Towards the creation of the South African Pedestrian Environment Assessment Tool

P ALBERS[1,2], DR J OLWOCH[1] AND DR C WRIGHT[2]
[1]Department of Geography, Geoinformatics and Meteorology, University of Pretoria
[2]CSIR Environmental Health Research Group, PO Box 395, Pretoria, 0001, South Africa
Email: palbers@csir.co.za – www.csir.co.za

INTRODUCTION

- 45% of all accidents involve pedestrians[1]
- More attention needs to be given to pedestrians in South African policy
- Some factors influencing pedestrian accidents include the weather, walkways, lighting, safety and high vehicle traffic.

AIM OF THIS STUDY

To create and pilot a South African specific tool for assessing the pedestrian environment.

METHODS

- Study was conducted in Pretoria, Gauteng
- Collated accident data obtained from the Road Traffic Management Corporation
- Site selection:
  - Five sites were chosen using random sampling, specifically quota sampling, from two police stations with the highest number of pedestrian fatalities
- Examined existing pedestrian environment assessment tools
- Compiled a South African specific environment assessment tool
- Piloted the tool at five selected sites in Pretoria.

RESULTS

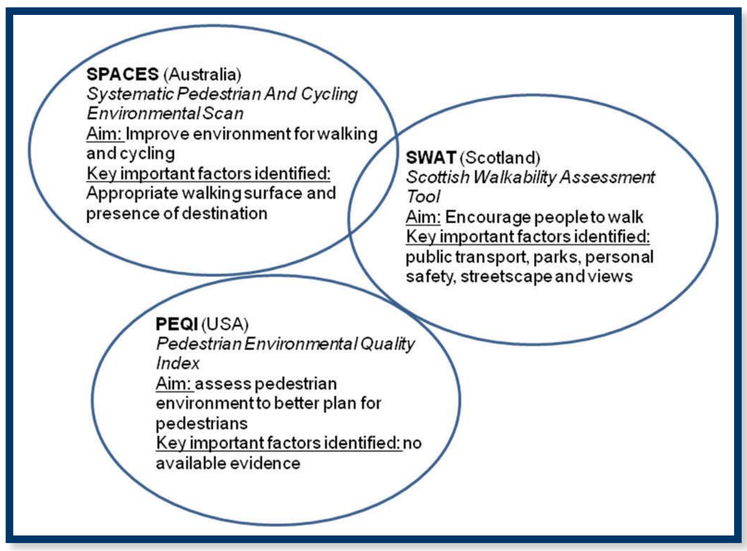

Figure 1: Summary of tools that informed the creation of the South African Pedestrian Environment Tool.

Pedestrian Environment Assessment Tool

Table 1: South African Pedestrian Environment Assessment Tool.

Section	Factor	Components
Intersection safety	Crossings	Zebra crossing, pedestrian crossing, foot bridge, under road, pedestrian crossing signal
	Signage	For pedestrians, for drivers
	Taxi stops	
	Presence of hawkers	
	Presence of beggars	
Traffic	Two-way traffic	
	Number of lanes	
	Speed limit	40km/h, 60km/h, 80km/h, 100km/h, 120km/h
	Traffic calming features	Circle, speed bump, rumble strip, stop street, traffic light, slip stream
Street design	Pavement (or sidewalk)	Under repair, location
	Pavement material	Continuous concrete, concrete slabs, paving bricks, gravel, tar, grass, sand
	Pavement obstructions	Trees, signs, bins, rubble or rubbish, cars, machinery or equipment, electricity box, travelling advert
	Pavement condition	Smooth and level, cracks, holes, breakages, rocky
	Size of space adjacent to road	
	Slope	Moderate, steep
	Drop off	
	Curb	Traversable, barrier, barrier with depressions, rounded, gutter curbs
	Driveway cuts	
	Trees, hedges or bushes, walls or fences	Obstructing movement, obstructing visibility
	Public seating	Obstructing movement
	Vehicle parking restrictions	
	Parking facilities	
	Public transport	Buses, trains, minibus taxis
	Road or Roadside constructions	
	Lighting	Lighting over pavements, lighting for street
Perceived safety	Surveillance	House fronts, shop fronts, security cameras, security guards, petrol stations, restaurants
	Graffiti	
	Litter	
	Abandoned buildings	
	Open space or empty lots	
Land use	Rural or urban	
	Predominant land use	Residential, commercial, industrial
	Residential building types	Flats, semi-detached housing, free standing houses, complex, indistinguishable
	Commercial building types	Shops, restaurants, other entertainment, public open space, petrol station
	Industrial types	Offices, factories, airbase
	Other	School
Road condition	Naturally occurring	Potholes, debris
	Human influence	No markings, debris

