



*Nordisk trafikksikkerhetsforum 2014*

# Pedestrian Priority and Safety at Crosswalks

Hörður Bjarnason  
[hb@mannvit.is](mailto:hb@mannvit.is)

# *The Beginning*

- 17<sup>th</sup> of June 2010...



Njarðargata – Sóleyjargata in Reykjavík

# *Icelandic Legislation*

Comparison with foreign legislation, shows clearly the priority for pedestrians:

- At traffic lights
- When a driver turns and crosses the path of a pedestrian at intersections
- At legally marked pedestrian crosswalks

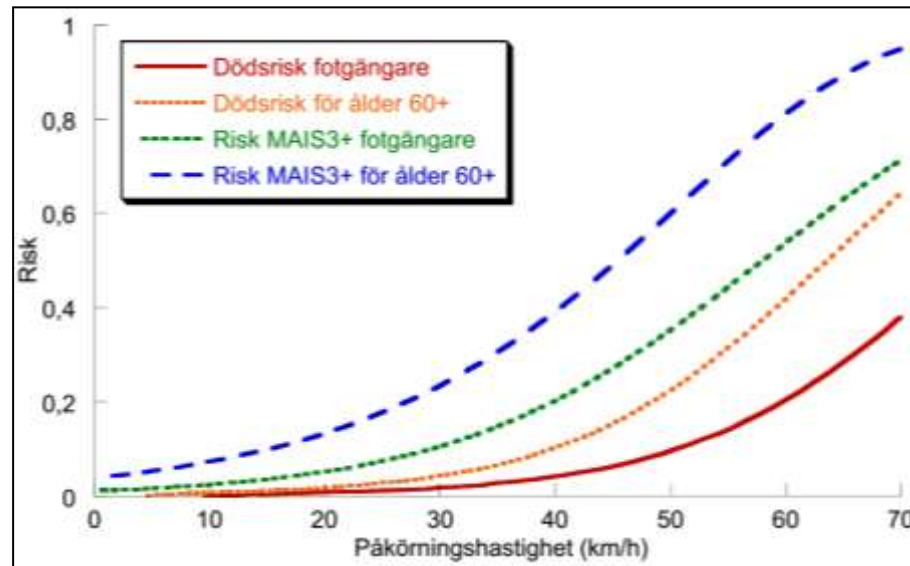
# *Icelandic Legislation*

- Legal crosswalks /zebra crossings with pedestrian priority shall always include signs AND surface markings



# Traffic Safety

- Vehicle speed has a major impact on the number and severity of road accidents
- 20% risk of serious injuries for the elderly if the vehicle speed is 30 km/h at impact (blue line)
- 80% risk if the vehicle speed is 60 km/h



Reference:

Stigson, Helena & Kullgren, Anders. 2010.

*Fotgängares risk i trafiken. Analys av tidigare forskningsrön.*

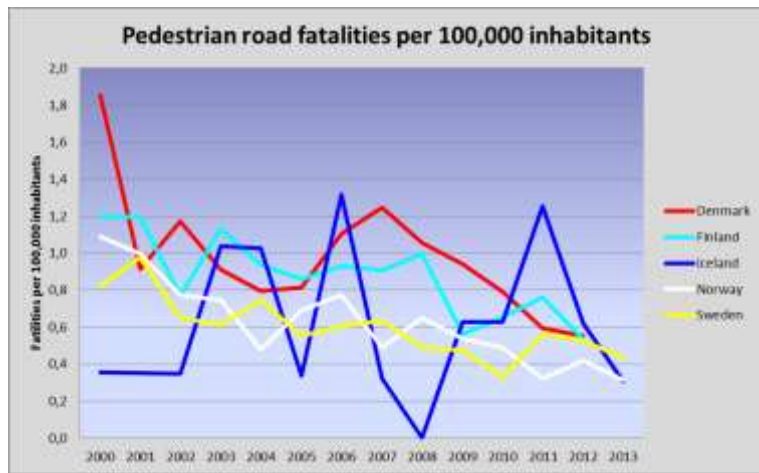
# Traffic Safety

- Local authorities have been focusing on ensuring safe routes to school
- Neighborhoods with 30 km/h speed limit have been systematically established
  - Accidents with injuries decreased by 27%
  - Serious accidents decreased by 62%



