

14th International Road Safety Conference

GAMBIT 2023

NEW DECADE - NEW ACTIVITIES - NEW TECHNOLOGIES

Gdańsk University of Technology, 29-31 May 2023



HONORARY PATRONAGE



MEDIA PATRONAGE



WORKSHOP ORGANIZERS



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Road Safety Conference**

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Comparison of Design Guidelines for Pedestrian Crossings in different European Countries

Porównanie wytycznych projektowania przejść dla pieszych w różnych krajach europejskich

Julius Uhlmann – Bauhaus-Universität Weimar

Tomasz Mackun - Politechnika Gdańska

**Bauhaus-
Universität
Weimar**

Motivation – Foto Safari

Motywacja – Foto Safari

Gdańsk, Poland

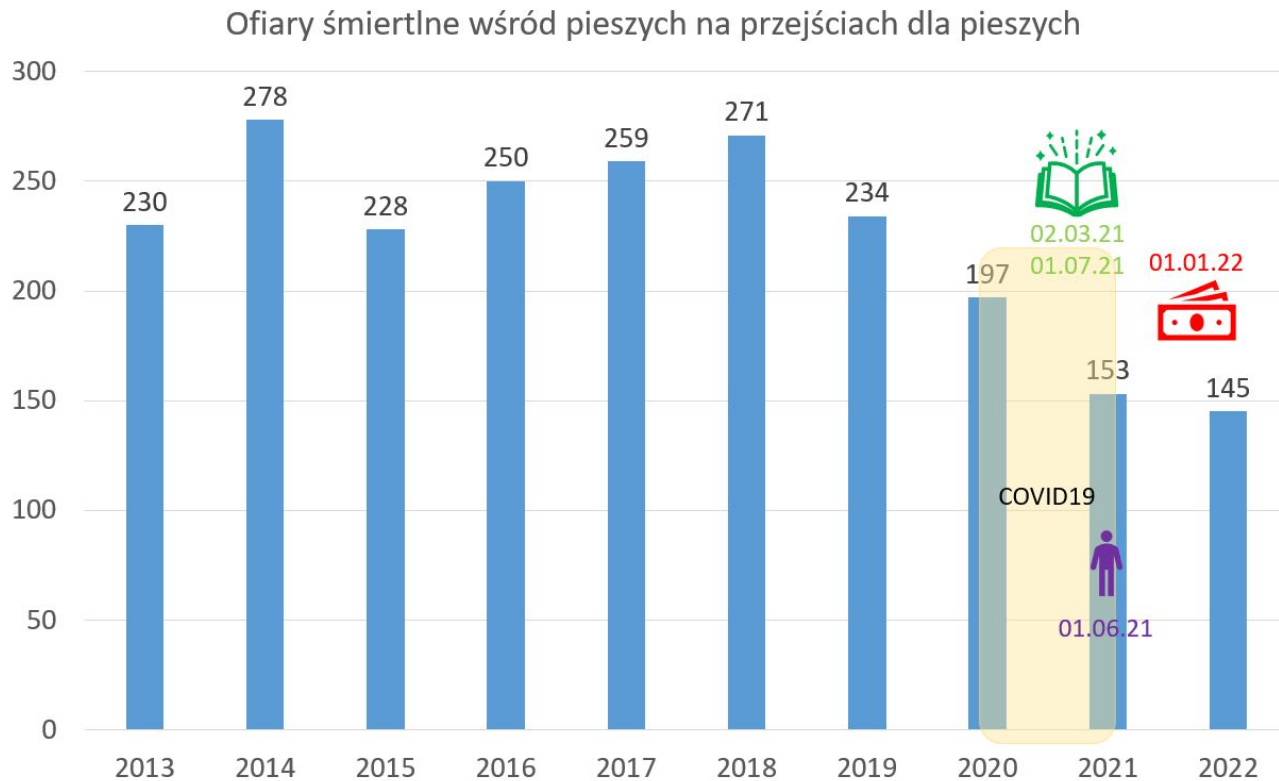


Trieste, Italy

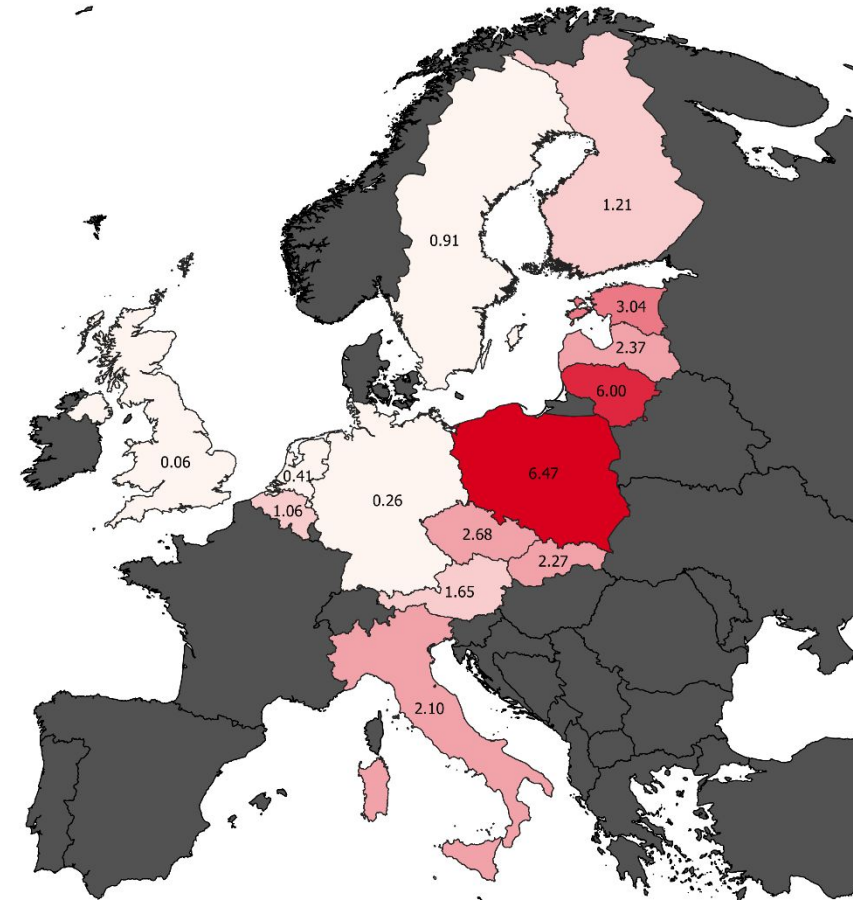


Motivation – Accident data

Motywacja – Zdarzenia drogowe



Fatalities at pedestrian crossings in Poland,
2013-2022



Fatalities at pedestrian crossings per 1
million inhabitants 2015-2017

Countries and standards compared

Krajowe standardy (i przepisy)

Austria	RVS 03.02.12 Fussgängerverkehr
Czechia	Projektování místních komunikací ČSN 736110
Denmark	Krydsninger mellem stier og veje
Germany	Richtlinie für die Anlage von Fußgängerüberwegen
Latvia	Gājēju pāreju projektēšanas noteikumi
Lithuania	Įsakymas dėl pėsčiųjų perėjimo per kelius ir gatves organizavimo taisyklių patvirtinimo
Norway	Veg- og gateutforming
Poland	Wytyczne projektowania infrastruktury dla pieszych Część 3: Projektowanie przejść dla pieszych
Sweden	KRAV - VGU, Vägars och gators utformning RÅD - VGU, Vägars och gators utformning

