Session 3B: Mr. Nguyen Van Truong

Presentation entitled: Black Spot Identification and Countermeasures in Hanoi

Biographic Data of Speaker

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Project for Strengthening the Traffic Police Training in Peoples' Police Academy and Various Police Training Institutes in Vietnam

BLACK SPOT IDENTIFICATION AND COUNTERMEASURES IN HANOI

Nguyen Van TRUONG
Study team member, Traffic Safety Research Center
Presents at: Asia Transportation Research Society Symposium - ATRANS Symposium
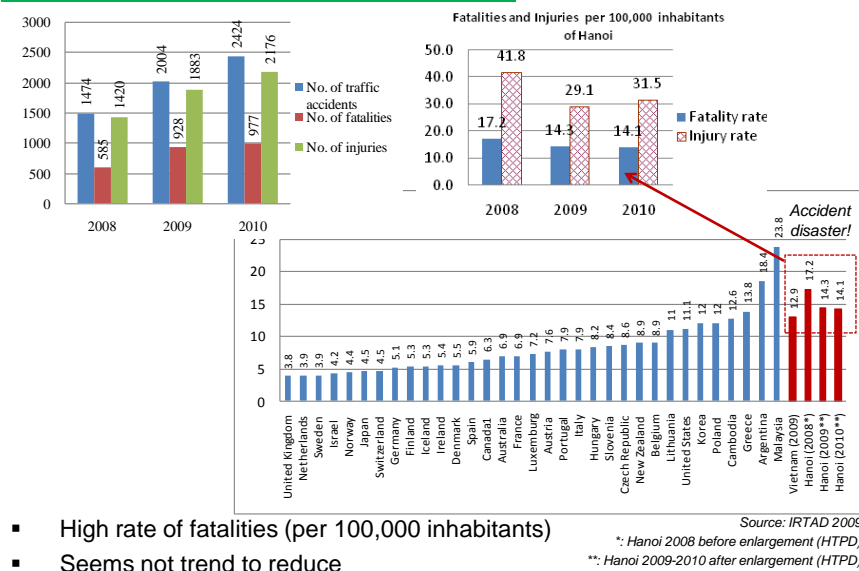*Bangkok, Thailand, 08 - 2011*

Content

- Introduction
- Literature review
- Black-spot definition in Vietnam and solving procedure
- Case study of 3 black-spot
- Further activities

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Objectives

- Introduce the method of determining traffic black spots as well as the procedure of solving black spot in Vietnam

- Clarify unreasonable issues in determining black sport and its application in Vietnam, additional criteria will be also presented to fix that issue

- Analyzing elements relating to traffic accidents, as well as countermeasures in 3 case studies in Hanoi as the example of applying the procedure to determine black spots and the procedure to solve them
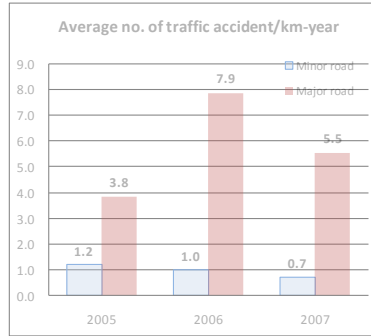
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Hanoi traffic accident situation compare with other countries

- High rate of fatalities (per 100,000 inhabitants)
- Seems not trend to reduce

Source: IRTAD 2009
*: Hanoi 2008 before enlargement (HTPD)
**: Hanoi 2009-2010 after enlargement (HTPD)

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High density of traffic accident on road

Average no. of traffic accident/km-year

Major road: arterial road, ring road, radial road
Minor road: Other roads (not including alley, local road)

There have been no information about road in traffic accident data since 2008 due to Hanoi enlargement

- Accidents happened in major road is 3-8 times higher than other road
- There was 1 accident happened (in 1km) every :
  - ~3months in 2005,
  - ~1.5months in 2006,
  - ~2months in 2007

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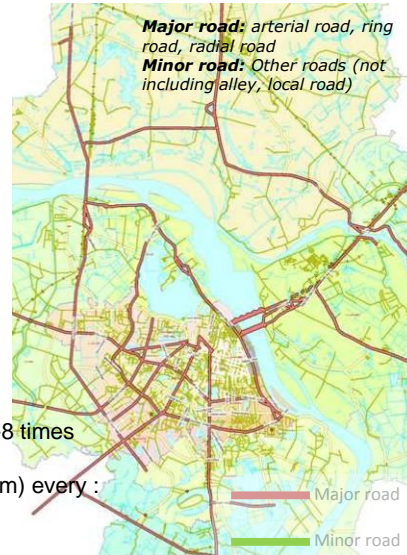
Accident at black spots