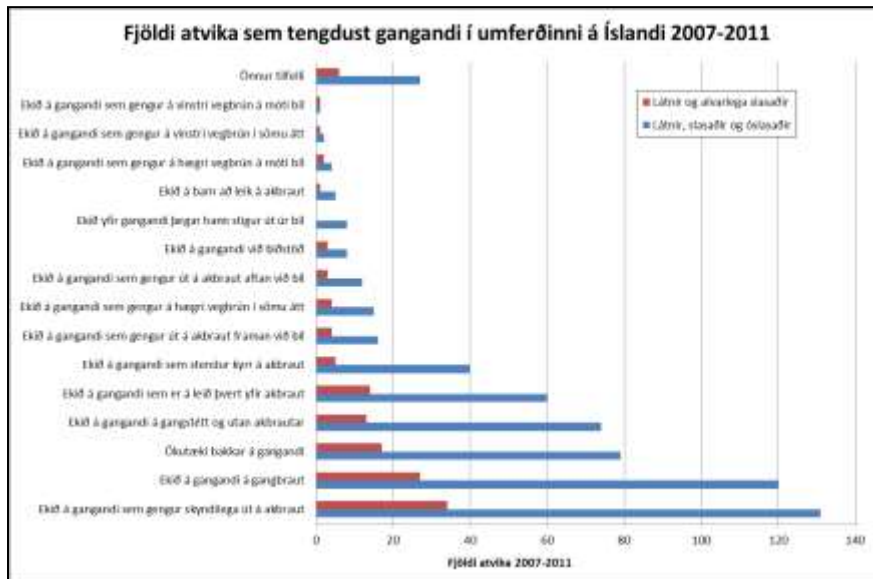
# Accident Statistics

- Examined the statistic for all pedestrian road fatalities
- Then added all injuries (serious and not serious)
  - Can be used to compare statistics in a broader context



# Types of Accidents

- „Pedestrian accidents at marked crosswalks“ are the second most common type of incidents where pedestrians are involved



⇒ Good reason to look closer into the pedestrian situation, safety and priority at crosswalks

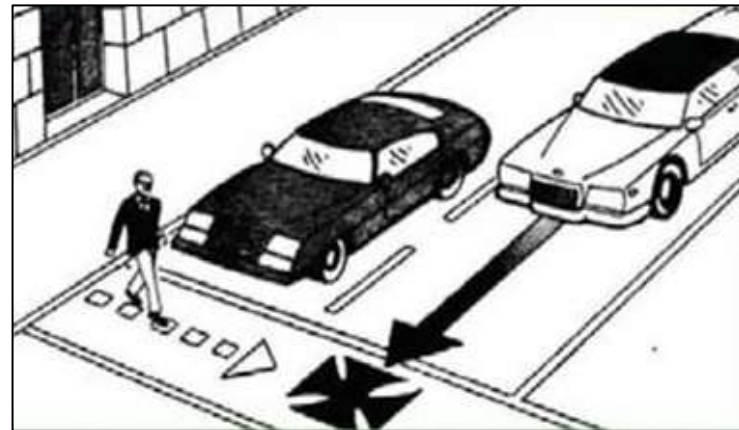


# Marked Crosswalks

- Research results show that the safest thing is to use marked crosswalks along with other speed limiting measures
- A recent study from USA showed that on two-lane roads (one lane in each direction) there was no difference in pedestrian crash rate for marked and unmarked crosswalk
- The study also showed that for a marked crosswalk over multi-lane roads with AADT over 12,000 the pedestrian crash rate is higher than for unmarked crosswalk

Reference:

Zegeer, C. V., Stewart, J. R., Huang, H. H., Lagerwey, P. A., Feaganes, J., & Campell, B. J. 2005. *Safety of Marked Versus Unmarked Crosswalks at Uncontrolled Locations*.