Criteria for comparison

Kryteria porównawcze

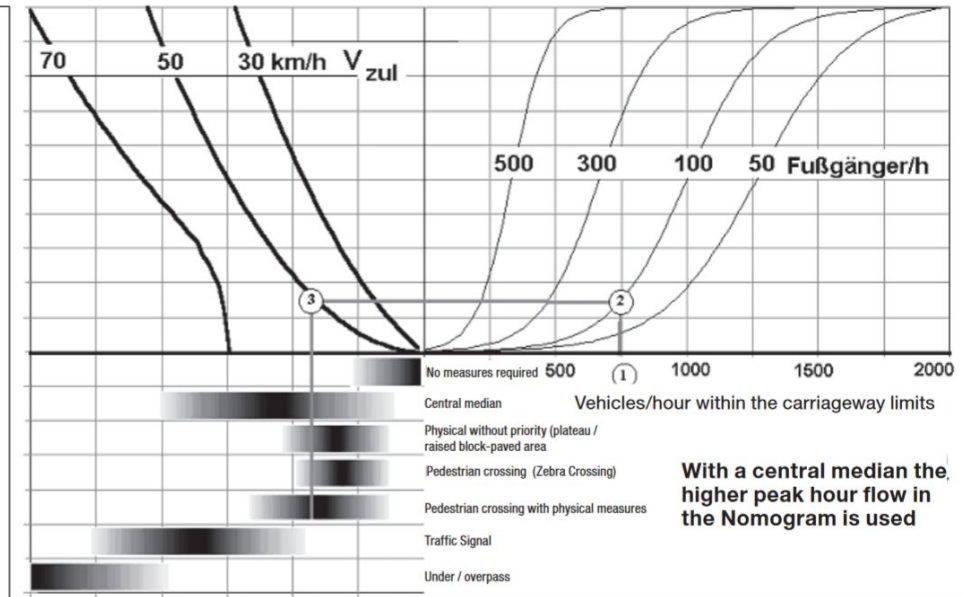
- Speed limit
- Maximal numbers of lanes per direction
- Is a refuge island mandatory?
- Volume of cars allowed
- Volume of pedestrians allowed
- Visibility requirements
- Pedestrian crossing in 30-zone

Speed Limit

Dopuszczalna prędkość maksymalna

Country	Speed limit (km/h)
Austria	v ₈₅ < 55
Czechia	50 (70)
Denmark	50
Germany	50
Latvia	50
Lithuania	50
Norway	50
Poland	50
Sweden	40/30 (recommended)

Indicative limits:
 1) 750 veh / h peak hour in cross-section
 2) 100 pedestrians in the peak hour
 3) Speed 50 km / h
 Choice of provision:
 a) Median separation (island or strip).
 With peak hour load in one direction: No further measures
 b) Any traffic construction measure without precedence; (plateau / raised block-paved area
 c) Pedestrian Crossing
 d) pedestrian crossing with physical measure



Source: Richtlinie für die Anlage von Stadtstraßen (RASt), English Edition

Lanes per direction

Maksymalna liczba pasów w jednym kierunku

Country	Maximal lanes per direction
Austria	1
Czechia	1
Denmark	Not regulated
Germany	1
Latvia	1
Lithuania	2
Norway	Not regulated
Poland	1
Sweden	1



Vilnius, Lithuania

Refuge island mandatory

Obligatoryjność wyspy azylu

Country	Refuge island mandatory
Austria	No
Czechia	from a specific load upward
Denmark	No
Germany	No
Latvia	No
Lithuania	No
Norway	No
Poland	No
Sweden	Recommended