Year	No. of fatalities and injuries of all accidents	No. of fatalities and injuries at black spots	Proportion	
2005	1588	184	11.6%	Before enlargement
2006	1931	234	12.1%	
2007	1318	170	12.9%	
2008	2005	224	11.2%	
2009	2811	198	7.0%	After enlargement
2010	3153	194	6.2%	

Many accidents happened in Hatay province (former) have no information about the happened locations

Accident information about locations has been updated

- More than 10% fatalities and injuries caused by accidents at black-spots
- Information about locations that accidents happened in 2009, 2010 is still updating

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Literature review

- There are some common definitions:

Numerical definitions	Statistical definitions
- Accident number	- Critical value of accident number
- Accident rate	
- Accident rate and number	- Critical value of accident rate

- i.e.:
    - Numerical definition : "A black spot is any location with a maximum length of 100 meters, at which at least four injury accidents have been recorded during the last five years"-Statens Vegvesen (2006)
   - Statistical definition:

Black spot definition in Vietnam

- The "location" or "spot" that:
    - Happened 02 deadly accident, or
    - Happened 03 or more traffic accidents in which there was 01 deadly accident, or
    - Happened 04 or more injury traffic accidents.
    - ➔ is defined as a "black-spot"

The monitoring indicator is clear, but

The scale of "location" or "spot" is still **not clear**

50m?
100m?
200m?
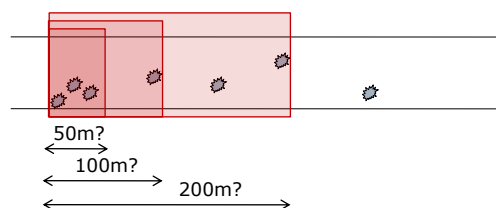
Study team proposed the scale of black-spot should be 100m

Black-spot identification method and solving procedure

- Step 1: Identifying and establishing the priority order;
- Step 2: First field inspection;
- Step 3: Ascertaining additional information and undertaking analysis;
- Step 4: Second field inspection to find out causes;
- Step 5: Identifying remedial measures;
- Step 6: Obligations of agencies in charge of black spot remedies;
- Step 7: Undertaking black spot remedial measures;
- Step 8: Monitoring and evaluation.

Check in site to finalize the list of black-spot

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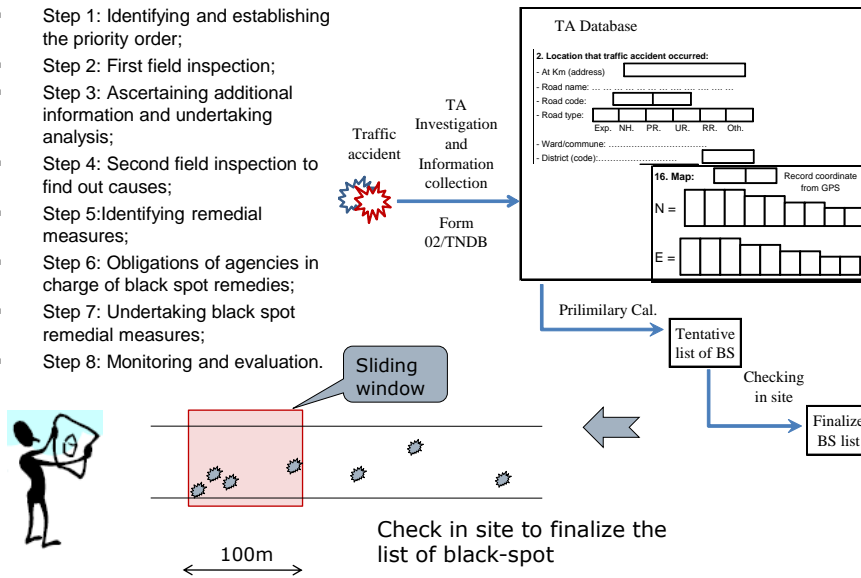
Description of 3 black-spots _ case study
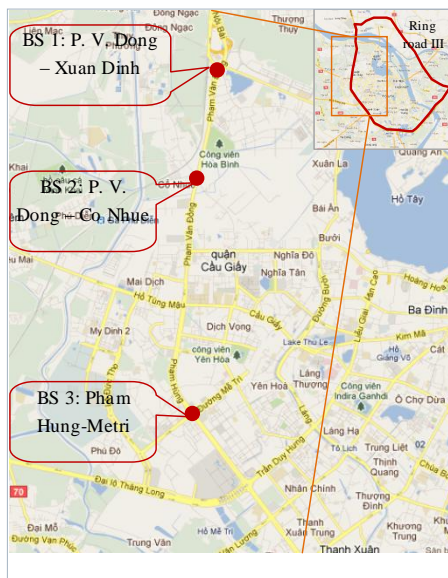
Year	2008	2009	2010	Total
Criteria	BS1: Pham Van Dong - Xuan Dinh			
Traffic accidents	12	16	10	38
Fatalities (people)	2	2	0	4
Injuries (people)	6	13	8	27
	BS2: Pham Van Dong - Co Nhue			
Traffic accidents	13	11	16	40
Fatalities (people)	0	1	2	3
Injuries (people)	12	5	10	27
	BS3: Pham Hung - Me Tri			
Traffic accidents	16	15	14	45
Fatalities (people)	2	2	4	8
Injuries (people)	17	14	9	40

