at or below which 85% of all vehicles are observed to travel.

132. An **at-grade crossing** is a surface crossing where pedestrians cross at road level i.e. not a footbridge or subway.
Appendix 1
Flow Diagram of the Process to Implement Pedestrian Crossings

Highway Services receives request for pedestrian crossing or decides to promote one

Highway Services undertakes pre-consultation with stakeholders / partners / the public as necessary

Highway Services prepares a plan of the proposals

A draft Statutory Notice is prepared and advertised in accordance with the statutory legislation

Any objections or comments received are considered by Highway Services and the proposals amended if deemed appropriate

Highway Services informs all stakeholders / partners / the public that the proposals are being implemented and any changes made since consultation / advertising

The proposals are implemented on site in accordance with the approved details