



Drogi zaufania

# ZWIĘKSZANIE POTENCJAŁU NA RZECZ BEZPIECZEŃSTWA RUCHU DROGOWEGO

## BUILDING ROAD SAFETY CAPACITY



**INFRASTRUKTURA  
I ŚRODOWISKO**  
NARODOWA STRATEGIA SPÓJNOŚCI



Generalna Dyrekcja  
Dróg Krajowych i Autostrad

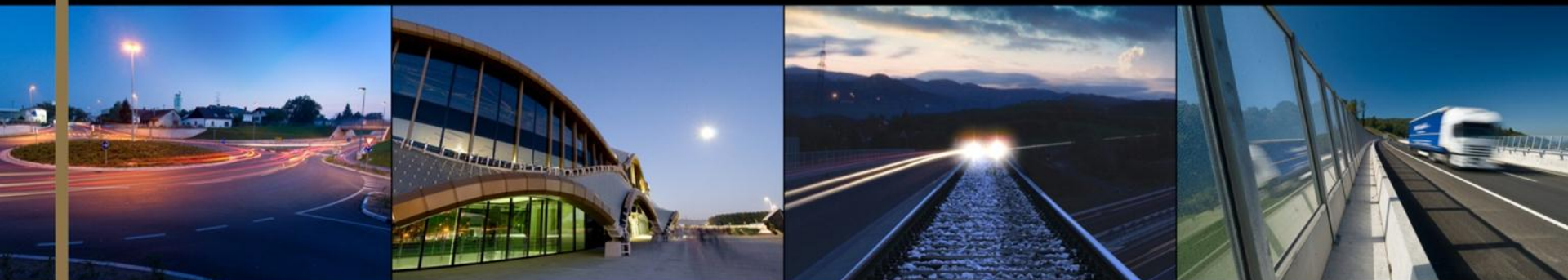
**UNIA EUROPEJSKA**  
EUROPEJSKI FUNDUSZ  
ROZWOJU REGIONALNEGO





**DRI upravljanje investicij, Družba za razvoj infrastrukture, d.o.o.**  
(DRI Investment Management, Company for Development of Infrastructure Ltd.)

Kotnikova ulica 40 | SI-1000 Ljubljana  
dri@dri.si | www.dri.si



# Road Safety Audit in Slovenia

*Uroš Brumec, BSc TT*

# RSA / RSI in Slovenia

In this presentation will be presented problems that professionals come upon, when dealing with “Black Spots” and emphasize the meaning of proper **R**oad **S**afety **A**udit and **R**oad **S**afety **I**nspection.

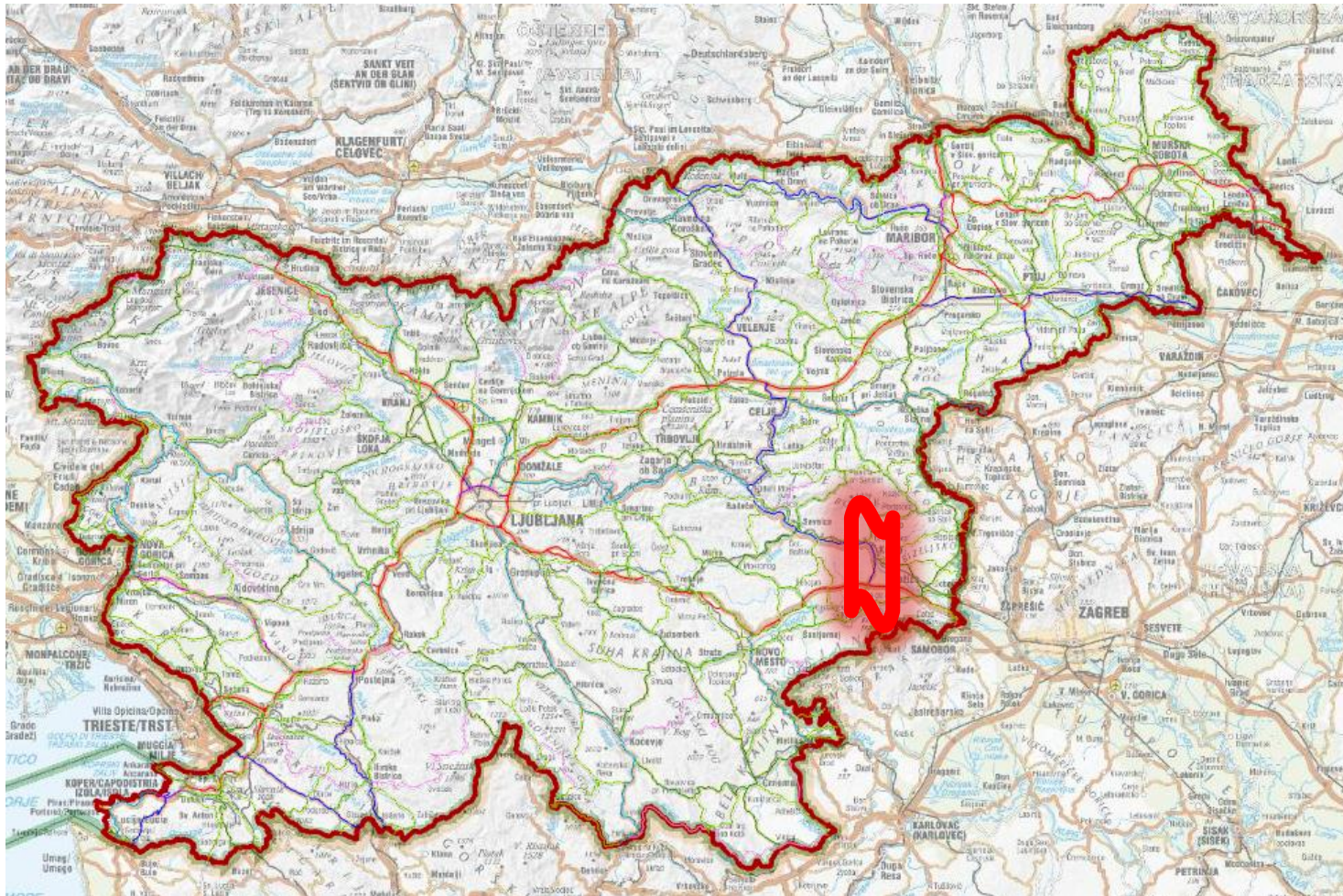
We (Road Safety Professionals) are in general well familiar with EU Directive on road infrastructure safety management.

On that matter we can find numberless of Manuals, Guidelines, papers, presentations etc., but what (we think) we know is whole another story. Sadly we must admit ourselves and to others that theory is far from real knowledge of road safety and its concept. Reality is shown on the roads from the design stage to construction and management of roads.

In Slovenia RSA/RSI is done only on TEN-T Roads (10th and 5th EU corridor) and those roads are motorways under direction of Motorway Company of Slovenia. State roads are under direction of Slovenian Roads Agency and other (municipality) roads are under direction of over 200 municipalities. So the most dangerous roads (as we know motorways are the most safe) are not submitted to RSA/RSI process.