# Crosswalks – Multi-lane Roads



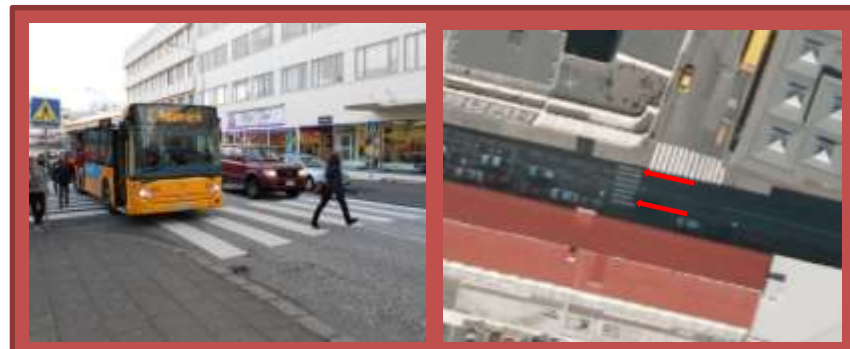
Fjarðahraun in Hafnarfjörður



Kalkofnsvegur in Reykjavík



Austurvegur in Selfoss



Laugavegur at Hlemmur, Reykjavík

# Crosswalks – Marked “line-crosswalks”

- No crosswalk sign - difficult to understand traffic situation
- This applies particularly when the “line-crosswalk” is being used without proper signs
  - Priority not clear
  - Can easily wear down
  - May disappear under snow
  - Possible that not everyone realize their meaning



# *Crosswalks – Unmarked*

- Many types of unmarked crosswalks
- Inconsistency between solutions
- In some situations the pedestrian believes he has priority
  - Who has the priority? The pedestrian or the driver?



# Crosswalks – Unmarked

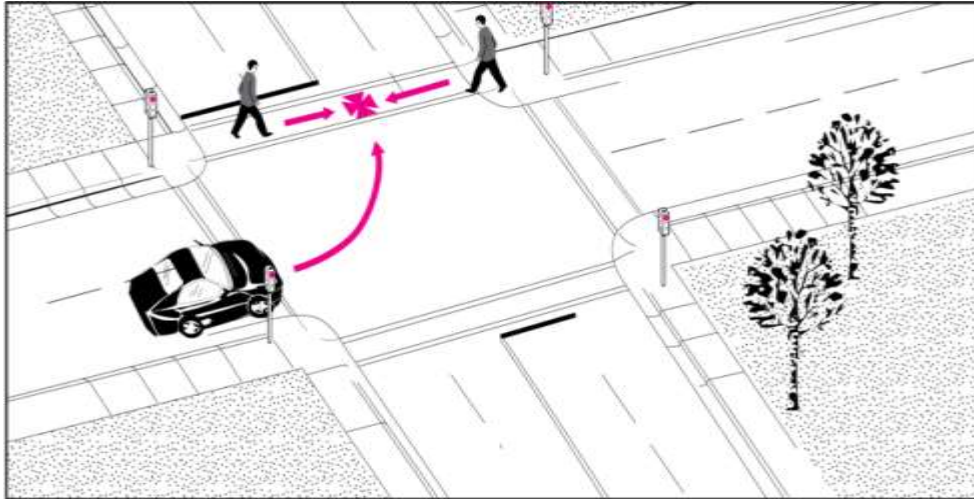
- For young children there is limited educational material what to do around unmarked crosswalks



