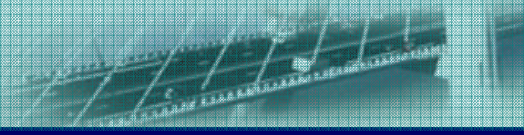




WORLD ROAD ASSOCIATION
ASSOCIATION MONDIALE DE LA ROUTE



Pedestrians safety

ROAD SAFETY SEMINAR

PIARC/AGEPAR/GRSP

Lome, Togo

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Contents

- WHO's data
- Risk factors
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Source: WHO



WHO reports that...

- 1,2 million people are killed on roads every year and up to 50 million more are injured.
- If current trends continue, the number of people killed and injured on the world's roads will rise by more than 60% between 2000 and 2020.



WHO reports that...

- Most of these injuries will occur in developing countries where more and more people are using motorized transport.
- In these countries, cyclists, users of public transport and pedestrians are especially vulnerable to road traffic injuries.



Pedestrians: Road vulnerable users

- Pedestrians are one of the road users that suffer most in road accidents.
- Pedestrians include people of all ages, children and elderly people, and some are disabled.
- Pedestrians, cyclists and motorcyclists are particularly vulnerable to road traffic injuries



Risk factors

- Visibility and speed are risk factors that contribute to road injuries
- Interventions are required to reduce these risks
- See and be seen is fundamental for the safety of everyone on the road



Pedestrian needs

- Pedestrians want and need safe access to all destinations
- Uncontrolled locations, intersections and mid-block locations
- Pedestrians must be able to cross streets and highways at regular intervals



Improving pedestrians safety

Several measures can be taken to improve conditions for pedestrians:

- Slowing vehicle speed
- Reducing and improving street crossing distance for pedestrians
- Improving the visibility of pedestrians and motorists
- Providing pedestrian facilities



Pedestrian facilities

- Pedestrian facilities attempt to balance the competing needs of pedestrians safety and vehicle movements
- Several measures can be implemented to assist pedestrian safety:
 - Roadside facilities
 - Crossing facilities
 - Design considerations
 - Special programs



Roadsides facilities

- Footways on urban roads
- Footways along rural highways
- Shoulders



Roadsides facilities in urban area...

- People should be able to walk in reasonable comfort and safety, as walking is an essential
- Roadside safety is achieved by separating modes of different speeds and vulnerabilities
- Footpaths should not be allowed to be used as parking space



Roadsides facilities in urban area...

- In some urban locations inadequate space for sidewalks forces pedestrians onto the roadway and create safety problems



Roadsides facilities in rural area...

- In rural area, there is a considerable risk for pedestrian due to the higher vehicle speed as well as the lack of pedestrian facilities
- In the roadside, pedestrians may feel exposed and vulnerable when walking directly adjacent to a high-speed travel lane



Roadsides facilities in rural area...

- Lower concentrations of pedestrians in rural areas
- But considerable risks exist due to higher vehicle speeds and the lack of pedestrian facilities



Roadsides facilities in rural area...

- The reliance on walking in developing countries often necessitates siting pedestrians footways on rural highways. They should be separate from the roadway by at least 3 m where possible and guardrails may need to be installed.



Roadsides facilities in rural area...



- The situation can be addressed by the provision of segregated footpaths



Source: Highway Agency

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Roadsides facilities in rural area...

- Adjacent footpaths to the carriageway on the hard shoulder
- Separated footpaths on a special way



Crossing facilities

- Pedestrian refuges
- Medians
- Safe intersections
- Marked crosswalks
- Traffic signal controlled pedestrians crossing
- Raised pedestrian crossings



Pedestrian refuges and medians

- A pedestrian refuge island is most useful in two-way streets with moderate or heavy traffic, and where pedestrians require frequent crossings.



Pedestrian refuges and medians

- The design of medians should be pedestrian-friendly and avoid introducing unessential obstacles



Safe intersections

- Minimize conflicts between modes
signal phasing, crosswalk, etc
- Minimize pedestrian exposure to
moving traffic
- Keep intersections easily and fully
comprehensible for all users
- Intersections provide the best
locations to control motorized traffic to
permit pedestrians crossing



Marked crosswalks

- Marked crosswalk are any portion of a roadway at an intersection or elsewhere distinctly indicated as a pedestrian crossing by lines on the surface (MUTCD)



Marked crosswalks

- Tell the pedestrian where to cross
- Tell the motorist to expect pedestrians at a particular location
- The design of the crosswalk must be easily understood, clearly visible and incorporate realistic crossing opportunities for pedestrians



Marked crosswalks



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Marked crosswalks

- Provide marked crosswalks:
 - at urban signalized intersections for all approaches of the intersection
 - across an approach controlled by STOP sign where judgment determines there is significant pedestrian activity and vehicle-pedestrian conflicts are important



Traffic signal controlled pedestrians crossing

- At signalized intersection and on busy multilane highways with significant volumes, traffic signals with pedestrian signals create a gap for pedestrians to cross intersections.
- Pedestrian signals are needed to ensure that a pedestrian knows when the signal phasing allows them to cross and when they should not be crossing.



Pedestrians signal



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Traffic signal controlled pedestrians crossing

- Signal allowing pedestrians to cross should be long enough to ensure that a pedestrian can fully cross the entire street
- 1,2 m/s walking speed is traditionally used



Raised pedestrian crossings

- Raised crosswalks raise the level of the pavement to the height of the curb.
- The grade change slows traffic
- The grade increases visibility and conspicuity at the intersection
- Not recommended on busy arterial streets



Where provide pedestrian facilities?

- Spot location problem -> one location
- Corridor problem -> several sequential intersections or along a corridor
- Targeted area problem -> area where problems are similar throughout (commercial or business district, school)



Design considerations

- Visibility
- Lighting
- Guardrails



Visibility

- Marked crosswalks
- Advance warning signs
- Additional lighting
- The use of daytime running lights on vehicles



Lighting

- In poor lighted areas, illumination greatly increases the motorists's ability to see pedestrians walking along the road
- Lighting can reduce nighttime accident
- Pedestrian crossings should have adequate lighting



Guardrails

- Used to direct pedestrians towards safe crossing and to prevent pedestrians from crossing at locations deemed particularly hazardous
- Should be of adequate height and design to prevent pedestrians from climbing over



Programs

■ Enforcement

- Priority assigned to pedestrians facilities must be enforced
- Otherwise, facilities offer only a misleading sense of priority and a false sense of security
- Willingness to enforce driver observance is essential



Programs

■ Education

- Implement pedestrian and drivers education program
- Install initiatives to enhance pedestrian safety
- Things to remember as a driver



Conclusions

- Motor vehicle growth
- Larger and faster motor vehicles
- Lack of priority and attention given to pedestrians movements
- Lack of any simple and effective measures for pedestrian safety
- A practical approach to improving pedestrian safety is needed



Conclusions

- Enforcement and publicity campaigns designed and timed to complement and coincide with engineering improvement measures.
- Strategy must be considered for the development of pedestrian facilities and the improvement of pedestrians safety: Immediate Action and Long-term Action



Conclusions

- Immediate Action:
 - Knowing pedestrian problem areas
 - Conflict areas need to be addressed in a realistic manner
 - Planning pedestrians facilities, education program and enforcement



Conclusions

- Long-term Action
 - Development of safe networks for pedestrians use
 - Definition of a road classification system
 - Monitoring of pedestrians facilities



Thank you
for your attention!