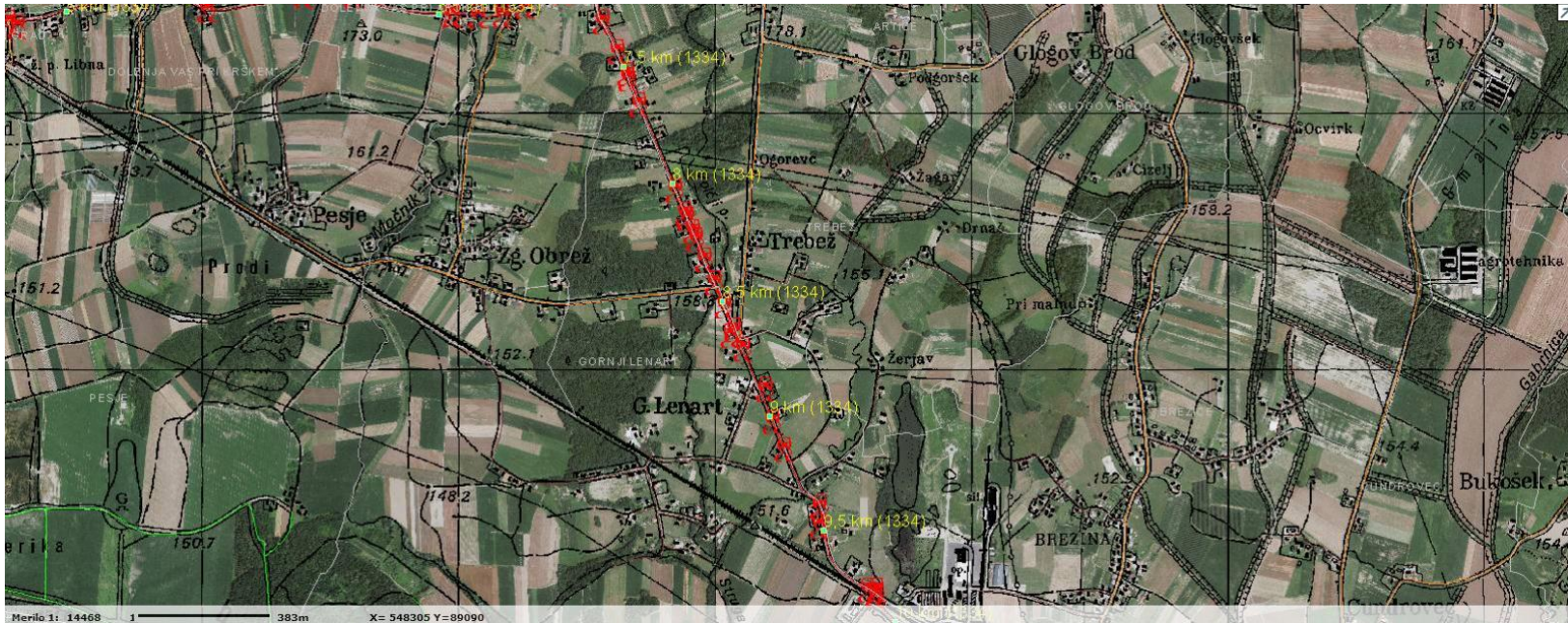


# Example of insufficient data





# Data from Slovenian Roads Agency



20 accidents on section of the road



# Data from Slovenian Traffic Safety Agency



3 accidents on section of the road



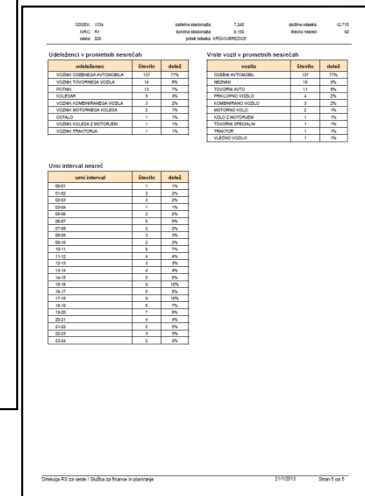
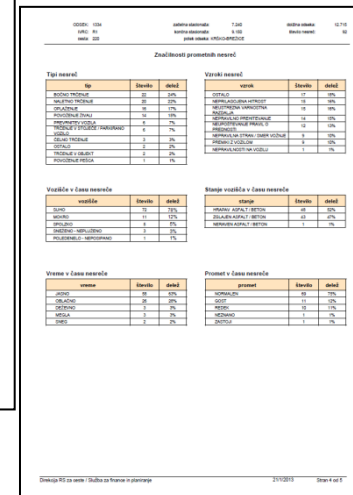
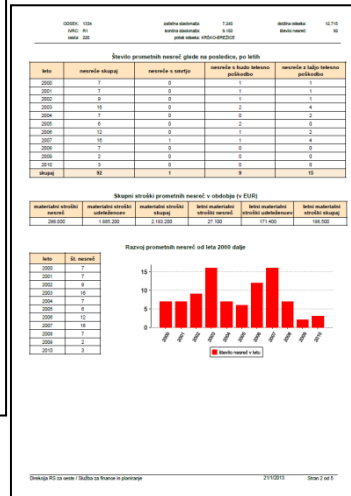
# Data from the police



11 accidents on section of the road



What is „interesting“ is that all data should be based on police reports ??



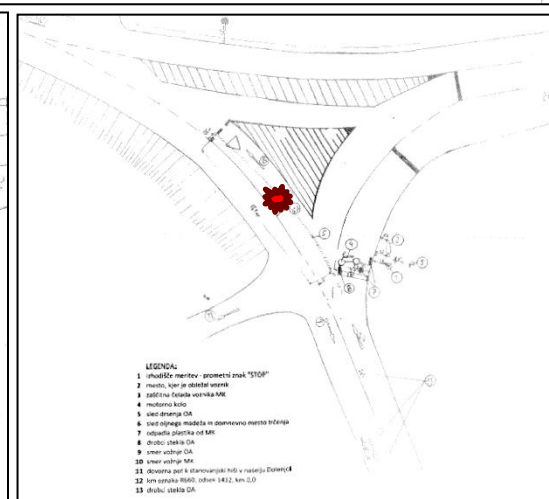
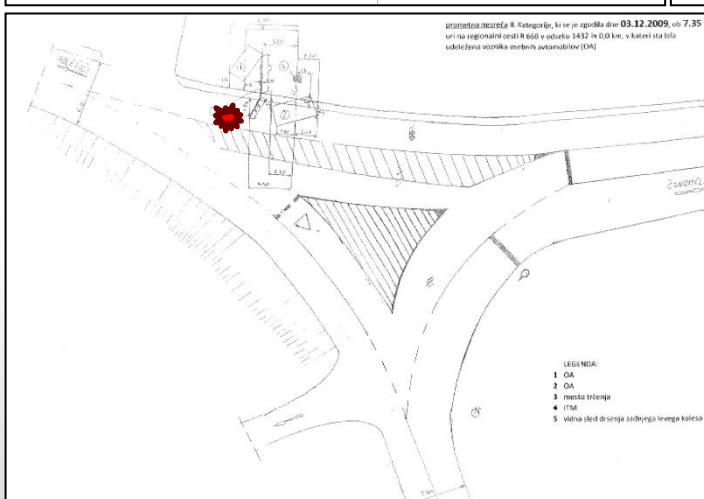
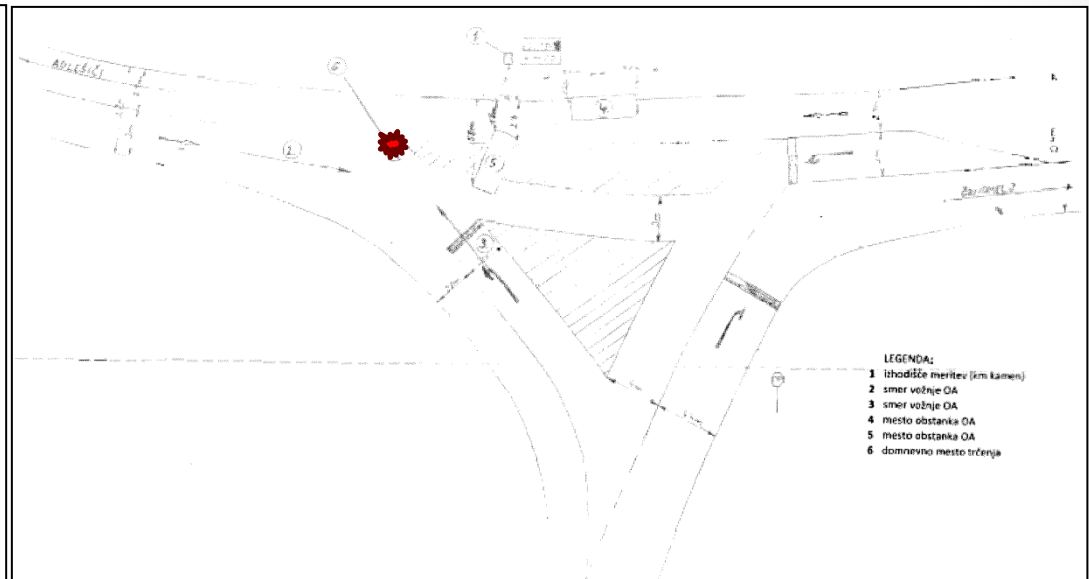
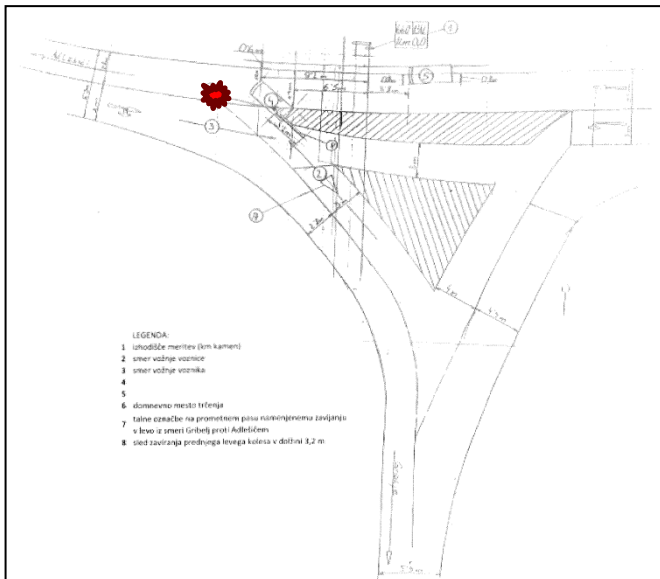
# Case Study „Dolenjci“

- 5 accidents (from 2005 to 2009), 1 fatal accident (2008), 1 accident per year, no accidents reported prior
- Methodology – Black Spot
- Available data:
  - Type: 3 side impacts, 2 frontal impacts
  - Road surface: dry in all cases  
Skid resistance: poor
  - Weather: clear (4), fog (1)
  - Time interval (h): 13-14 (2), 10-11 (1), 07-08 (1), 02-03 (1)
  - Cause: right of way (4), side /direction of travel (1)
  - People involved: car drivers (9), passenger (1), motorcyclist (1)

Using available data, you can't connect (correlate) those information with/to individual accident!