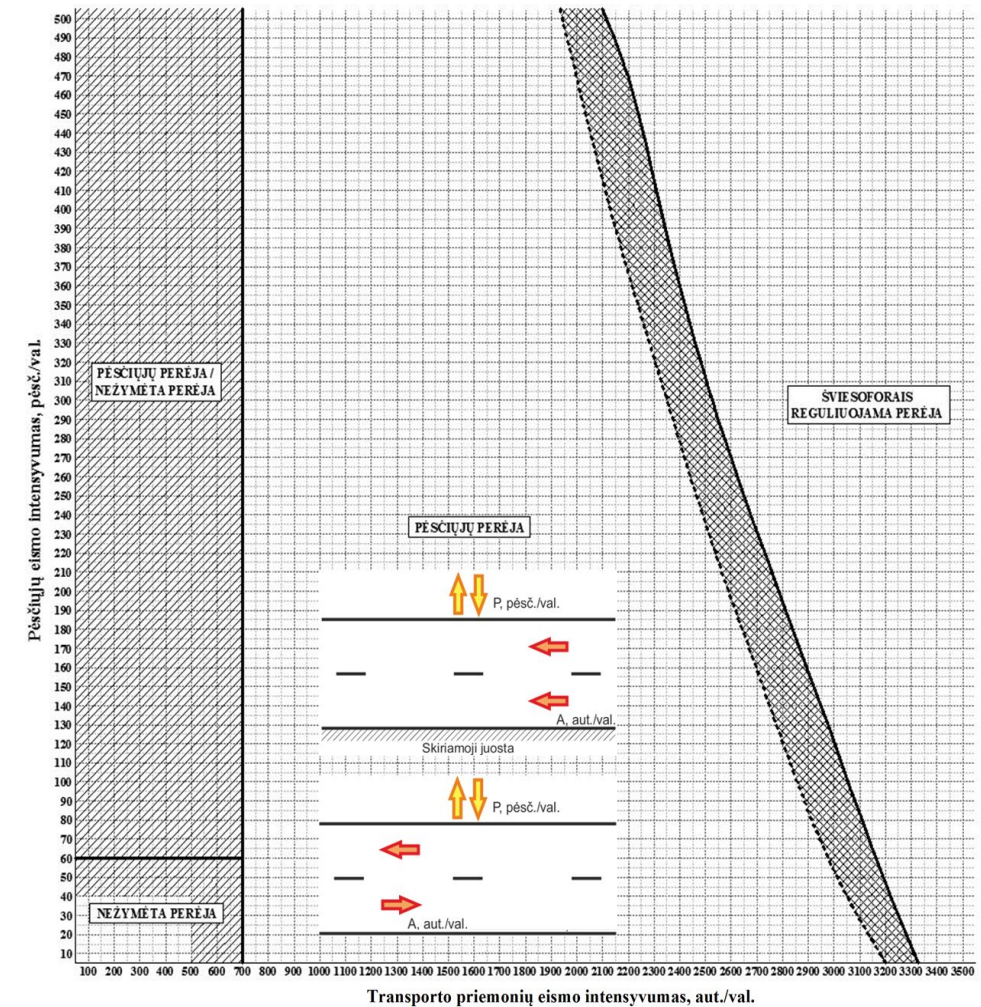


Erfurt, Germany

Volume of cars

Natężenie pojazdów

Country	Volume of cars	Nomogram
Austria	>75 car/h	Yes
Czechia	>75 car/h	Yes
Denmark	not regulated	No
Germany	200-750 car/h	No
Latvia	0-500 car/h	Yes
Lithuania	0-3100 car/h	Yes
Norway	>200 car/h	No
Poland	>35 car/h – 50 km/h + no refuge Island >65 car/h – 50 km/h + refuge Island >100 car/h – 30 km/h + no refuge Island >200 car/h – 30 km/h + refuge Island	Yes
Sweden	not regulated	No

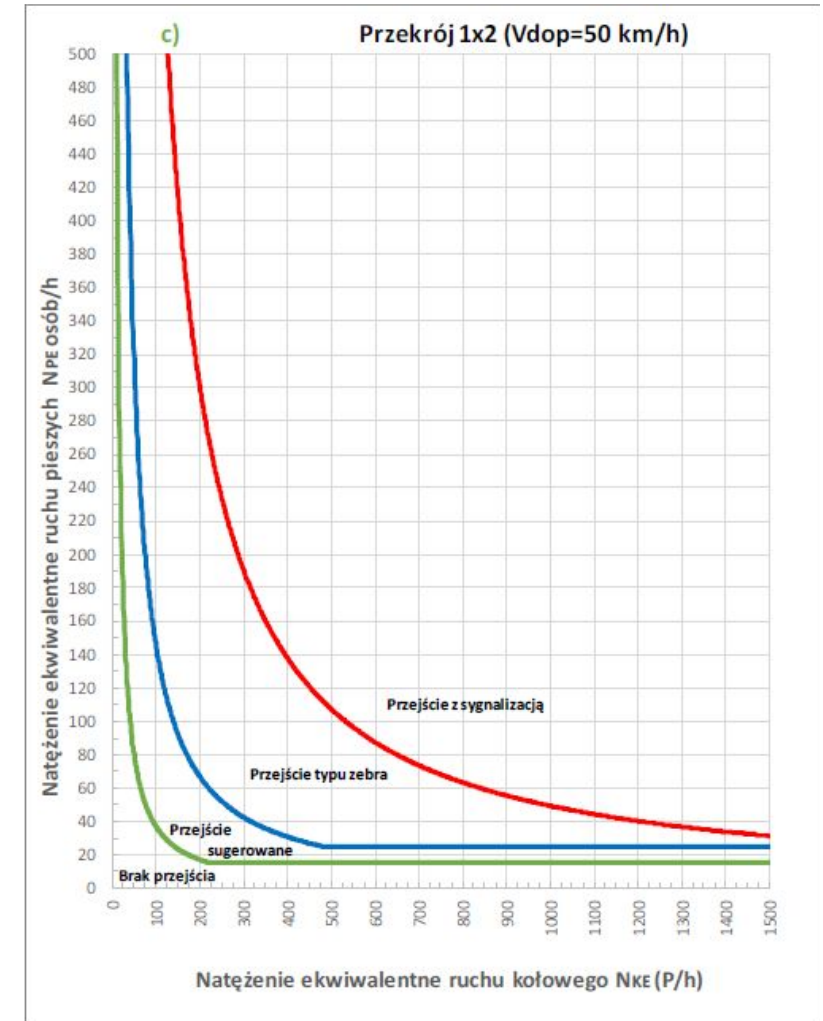


Source: Įsakymas dėl pėsčiųjų perėjimo per kelius ir gatves organizavimo taisyklių patvirtinimo