- Important to ensure at least one legally marked crosswalk close to all schools

# Crosswalks – With Traffic Signals

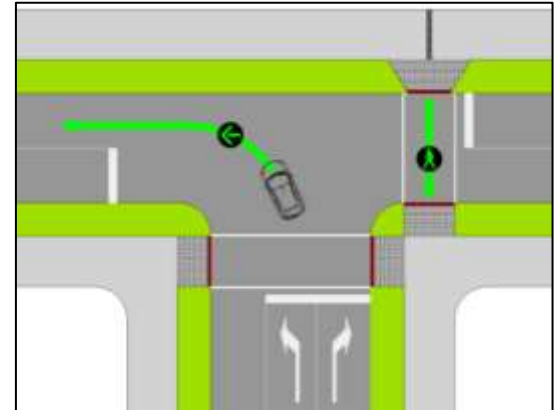
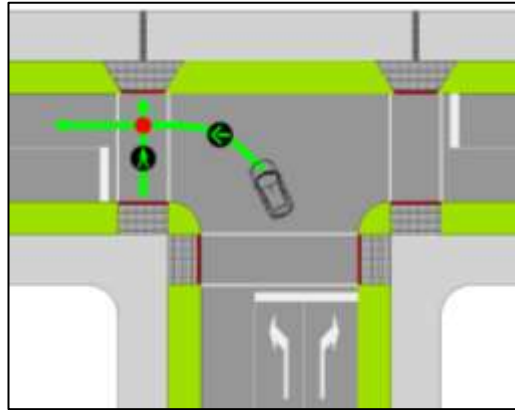
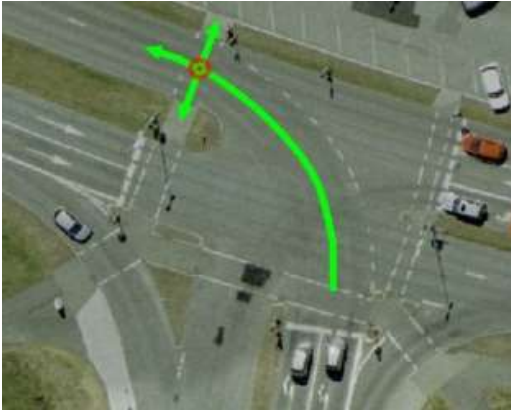
- Vehicles and pedestrians can cross simultaneously in some situations
  - Pedestrian signal turns red and the pedestrian is still crossing when the vehicle turns => conflict





# Crosswalks – With Traffic Signals

- Serious conditions when the turning light is green for vehicles at the same time the walking light is green for pedestrians
  - Change the signal phase to increase pedestrian safety
  - Eliminate the crosswalk at one side

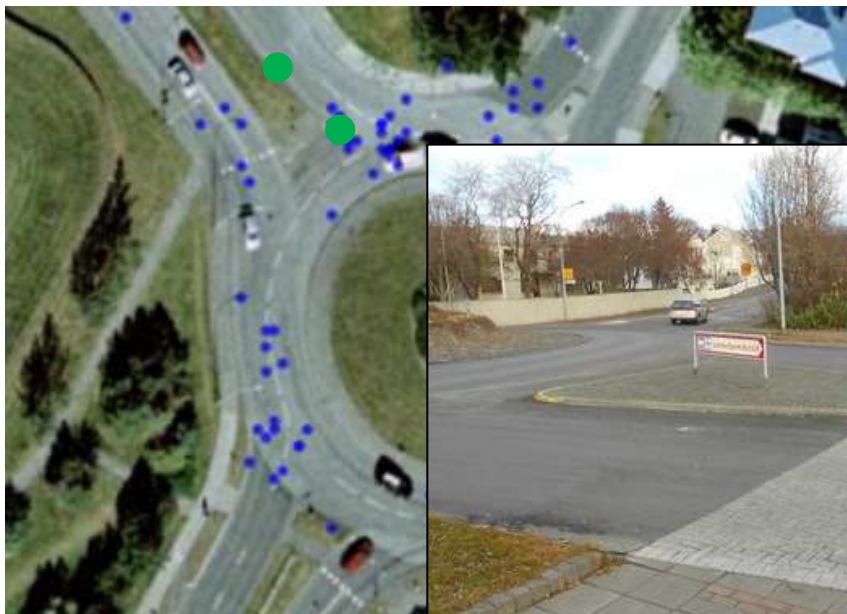


# *Crosswalks – Roundabouts*

- Inconsistency between municipalities in pedestrian marking
- Not clear whether the pedestrian has priority in roundabouts without crosswalk markings
- Avoid crosswalks across two or more lanes in the same direction



# Crosswalks – Roundabouts



## *Conclusions and next steps*

- Considerable differences between municipalities in planning and designing crosswalks
- Some grey areas where the status and priority of the pedestrian is not clear
- Important that transport authorities coordinate measures and make instructions for crosswalk planning and design
- => Work regarding uniform instructions underway with The Icelandic Road and Coastal Administration, Icelandic Transport Authority, the Police, Icelandic Association of Local Authorities and two engineering companies (Mannvit and Efla)