# Police sketches of accidents

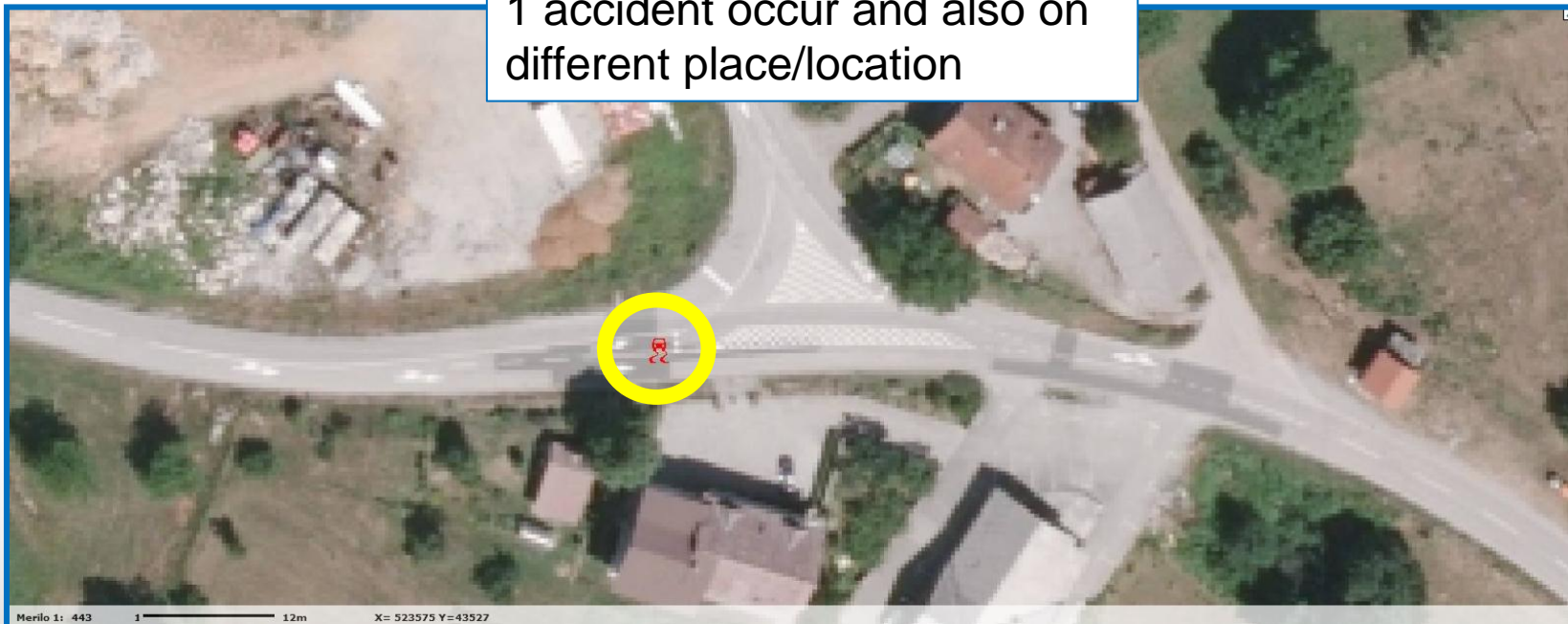
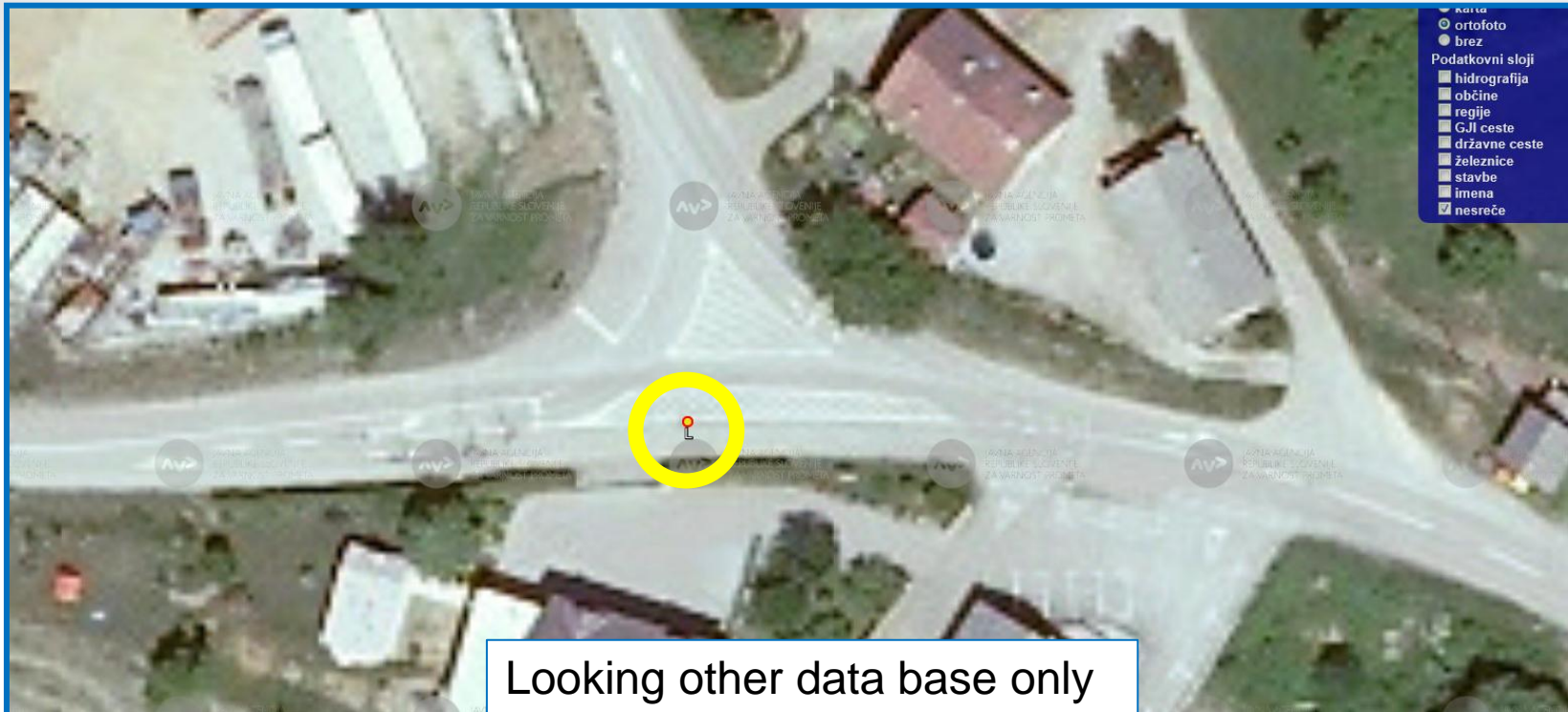


Very hard to get!