Volume of pedestrians

Natężenie pieszych

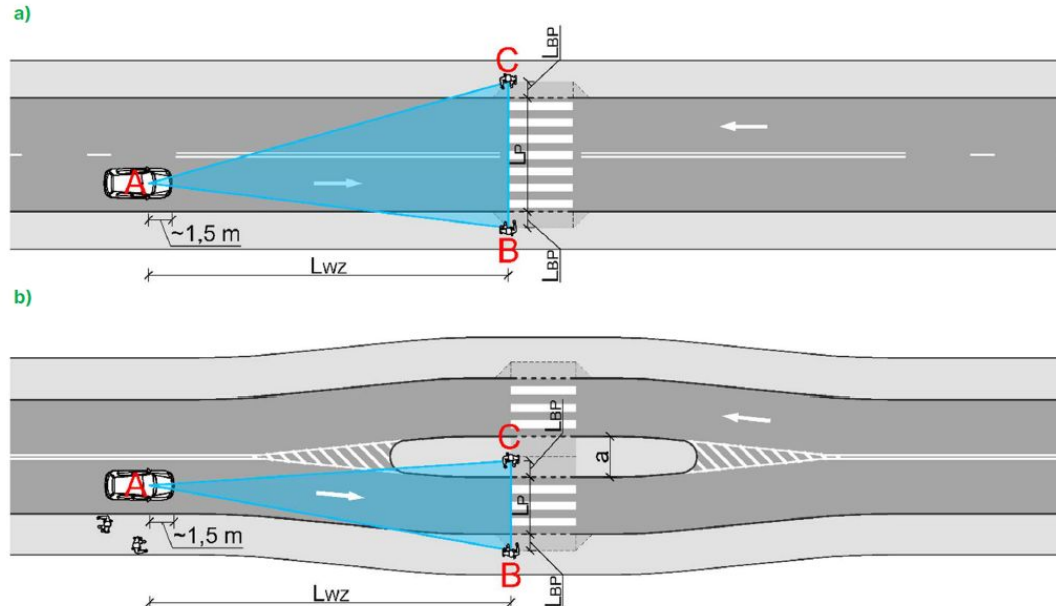
Country	Volume of pedestrians	Nomogram
Austria	>25 ped/h	No
Czechia	>50 ped/h	No
Denmark	Not regulated	No
Germany	50-150 ped/h	No
Latvia	50-300 ped/h	Yes
Lithuania	0-550 ped/h	Yes
Norway	>20 (>10 if more than 800 cars) ped/h	No
Poland	>25 ped/h – 50 km/h + no refuge island >30 ped/h – 50 km/h + refuge island >35 ped/h – 30 km/h + no refuge island >40 ped/h – 30 km/h + refuge island	Yes
Sweden	Not regulated	No



Source: Wytyczne projektowania infrastruktury dla pieszych Część 3: Projektowanie przejść dla pieszych

Visibility requirements

Wymagania widoczności



Rys. 9.2.1.1. Pole widoczności pieszego z punktu widzenia kierującego pojazdem na przejściu dla pieszych:
a) z zwykłym, b) z wyspą azylu

$$L_{WZ} = \frac{T_{RK} \cdot V_{od}}{3,6} + \frac{V_{od}^2}{26 \cdot (d \pm 0,1 \cdot i)} + 1,5$$

Source: Wytyczne projektowania infrastruktury dla pieszych Część 3: Projektowanie przejść dla pieszych

Speed limit (km/h)	20	30	40	50	55
Austria (v85)	10 m	20 m	30 m	45 m	52m
Czechia		30 m	35m	50 m	
Denmark	43 m				
Germany		30 m		50 m	
Latvia	40-50 m (depending on gradient)				
Lithuania		30 m	40 m	50 m	
Norway		24 m	36 m	54 m	
Poland		28 m	40 m	56 m	
Sweden	30 m				

