

# **Pedestrian Crossing Facilities in Kathmandu Valley: Learning from London**

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# Aims

- **To continue NEA- SONEUK knowledge sharing initiative**
- **To present London's examples in the context of pedestrian crossings in Kathmandu**
- **To share personal perspective and learn from local experts**
- **To raise awareness and promote discussions**



# Overview

- **Introduction**
- **Pedestrian crossing types**
  - **Description, examples and current practices in Kathmandu**
- **Selection methodology**
- **Recent developments in Kathmandu**
  - **Example and issues**
- **Engineering solutions**
- **Discussion**
- **Conclusion**

# Introduction

- **Kathmandu**
  - **Capital, bussiness, cultural, education, health and foreign travel**
- **Vulnerable pedestrians**
  - **Ageing population, children, migration and tourism**
- **Recent attention to pedestrian crossing facilities**
  - **Zebra crossing, pedestrian bridge and signalised crossing**
- **Facilities are not designed properly and/or in poor state**
  - **Focussed on vehicular traffic**

# Scope

- **Formal crossing**
  - **facility where pedestrians have priority over motorised traffic**
- **Mid-block crossing**
  - **facility provided in the middle section of a road not very close to junction**
- **Zebra crossing, pedestrian footbridge and signalised crossing**
- **Focussed on engineering aspects rather than human behaviour**

# Zebra Crossing



Zebra crossing in Orpington, UK

# Zebra Crossing

- **Marked with black and white strips painted on the road surface**
- **Gives more visibility of the crossing pedestrians and reassures pedestrians**
- **Does not force traffic to stop by means of a traffic light but, but does give pedestrians permanent right of way in many developed countries**
- **Level access is provided to improve accessibility - either by dropped kerb or raised road crossing**
- **Suitable in urban areas where the vehicle speed is low and the pedestrian number is high**

# Current practice

- **Widely available facilities**
- **Provided at many locations without assessing its suitability**
- **Not maintained well at many places - painting faded due to the friction of the vehicle tyre enhanced by dirt (sand) on the road**
- **No permanent right of way to pedestrians (in practice)**



Zebra crossing with refuges in Kupondol, Lalitpur (Source: Googlemap, 2023)

# Current practice

- In some cases, the zebra crossings are not properly located - not leading to the walkable footpath



Zebra crossing leading to a pedestrian barrier in Thapathali (Source: Googlemap, 2023)

# Pedestrian Footbridge



Pedestrian footbridge with ramps in Southampton, UK (Source: Googlemap, 2023)

# Pedestrian Footbridge

- **Segregated facilities for pedestrians to cross major roads such as arterial roads and motorways**
- **Normally provided at places where non-segregated form of traffic could severely reduce the capacity and safety**
- **Costliest crossing facility – stairs, footbridge and ramps to facilitate people with mobility issue**
- **Need a lot of space to construct**
- **Safe but not user-friendly - climb up and down**
- **Suitable for high (very) speed roads**

# Current practice

- **Constructed at many places to give safe passage to the pedestrian**
- **Very tall - to provide clearance to vehicles**
- **Difficult to climb up and down a lot of steps - not user-friendly especially for those with mobility impairment issues**
- **Focussed on traffic flow/jam**



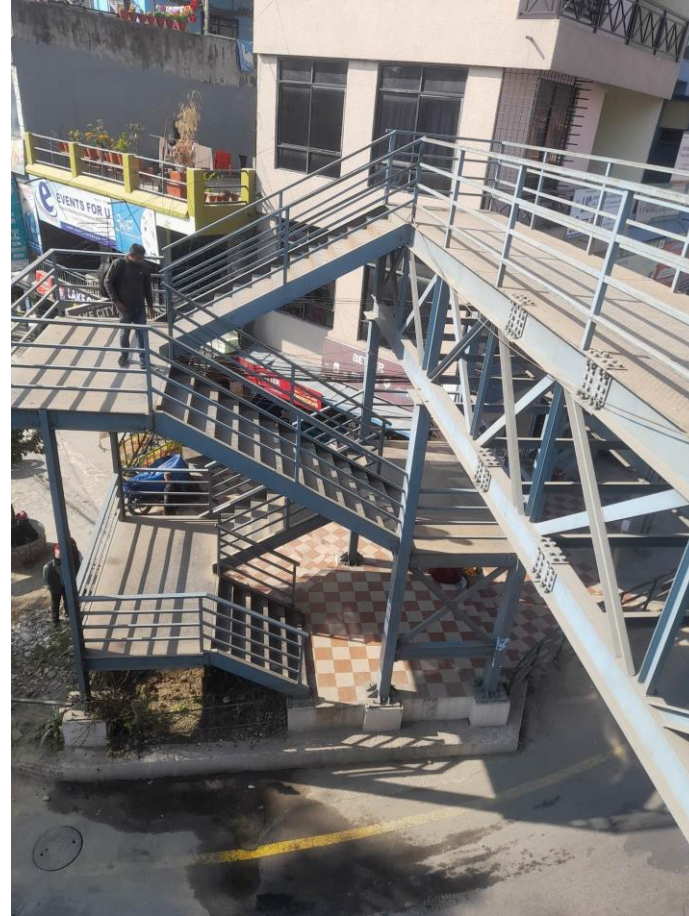
Pedestrian footbridge at Ratnapark, Kathmandu (Source: Googlemap, 2023)

# Current practice



Pedestrian footbridge at Koteshwor(Source: Googlemap, 2023)

# Current practice



Pedestrian footbridge at Srijana Chowk, Pokhara

# Current practice



Does it fulfill the purpose?