# Accidents from police data





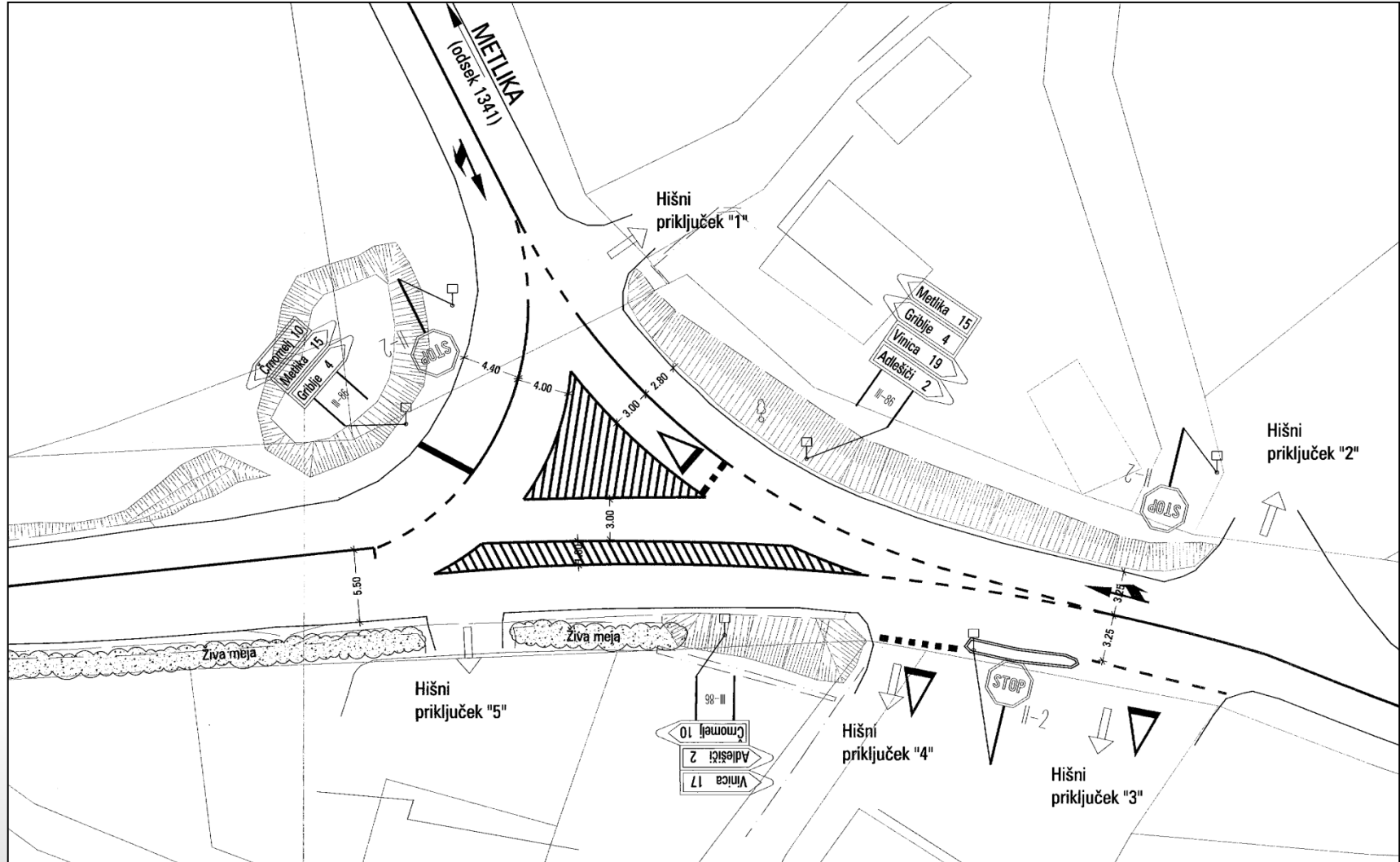


# Study (designers' „know-how“)



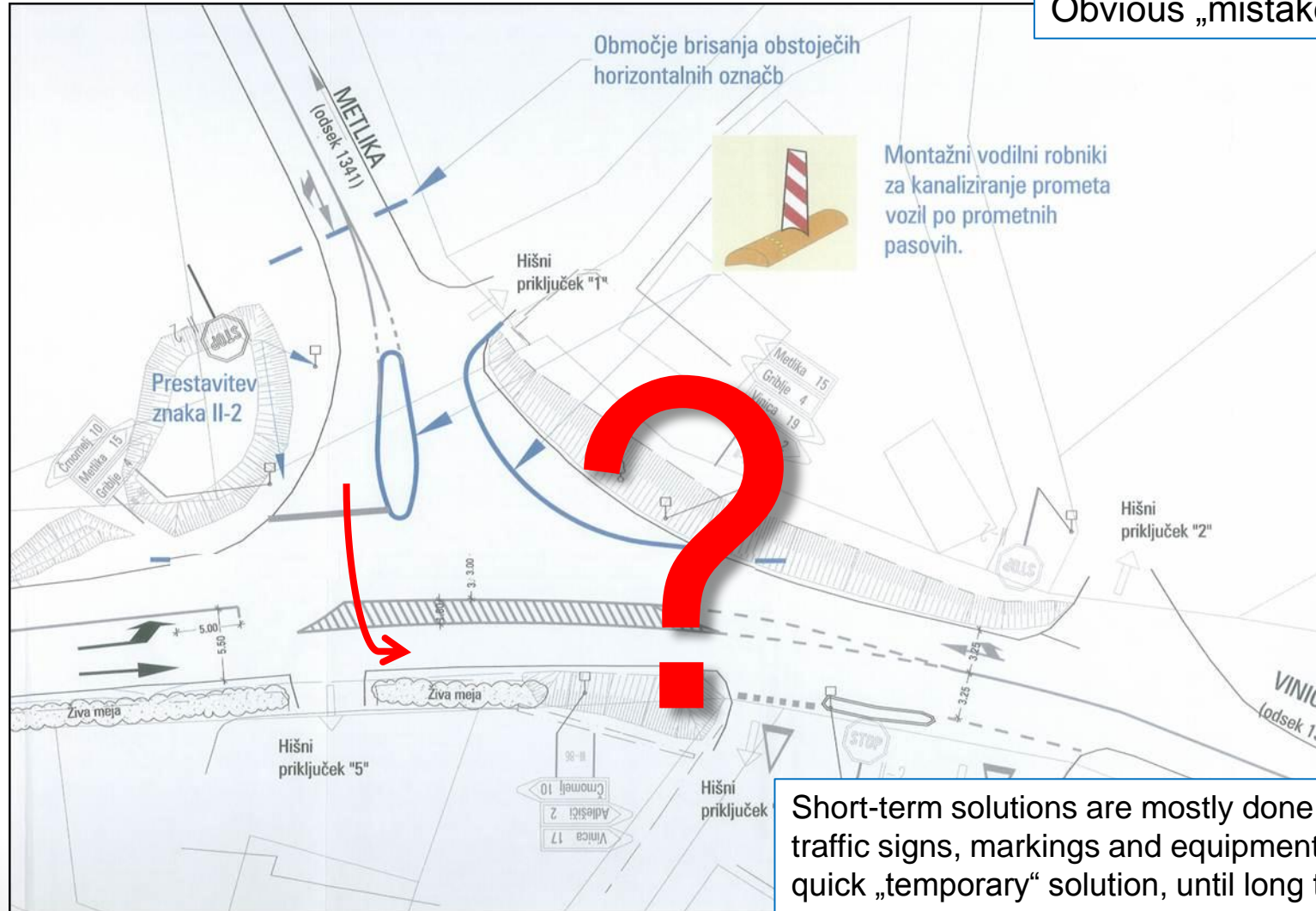


# Existing situation



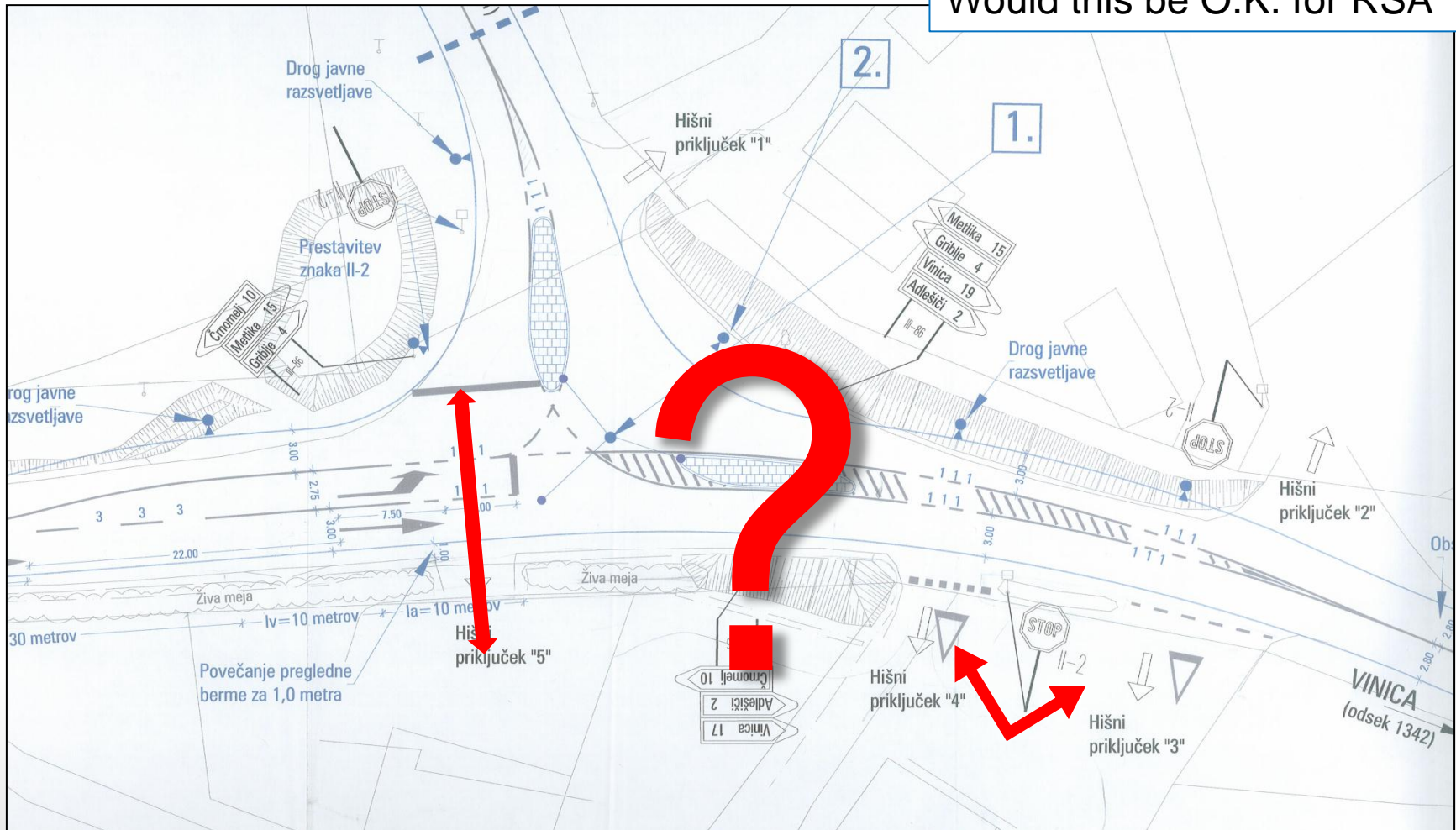
# Proposed short term solution

Obvious „mistake“



Short-term solutions are mostly done by traffic signs, markings and equipment – quick „temporary“ solution, until long term solution is designed and build.

