

European Transport Safety Council
ROADS TO RESPECT PROJECT – CAMP 2010

Efficiency of high risk sites treatment

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**Roads Engineering
& Environmental Consultancy**

**Our mission is to develop, design, implement and promote
the best solutions in the area of transport and
infrastructure that ensure safety and comfort for users and
protect the environment.**

(PN-EN ISO 9001:2001)

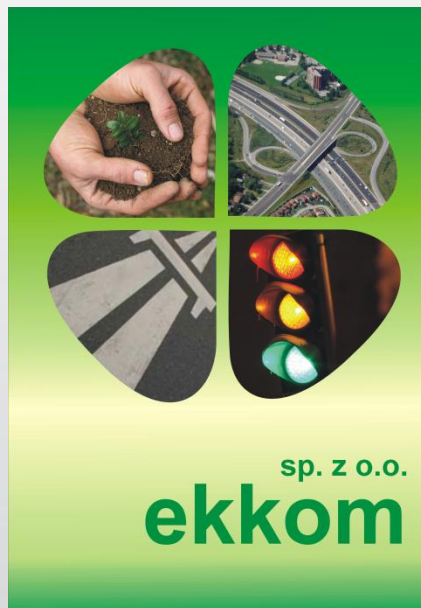
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Areas of expertise	Services provided				
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Road Industry Portal www.edroga.pl



Prosta droga do informacji

The screenshot shows the edroga.pl website interface. At the top, there is a banner with images of roads and a 'SAFEROAD' logo. Below the banner is the edroga.pl logo and the tagline 'portal drogowy'. The date 'Piątek 25 Wrz, 2009' and a welcome message 'Witaj Krzysztof, Wyloguj | Szukaj | Wielkość czcionki + * -' are displayed. A navigation menu includes: STRONA GŁÓWNA, DROGI I MOSTY, INŻYNIERIA RUCHU, OCHRONA ŚRODOWISKA, PRAWO, NAUKA, NOWOŚCI W BRANŻY, ROZMAITOŚCI, FORUM, SKLEP.

The main content area is titled 'Artykuły' and features an article 'Trwale Bezpieczeństwo Ruchu Drogowego' (Trwałe Bezpieczeństwo Ruchu Drogowego) dated 'PONIEDZIAŁEK, 14 WRZEŚNIA 2009 12:42 | BEPK "EKKOM"'. The article text reads: 'Zasady Trwałego Bezpieczeństwa Ruchu Drogowego (TBRD), nazywanego też dalej trwałym bezpieczeństwem, zostały rozwinięte w...'. There is also a section for 'Audyt brd' (Audyt brd) dated 'PONIEDZIAŁEK, 14 WRZEŚNIA 2009 12:26 | BEPK "EKKOM"', with text: 'Audyt bezpieczeństwa ruchu drogowego to procedura, która pomaga w poprawie stanu bezpieczeństwa ruchu drogowego...'. Below this is a 'Forum - ostatnie wypowiedzi' (Forum - ostatnie wypowiedzi) section with a list of topics: GRUNTY BUDOWLANE, wykonywanie nawierzchni bitumicznych, Bezpieczne barier drogowe- od kiedy w Polsce?, budowa dróg w Polsce (prace legislacyjne), and zaostreżenie kar dla pijanych kierowców.

The right sidebar contains several sections: 'Materiały filmowe' (Materiały filmowe) with thumbnails for 'Od Radzikowskiego do Modlinicy' and 'Ulice w centrum uwagi'; 'Od redakcji' (Od redakcji) with a thumbnail for 'Miejskie drogi'; 'Menu użytkownika' (Menu użytkownika) with links for 'Moje ulubione', 'Forum - mój panel', 'Sklep - moje zamówienia', 'Newsletter', and 'Zmiana hasła'; 'Uspokojenie ruchu - Puławy 2009' (Uspokojenie ruchu - Puławy 2009) with a link to 'Artykuły'; and 'Ze świata' (Ze świata) with a thumbnail for 'Nowy most i autostrada w...'. At the bottom of the sidebar, there is a 'Na ekranie' (Na ekranie) section with a link to 'Forum'.