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Infrastructure and management features

Black-spot 1: Pham Van Dong-Xuan Dinh

Lane markings, stop lines, zebra,... is not clear

Not suitable inter-green time design caused many conflicts

Many violation

Speed is high

Poor safety facilities

Black-spot 2: Pham Van Dong-Co Nhue

Small crossing angle

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Infrastructure and management features

Black-spot 3: Pham Hung – Me Tri

Not good light condition in night time

Speed is high

Poor safety facilities

Under construction

Many crossing conflict
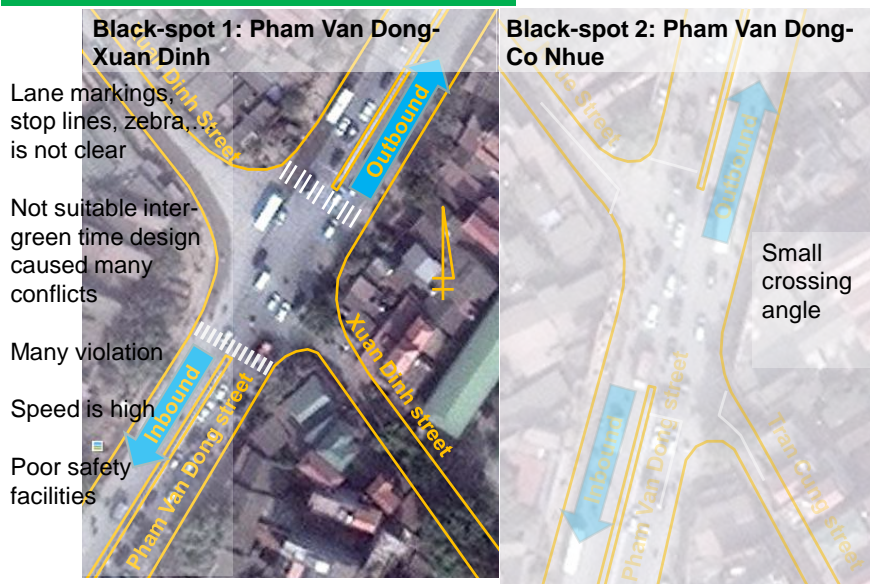
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Speed distribution
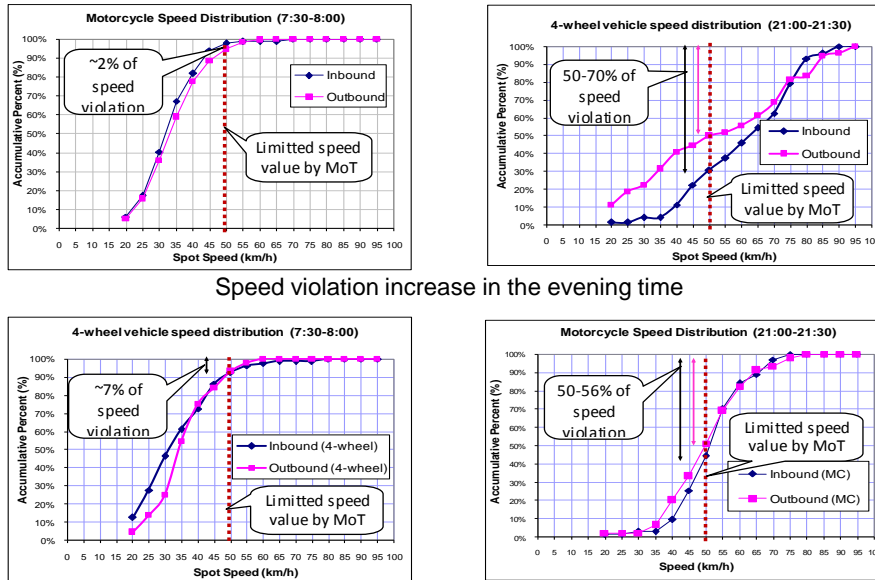
Speed violation increase in the evening time