Would this be O.K. for RSA





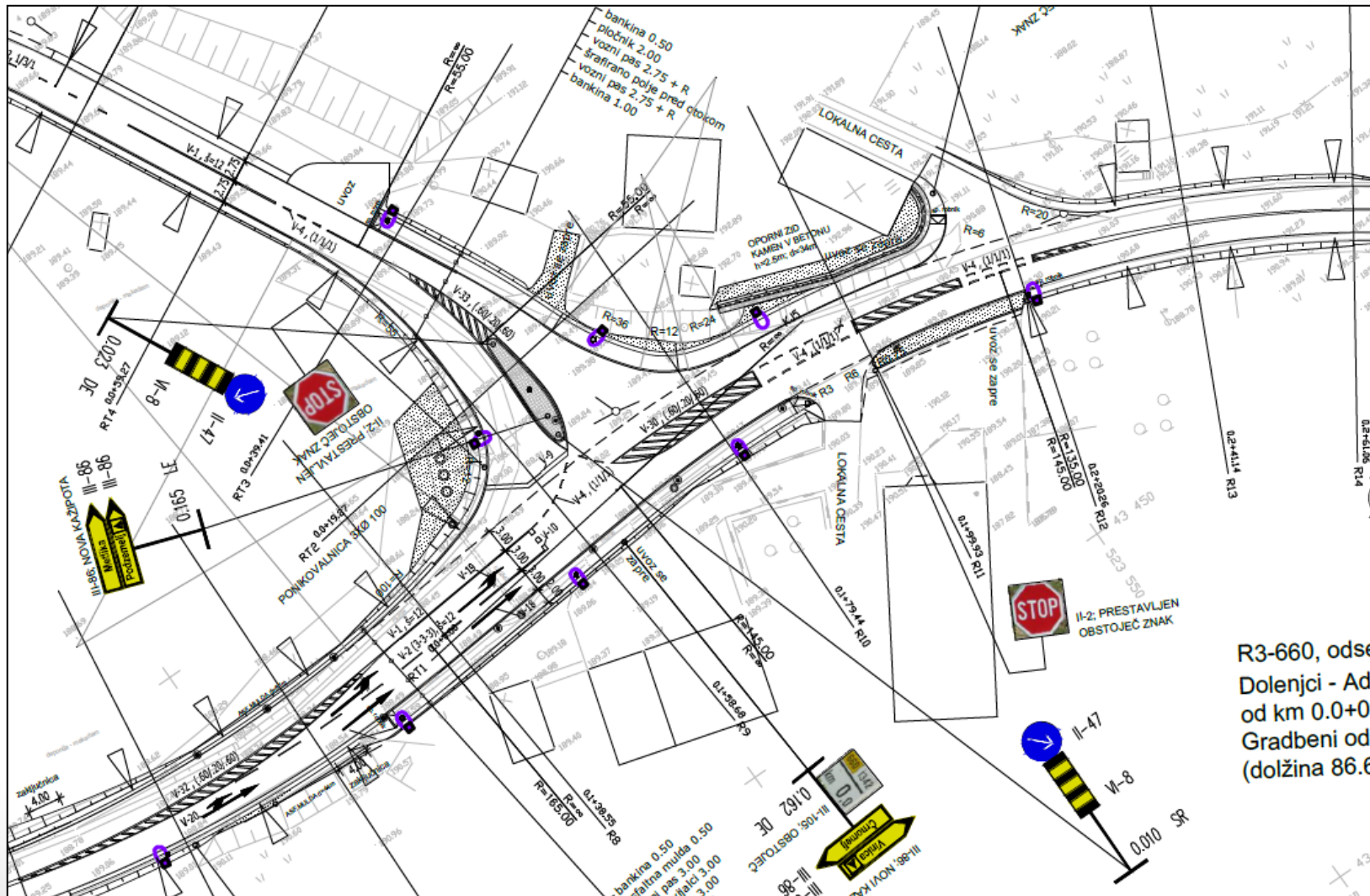
# RSA/RSI ?



Already done by the owner!

Will be done by construction (project)

# Project in design – long term solution





# Putting project scheme (from a Study) in reality



All „mistakes“ from a study has to be corrected on the field ...