The browser status bar at the bottom shows 'Internet | Tryb chroniony: włączony' and a zoom level of '100%'.

drogi i mosty | inżynieria ruchu | ochrona środowiska | prawo | nauka | nowości w branży | wiadomości drogowe | forum | sklep

QUIZ STARTER

HOW DID YOU DO YOUR HOMEWORK ?

- What is road safety all about?
- Which factors contribute to road crashes?
- What is a high risk site / black spot?

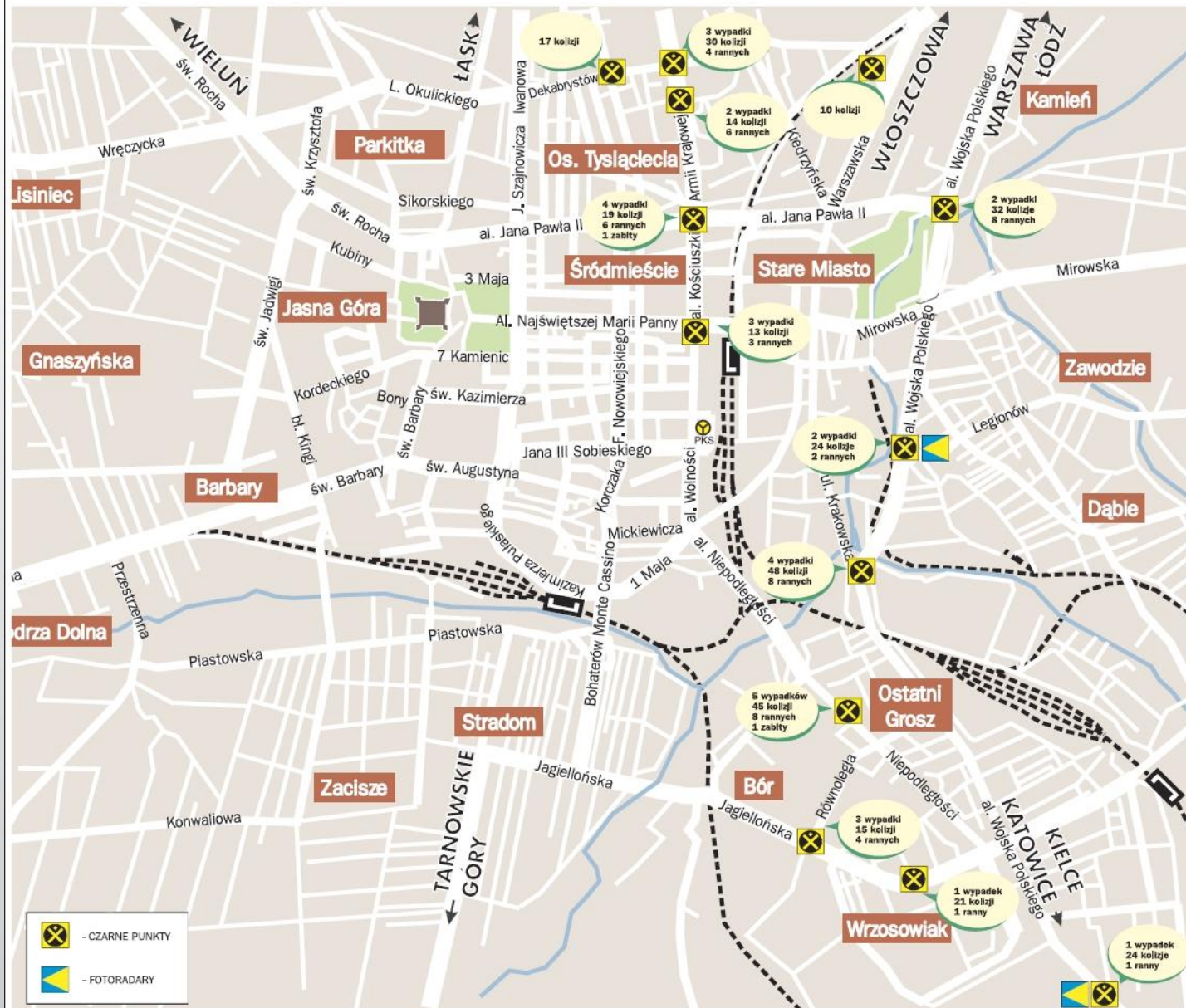
Background

1. Road safety is a very tangible area: it relies on facts and figures.
2. There are many brilliant ideas how to improve safety but only few have proven to be effective in changing statistics.
3. A road safety intervention puts at stake human life and money - public as well as private so it has a double reason to be based on evidence.