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Flow rate and flow components

	7:00-8:00	17:00-18:00
Unit: Vehicle		
Non-motorized vehicle	759	490
Motorcycle	16560	12248
Car/Van	1694	2089
Bus/Truck	1018	1007
Pedestrians	88	119
Total	20118	15954
Vehicle/h/lane	*3353*	*2659*
Unit: PCU		
Non-motorized vehicle	137	88
Motorcycle	3974	2940
Car/Van	1694	2089
Bus/Truck	2300	2275
Pedestrians	-	-
Total	8105	7392
PCU/h/lane	*1351*	*1232*

- Basically, flow components are classified into 5 types: Non-motorized traffic, motorcycle, car/van, bus/truck

- Highly mixed with cars accounting for a high majority ~16.1% in two ways, motorcycles account for 79.9%, non-motorized vehicles 3.5%, pedestrians 0.6%

- flow rate 1351pcu/h/lane in the morning peak and 1232pcu/h/lane in the evening peak, v/C factor is ranging from 0.6 and 0.65, respectively
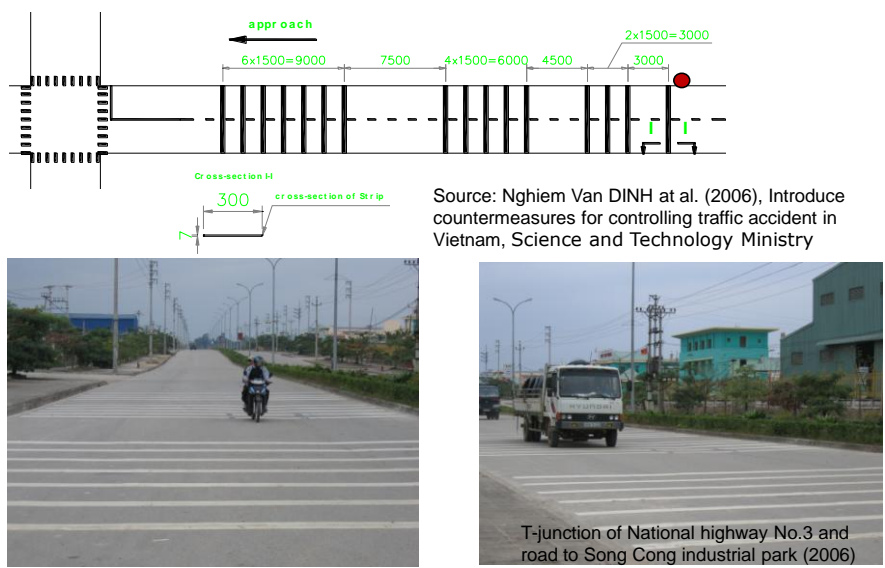
Source: Tranconcen, survey report 2011
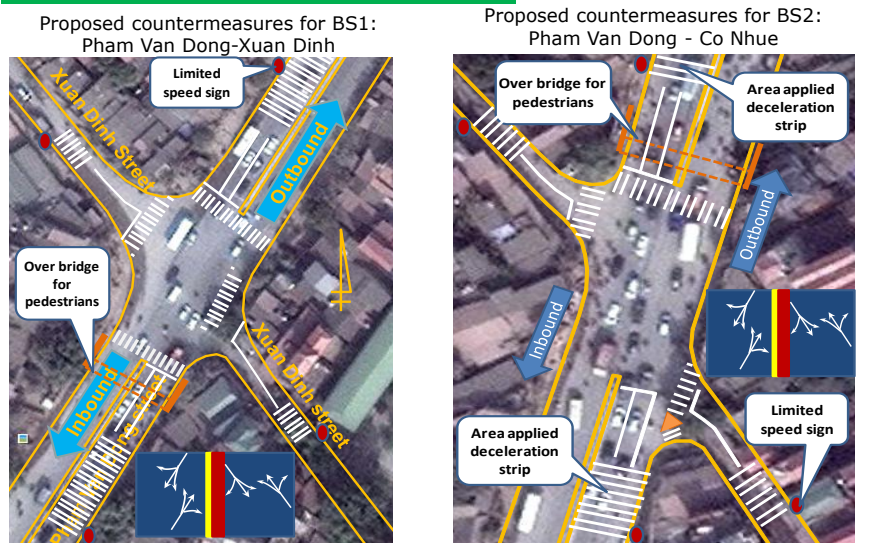
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Traffic accident characteristics