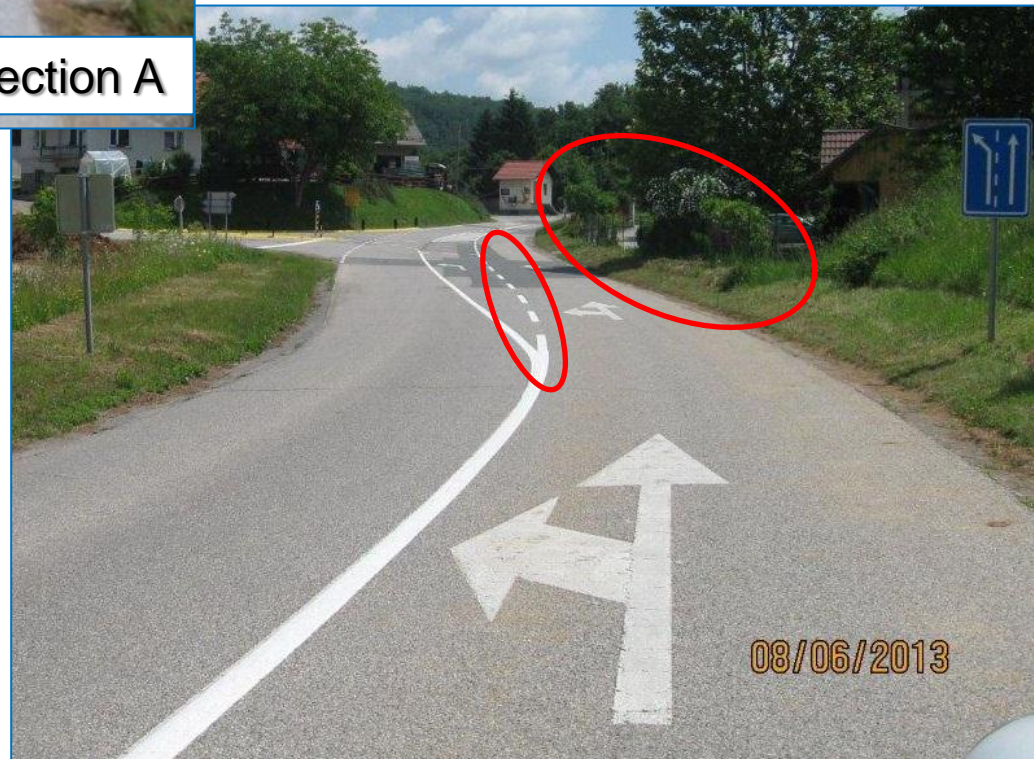


direction A

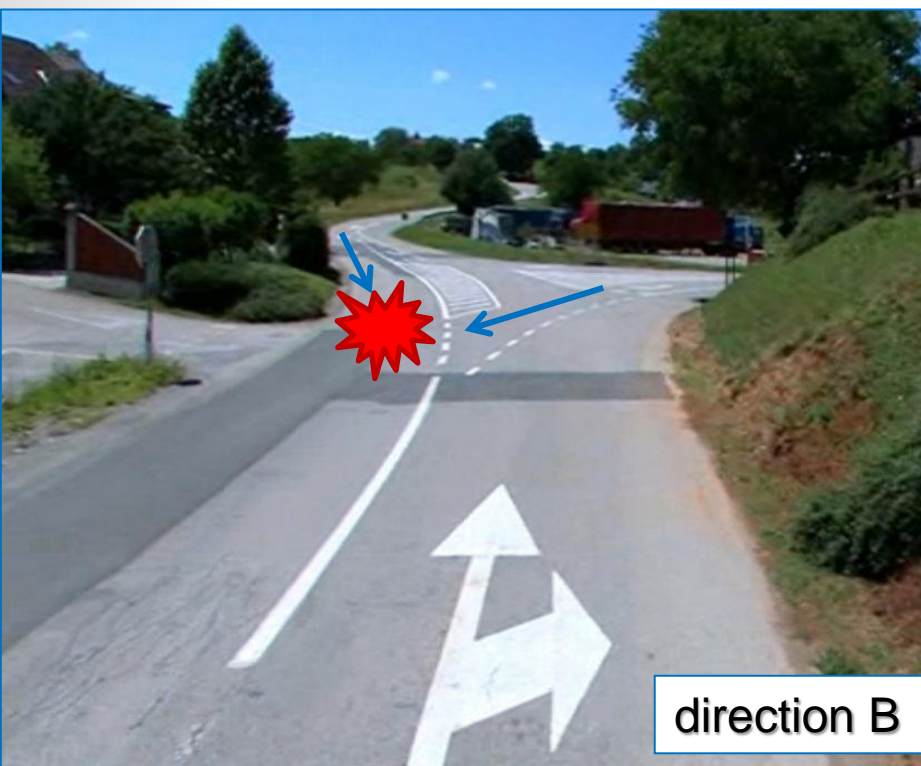
- Invisible junction and vegetation
- Lack of guidance (road markings)

- Closing of junction and cutting down the vegetation (already done by the owner)

- Additional road markings for guidance



Dangerous left turn from side  
/ secondary road to main road  
(Black spot)



direction B

Changing the „geometry“ of  
crossroads (with road markings)







View from side / secondary road on crossroad

direction C

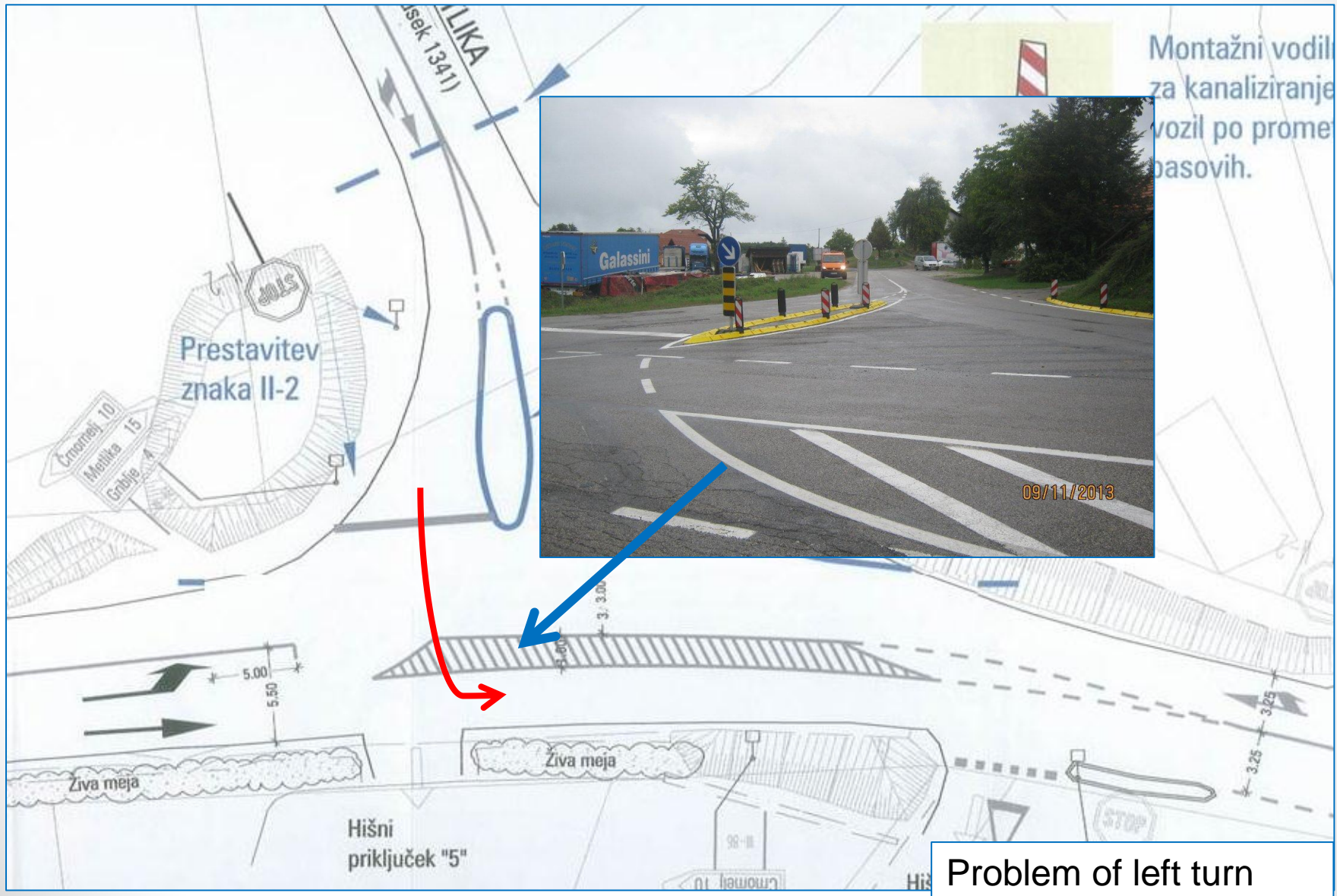
Changed junction  
(less conflicting points)

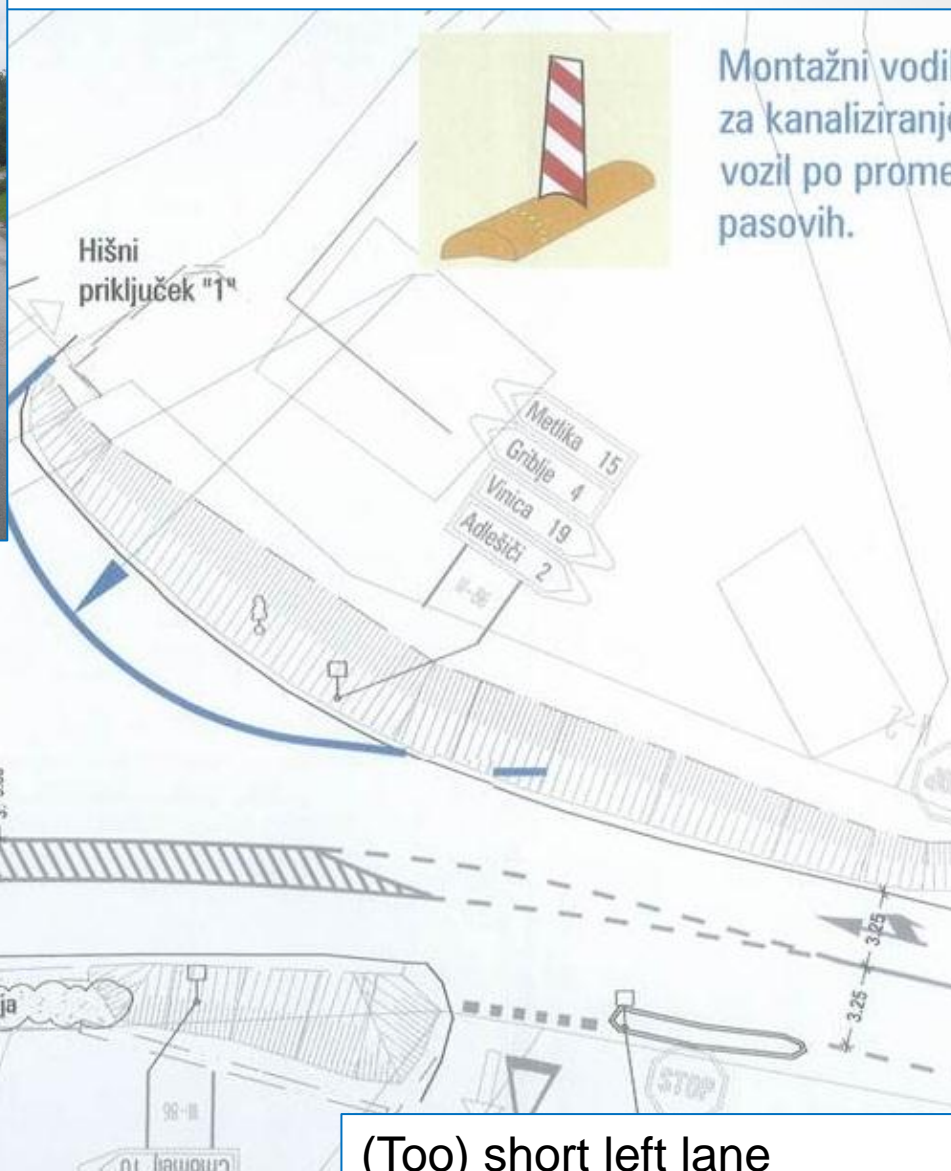




# Mistakes that had to be corrected – on spot

## RSA of project, RSI on the field





Montažni vodil  
za kanaliziranje  
vozil po prome  
pasovih.