# Signalised Pedestrian Crossing



Signalised pedestrian crossing in Orpington, UK

# Signalised Pedestrian Crossing

- **Signalised pedestrian crossings allocate a clear right-of-way in the form of a green light**
- **More user-friendly for pedestrians who feel intimidated by the road traffic**
- **Signal controlled pedestrian crossing facilities are common in all developed countries**
- **Pelican, Puffin, Toucan, PCaTS**
- **Suitable for **mobility impaired pedestrians** as well as where vehicle **speed** and/or **flow** are high**

# Signalised Crossing working

- Pelican, Puffin, PCaTS
- Pelican – PEdestrian LIght CONtrolled
- Puffin – Pedestrian User-friendly Intelligent signal
- PCaTS – Pedestrian Countdown at Traffic Signal



**Pelican**



**Puffin**



**PCaTS**

# Signalised crossing

- **Virtually non-existent**
- **One such example at Teaching Hospital - not operating**
- **Perceived increase in the traffic jam**
- **Lack of technological knowhow?**
- **Recent developments**



Signalised pedestrian crossing at Teaching Hospital, Maharajgunj (Source: Googlemap, 2023)

# Comparison of Pedestrian Crossings

	Zebra crossing	Signalised crossing	Footbridge
Construction (cost and duration)	*****	***	*
Land space	*****	*****	*
Pedestrian friendliness	***	*****	*
Pedestrian safety concern	**	****	*****
Segregation (traffic impact)	*	***	*****