Five selected sites

Five sites were selected to pilot the created tool, these were (**Figure 2**):

- Jean and Rabie intersection
- Old Johannesburg Road
- Delmas Road and Hans Strijdom Road intersection
- Boeing Street and Hans Strijdom Road intersection
- Trichardt Avenue.

Figure 2: The two police stations used are shown here in blue with yellow stars, as well as the five sites, shown here with red dots with black stars (Original map taken from Google maps).

Most significant results from the site visits

Section	Factors	Variables	Percentage of sites visited
Intersection safety	Crossings	None	40
	Signage	Signage for pedestrians	20
		Signage for drivers regarding pedestrians	20
Traffic	Two-way traffic	Three lanes towards intersection	50
	Type of public transport	Buses	100
		Minibus taxis	100
Street design	Pavement	Present	20
	Pavement material	Sand	80
	Condition	Holes	70
		Rocky	80
	Obstructions on pavement	None	0
		Signs	80
		Cars	50
		Taxi stopping	90
	Curb type	Drop off present	70
	Lighting	Pedestrian lighting present	10
Road condition		Potholes present	60
Perceived safety	Surveillance	No surveillance	40
	Other	Open space or empty lots	90
		Presence of hawkers	60
		Presence of beggars	50

Figure 3: Lack of pedestrian facilities

Figure 4: Pedestrian waiting for public transport in an unsuitable environment

Figure 5: Pedestrians running across the road where no form of pedestrian crossing is present

Figure 6: Pavement with signage for drivers regarding pedestrians

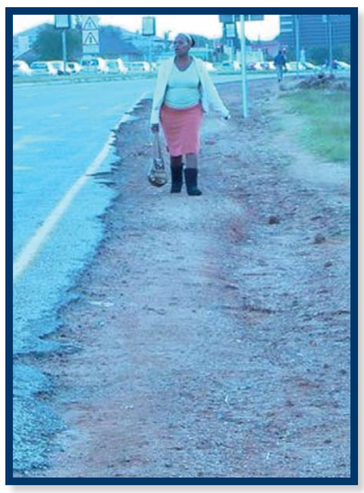

Figure 7: Poor pedestrian environment

A South African Pedestrian Environment Assessment Tool has been created and piloted as a first step towards a holistic approach to improve the pedestrian environment.

RECOMMENDATIONS

- The results from this pilot study are useful to conduct a full study of this nature
- Obtain more accurate and detailed accident data with regard to locations and all accidents not limited to fatalities
- Include night time assessments
- Better safety for researchers during day and night
- Test intra- and interrater reliability.

CONCLUSION

- Showed the use and need for a Roadside Environment Assessment Tool as created in this study
- This tool is the first of its kind in South Africa – a future study could modify and expand the tool to make it more effective
- Need holistic approach with environmental and behavioural factors for better protecting pedestrians.

ACKNOWLEDGMENTS

Road Traffic Management Corporation

REFERENCES

1. Road Traffic Management Corporation. 2008. Road Traffic Report March. [online]. Available <http://www.arivealive.co.za/documents/march_2008_-_Road_traffic_report_-_march_2008.pdf > [accessed 03/04/2009]

K-8106 [www.kashan.co.za]