(Too) short left lane

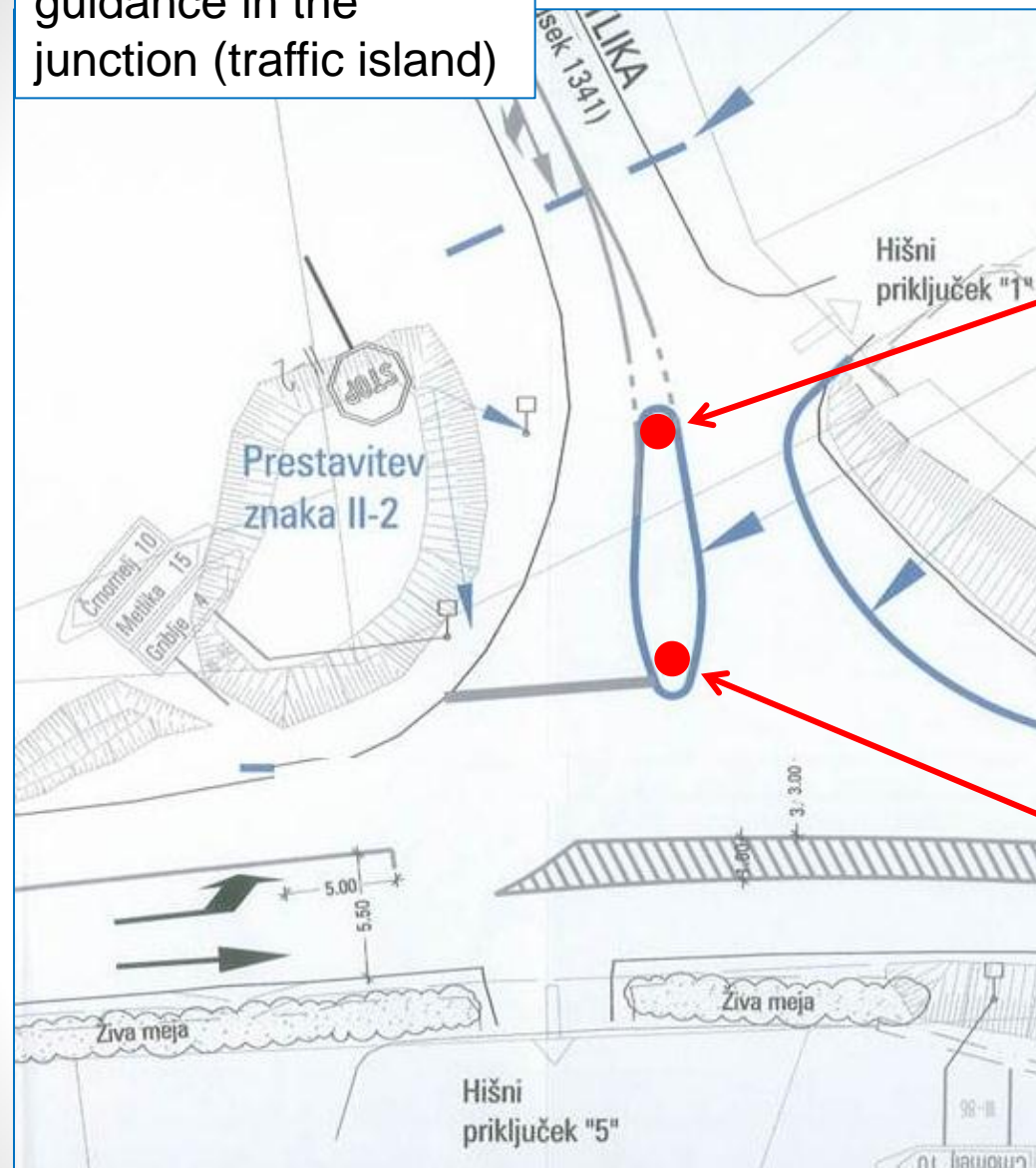
Extension of left lane





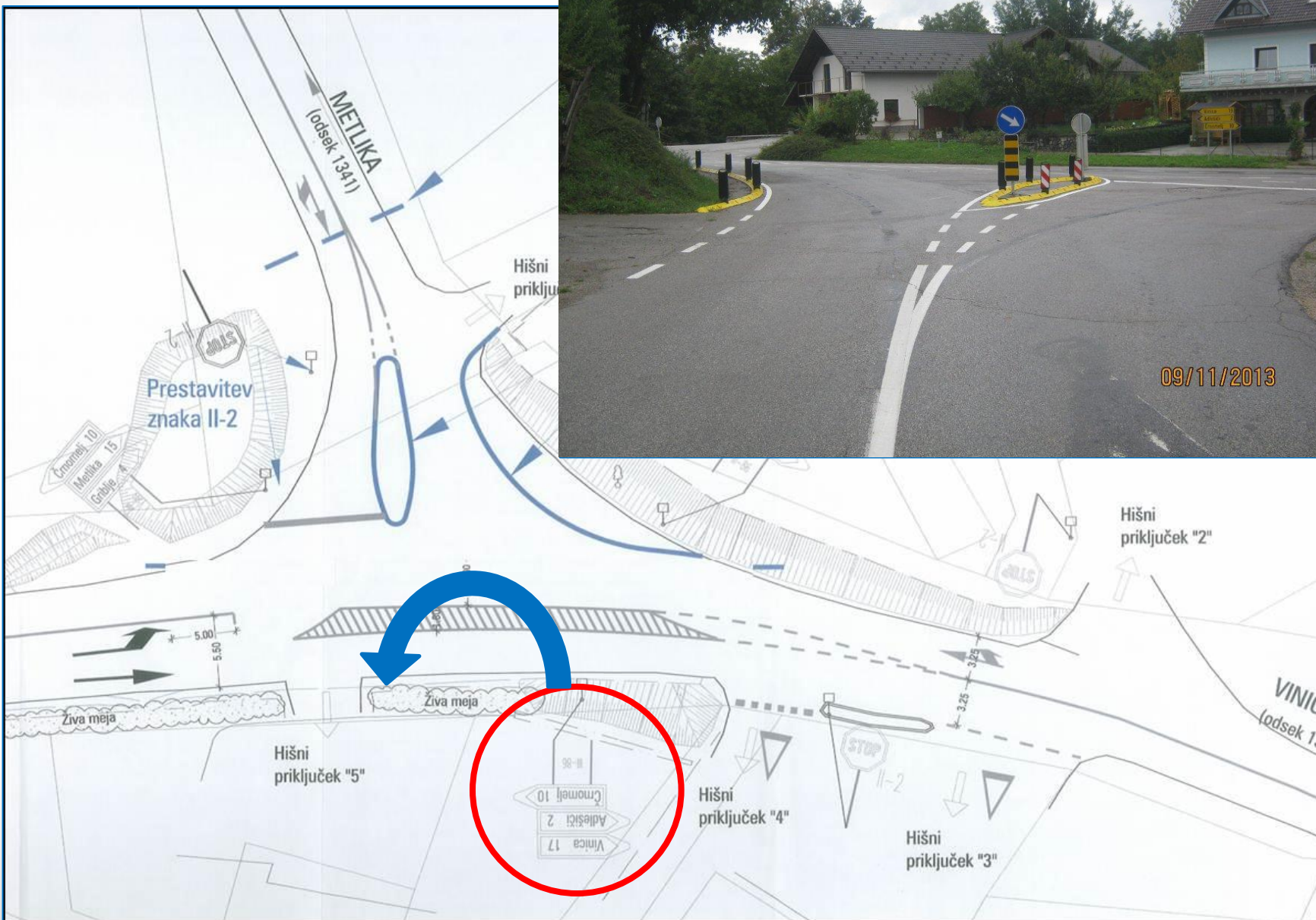


Lack of directional guidance in the junction (traffic island)