Black Spots

Road crashes are not evenly distributed throughout the road network. Some occur in clusters at single sites and along particular short sections of the road, which are termed **Black Spots**.

CZARNE PUNKTY W CZĘSTOCHOWIE (WSZYSTKIE DANE Z I PÓŁROCZA 2006 R.)



Why to treat Black Spots?

- Prioritize safety actions and expenditures
- Concentrate the investments: on a small portion of the network a relatively large part of the problem can be addressed
- Political and social appreciation
- Easy to address, simple to prepare, low capital cost, quick implementation, immediate effect, long-lasting...
- **Cost effective: a small change can make a big difference**
- *Later remember about the migration of crashes...*

Potential for improvement

It is derived by comparing the performance of the treated site with average safety levels a reference group of sites having the same road features and traffic patterns. The difference is the reduction of crashes that can be expected over long term after treating the site. **In short: what difference can we make?**

Potential for improvement (cont.)

Black spots with the same number of crashes may have different potential for improvement. In practice it depends much on the number of **crashes of the same type** that can be eliminated and prevented using a particular set of remedial measures. Potential for improvement is used for **ranking** and **prioritizing investments**.

12.10.2010 Poland, regional road No 707
Head to head crash, 18 dead.

Are we going to have another black spot?



Is Black Spot treatment (cost)effective?

First results of the Regional Black Spot Treatment Program in Poland

Reduction in injury crashes:	70%
Reduction in injuries:	74%
Reduction in fatalities:	92%
Reduction in damage only:	52%
Reduction in crash severity: (killed/100 crashes)	from 13 to 4
Benefit / Cost ratio:	4,83

Human life is priceless. But it has a concrete value.

Crash/ Injury Severity	Lost Output	Human Costs	Medical Costs	Property Damage	Insurance Admin.	Police Cost	Delay Cost	Total per Crash
Fatal Accident	598 408	1 150 000	8 056	11 172	314	1 999	15 000	1 789 754
Injury Accident	6 632	35 000	3 524	3 445	130	91	5 000	53 736
Individual Fatality	520 355	1 000 000	7 005	NA*	NA*	NA*	NA*	1 527 360
Individual Injury	4 877	26 000	2 591	NA*	NA*	NA*	NA*	33 468

*NA = Not Applicable

**Costs-Benefit Analysis of
Road Safety Improvements**



http://ec.europa.eu/transport/roadsafety_library/publications/icf_final_report.pdf

Safety benefits can be and should be expressed in monetary terms. There is money involved and investments need to be justified. (If you think of CBA you're absolutely right!)

Is Black Spot treatment efficient?

First results of the Regional Black Spot Treatment Program in Poland

Road network eligible for the Program: 363 km

Network covered by treated sites: 0,04%

Crashes addressed by the Program: 1,96%

Crash accumulation ratio: 49:1

(addressed crashes / part of network covered)

Is Black Spot treatment efficient? Contd.

First results of the Regional Black Spot Treatment Program in Poland

Av. crash density - eligible network: 0,1038/km

Crash density on Program sites: 4,7050/km

Treatment efficiency ratio: 45:1
(Crash density in treatment / av. crash density)

Case Study



Before

Av/year Crashes: 6; Injuries: 7,5; Dam. only 12,3

Case Study



After

Av/year Crashes: 0; Injuries: 0; Dam. only 4

Case Study



Before

Av/year Crashes: 2,8; Injuries: 5,8; Dam. only 9,8

Case Study



After

Av/year Crashes: 2; Injuries: 2; Dam. only 6

Hints & Tips for R2R

Finding your site:

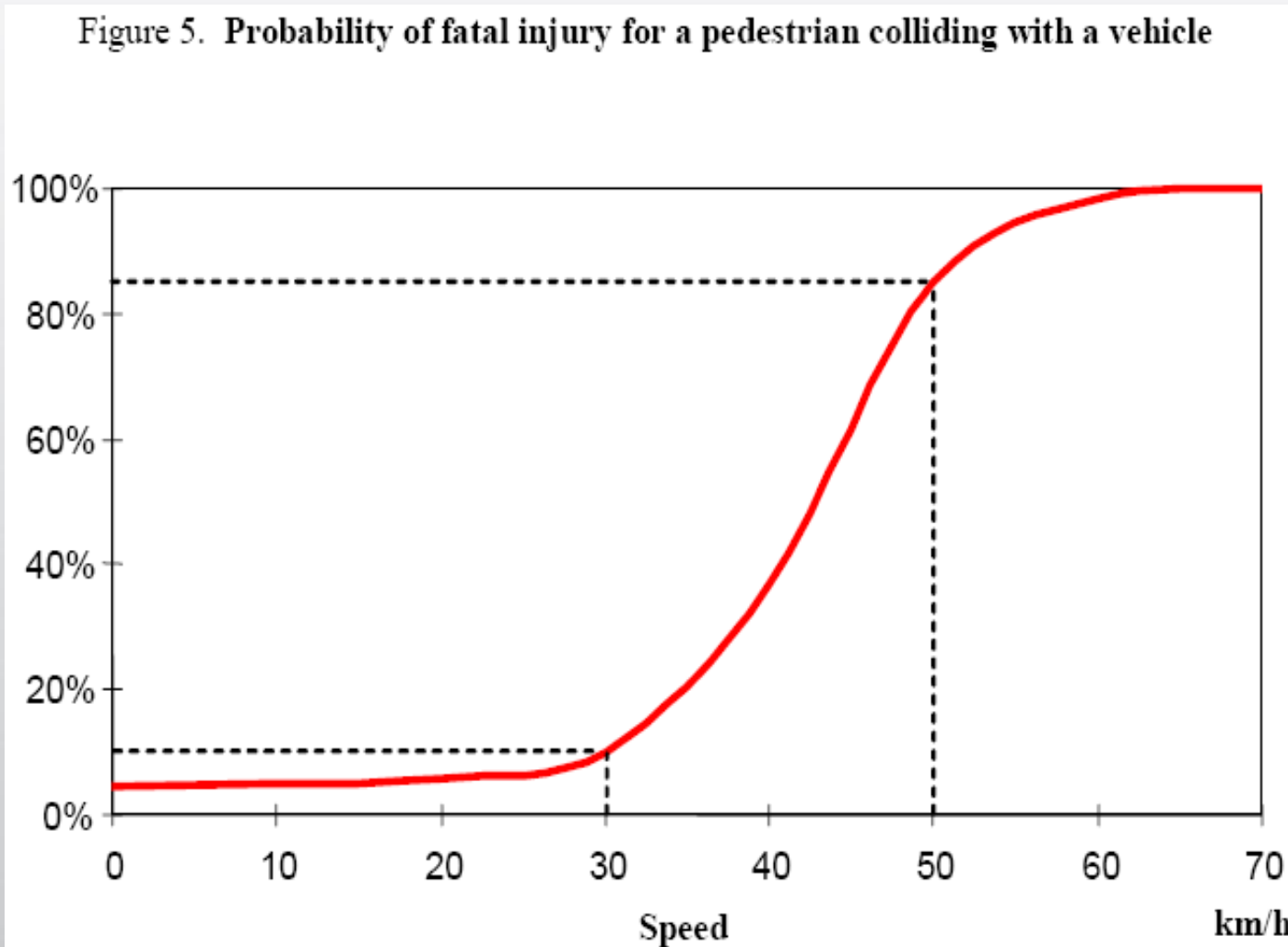
- ideally: evidence based search, a site more hazardous than other sites (more crashes, more severe crashes)
- second best /no data available in the area/: local concern, a site that people in the neighborhood consider particularly dangerous
- (third best: a place that simply looks really bad, esp. where drivers speed and pedestrians walk by.)
- As a rule of thumb, any site with a high number of crashes and poor condition of infrastructure will feature a large potential for improvement

Hints & Tips for R2R

- Concentrate on **just one *site***.
- The aim of the game is ***to treat the site*** and you have only one year. And it is not your only job!
- Don't spend too much time on preparation. Implementation takes a long time so practical approach is crucial.
- Getting the site treated with the few resources you have is already challenging enough.
- So... go simple!

Hints & Tips for R2R

- Speed reduction = better safety



Source: Speed Management, OECD/ECMT, 2006

YOU CAN BE A FACTOR OF CHANGE