**Notes:** \*\*\*\*\* - Best suitable, \* - Least suitable

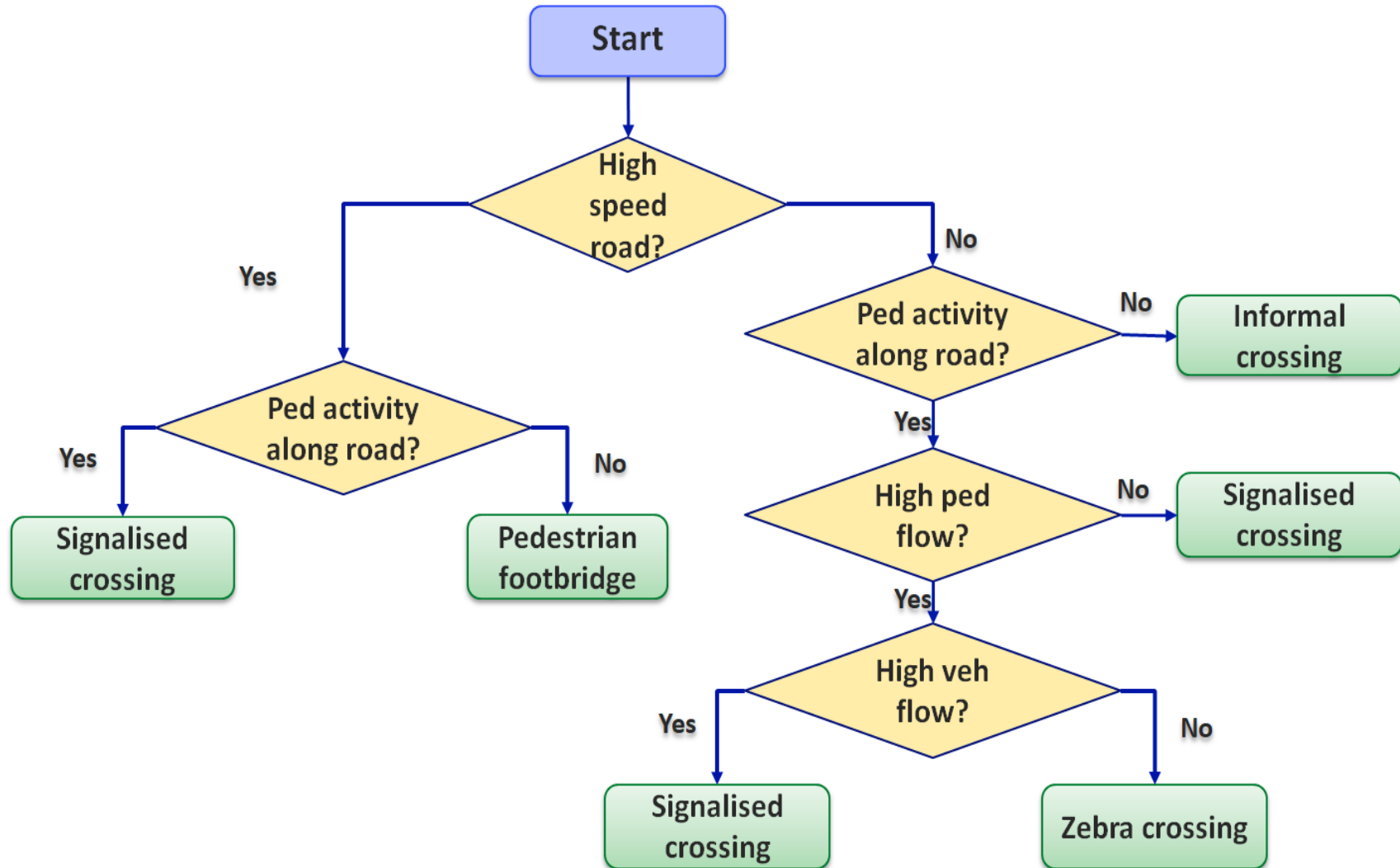


**- Cheaper, takes less space and user-friendly**

# Selecting Pedestrian Crossing

- **Pedestrian crossing facilities have different characteristics in terms of the construction, pedestrian friendliness, safety and traffic impact**
- **No one type of pedestrian crossing is suitable for all locations**
- **Suitability of a crossing depends on factors:**
  - **Road type**
  - **Pedestrian activities along the road**
  - **Pedestrian flow**
  - **Vehicle flow**

# Selection Methodology



# Recent Developments

- Excellent initiative
- Local technology
- Good compliance by pedestrians as well as vehicles
- Appropriate location (mid-block) – Tri Chandra Campus, Sundhara



Signalised pedestrian crossing at Tri Chandra Campus, Kathmandu

# Issues

- **Some non-compliance by vehicles**
- **Some non-compliance by pedestrians**
- **Engineering Issues (Civil, Traffic engineering)?**



# Engineering Issues

- Fixed time signals with no pedestrian push button (or not working?)
- Not properly designed signal timings (invitation and crossing times)
- Signal installation, traffic sign, drop kerb, crossing path and footpath
- Switched off during evening peak





Drop kerb for vehicles but not for pedestrian

# Civil Engineering Solution



- **Signal installation, drop kerb, raised crossing and footpath**

# Traffic Engineering Solution

- **Traffic Engineering**  
– road sign and road marking, signal timing
- **Pedestrian push button but no vehicle detection**
- **Near side ped signal**  
– avoid confusion
- **Signal head installation (Ground not Overhead)**



# Pedestrian Signal Timings

- **Invitation time (Green person = 5 seconds)**
  - Pedestrians can start crossing
- **Crossing time (Red person nearside =  $\text{dist}/1.2$  seconds)**
  - Pedestrians can complete the crossing but should not start
- **Vehicle green time (Red person = vehicle green)**



# Way Ahead

- **Signalised pedestrian crossing using local technology**
- **Proper location selection**
- **Pedestrian push button but no vehicle detection**
- **Proper design of signal timings (invitation and crossing times)**
- **Design guidelines (drop kerb, road markings)**
- **Improvement in construction and maintenance of the facility**
- **Easily available literatures from overseas (UK guidelines)**

# Discussion

- **Crossings are provided at many places without much consideration of its suitability (footbridges around Ratnapark and Zebra crossing on high speed roads)**
- **Methodology developed should streamline the selection process of pedestrian crossing**
- **Tall footbridges impossible for mobility impaired person**
- **Proper design of signalised crossing needed to maintain compliance**
- **Mid-block crossing may not add extra delays to the vehicles in congested situation (Sundhara example)**

# Conclusion

- **Appropriate pedestrian crossing depends on the traffic characteristics and pedestrian activities at a location**
- **Signalised crossing is the best suited option in most of the places where pedestrian activities along the road**
- **Cheaper than footbridge and more user-friendly**
- **Local technology is welcome but needs improvement in design and implementation**
- **Proper design and implementation can improve situation for pedestrians as well as vehicles**
- **Design guidelines will help – could be adapted developed countries**

- But it needs to be suitable in terms of the
  - Local context
  - Available technology
- May implement **Padyatri** signal instead of Puffin signal
- Just copying does not work



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- **Local technology is welcome but needs improvement in design and implementation**
- **Proper design and implementation can improve situation for pedestrians as well as vehicles**
- **Design guidelines will help – could be adapted developed countries**
- **Nepal Engineers Association could play a major role**

# Useful resources

- **The Assessment of Pedestrian Crossings, Local Transport Note 1/95, Department for Transport, UK**
- **The Design of Pedestrian Crossings, Local Transport Note 2/95, Department for Transport, UK**
- **Pedestrian Facilities at Signal - Controlled Junctions, LTN 5/05, Part 1 to 4, Department for Transport, UK**
- **Designing for Walking, Mark Philpotts, Chartered Institution of Highways and Transportation, UK**
- **Staying Street Safe booklet, Transport for London, Junior Road Safety Officer initiative**

# Thank you!

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