PC in 30 km/h zone

Strefa ograniczonej prędkości 30 km/h

Country	PC in 30km/h zone
Austria	Yes
Czechia	No
Denmark	Yes
Germany	No
Latvia	No
Lithuania	Yes
Norway	No
Poland	Yes
Sweden	Yes



Stuttgart, Germany

Conclusion

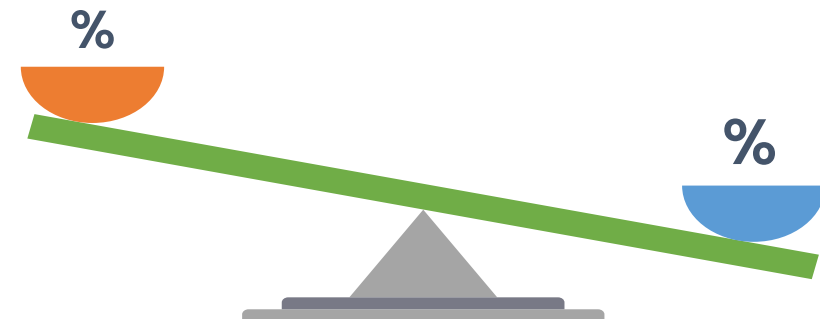
Podsumowanie

- A general consensus can be seen:
 - Speed 50 km/h or less
 - One lane per direction
 - Visibility 10 m per each 10 km/h speed limit
- The guidelines and the reality can be two pair of shoes
 - If the standards are rather new (as in Poland) there are a lot of older crossings

Polish standard before and after changes

Polskie standardy przed i po zmianach

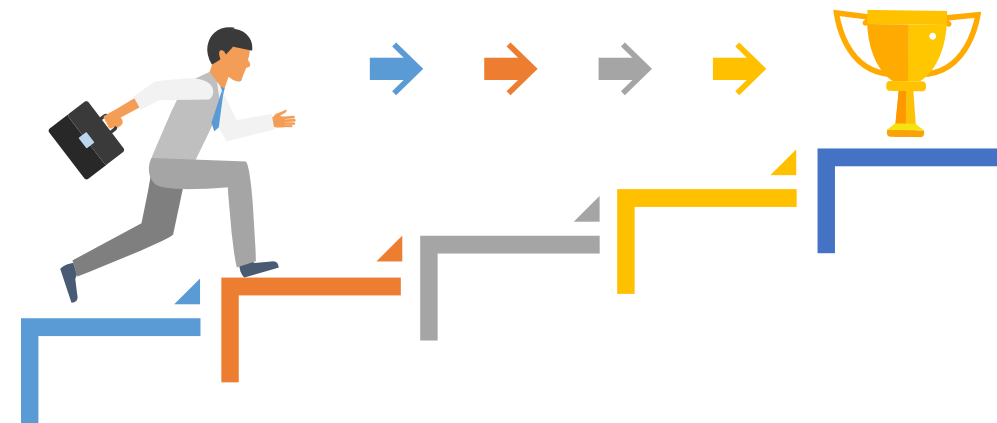
Criterion	Before	After
Speed limit	No rules (even 90 km/h)	50 km/h
Maximal numbers of lanes per direction	3 (crossroads), no limit (midblock)	1
Refuge island mandatory (50 km/h)	No	No
Volume of cars allowed	No	Yes
Volume of pedestrians allowed	No	Yes
Visibility requirements	Only zebra area – stopping distance (outside build up area)	Yes
Suggestion pedestrian crossing	No	Yes
School crossing rules	No	Yes (strict rules)
Pedestrian crossing lighting	No rules	Obligatory



Challenges: PC design standards in Poland

Wyzwania: Standardy projektowania

- Designing on the basis of the Road Traffic Act or „Red Book” (signs and marking) ???
- Rules for zoning suggested pedestrian crossings
- The procedure (including technical solutions) for replacing the pedestrian crossing with a suggested crossing or liquidation
- Parking in the area suggested for pedestrian crossings



Contacts

Julius Uhlmann – Bauhaus-Universität Weimar

julius.uhlmann@uni-weimar.de

www.uni-weimar.de/vsp

IG: @european.zebra

Tomasz Mackun - Politechnika Gdańska

tomasz.mackun@pg.edu.pl