No correction of  
directional signs

5/6







Distance / deviation of guide barrier





# So did the designer do his job ?



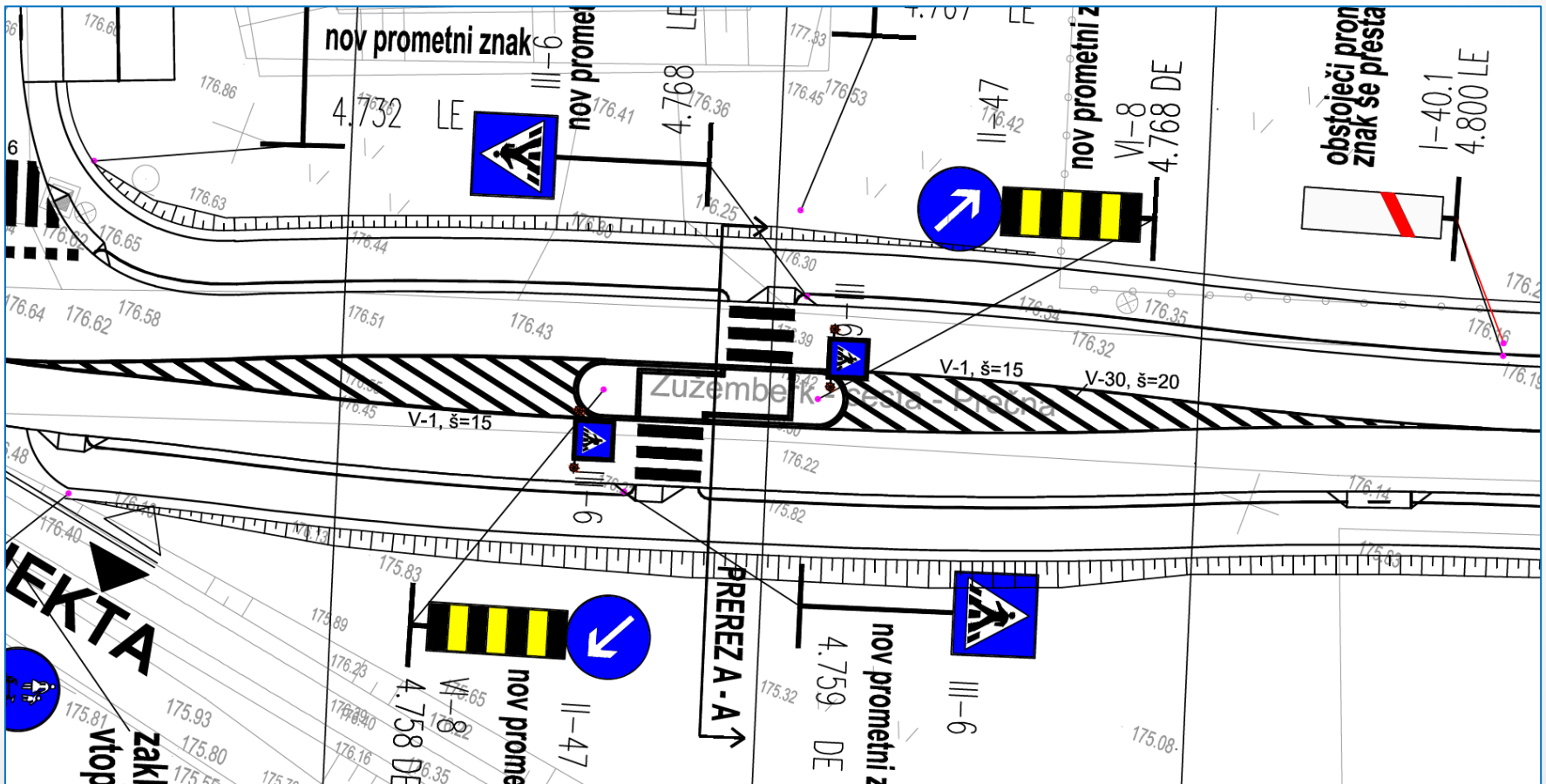
Professionally ...

# How to solve the problem(s) ??

- First (for Black Spot Management) is to have suitable Road Accident data base:
  - Police
  - Road maintenance people
  - Insurance companies
  - Local communities
  - Road Accident Investigation (RAI)
- Do **RSI** before and **RSA** during and after the Study / Project design
- And of course a lot of knowledge and will power ...



(problem of space and railroad crossing – existing road)



before RSA

(problem of space and railroad crossing – existing road)

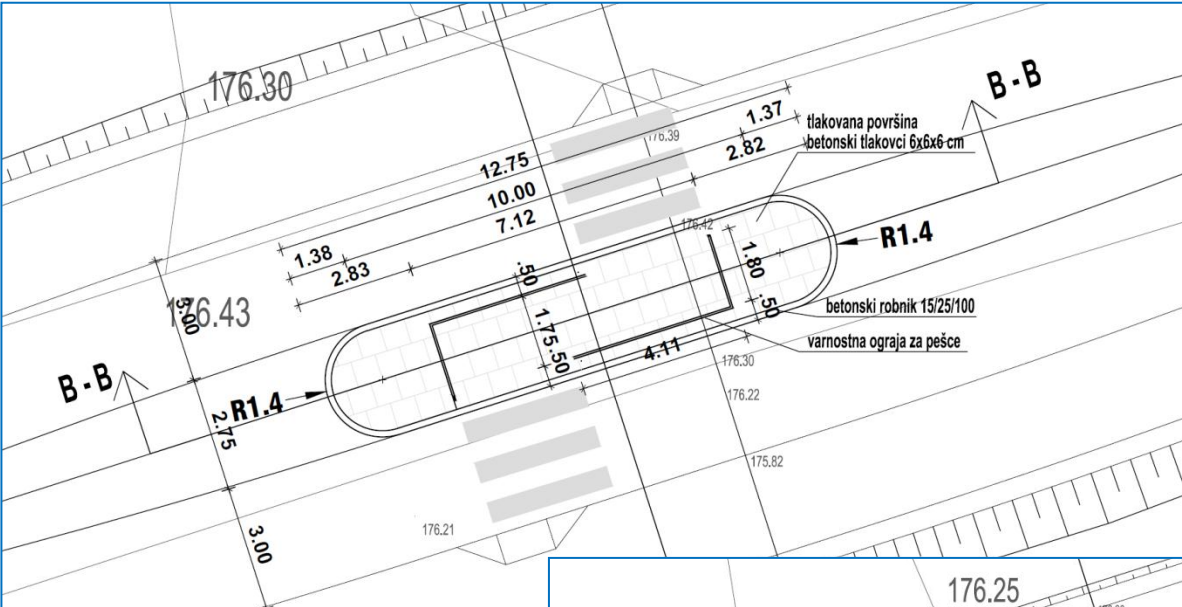


UVA

# Diference

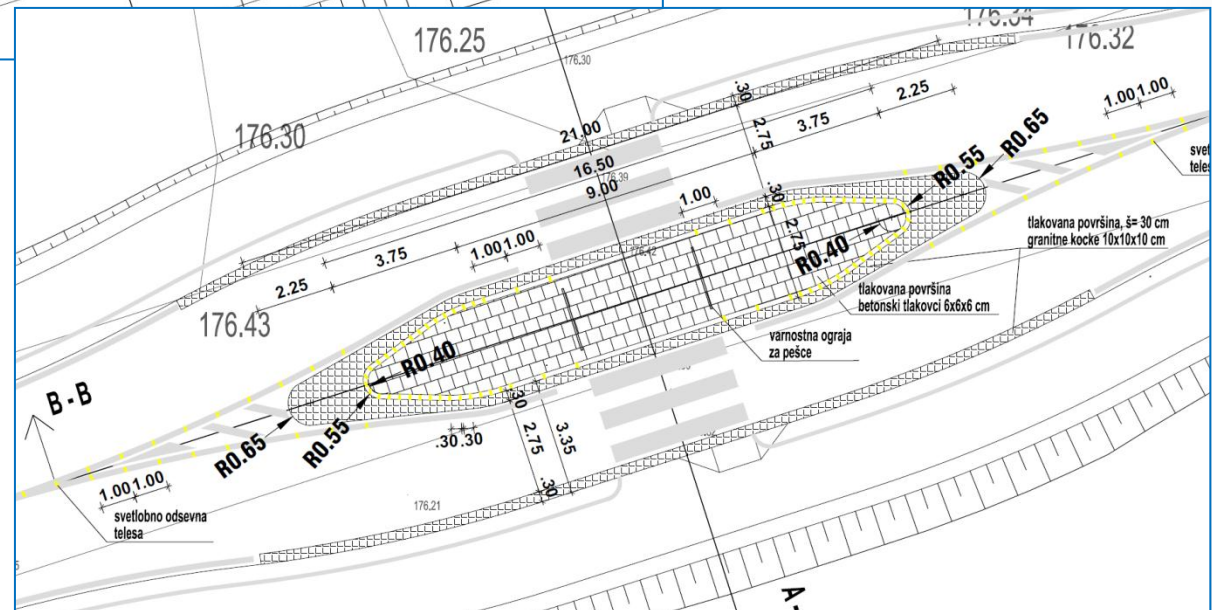
No traffic calming;

- strait road
- width 3,0 m (snow plough)
- length of traffic island 12,75 m



Traffic calming;

- Deviation of road
- width 3,25 m (snow plough) & optical narrowing to 2,75 m
- length of traffic island 21 m
- Markers for guidance







# Thank you ...



## NOT ONLY SPORT, LET „ROAD SAFETY“ CONNECT US, AS WELL

...