Vehicle type involved to the accident

No.	Type of vehicle	BS1	BS2	BS3
1	MC - MC	2	3	2
2	MC - Au	13	16	26
3	MC - NM	-	1	-
4	MC - Ped	2	4	4
5	Au - Au	16	13	11
6	Au - NM	1	1	1
7	Au - Ped	3	2	-
8	Sefl accident	-	-	1

Major causation

Causation	BS1	BS2	BS3
Driving in wrong lane	2	0	1
Do not keep safety distance/ speeding to pass intersection	7	8	6
Wrong turning	2	3	8
Do not pay attention	2	3	0
Wrong overtaking	2	5	4
Unknown	23	15	19

Time accident happened

Legend:
- BS1: Pham Van Dong - Xuan Dinh
- BS2: Pham Van Dong - Co Nhue
- BS3: Pham Hung - Me Tri

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Traffic calming measure

Source: Nghiem Van DINH at al. (2006), Introduce countermeasures for controlling traffic accident in Vietnam, Science and Technology Ministry

T-junction of National highway No.3 and road to Song Cong industrial park (2006)

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Proposed countermeasure

Proposed countermeasures for BS1: Pham Van Dong-Xuan Dinh

Proposed countermeasures for BS2: Pham Van Dong - Co Nhue
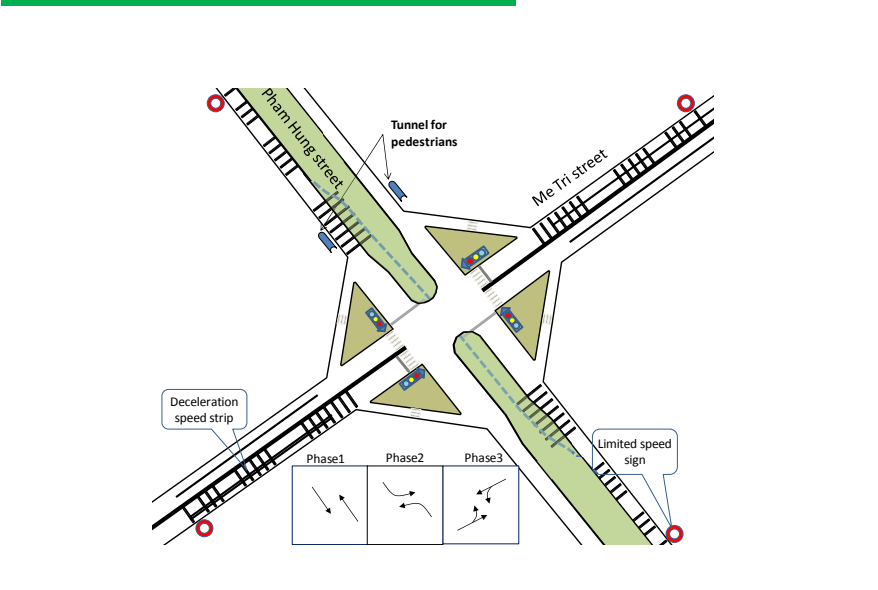
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Proposed countermeasure

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Additional measures

- Measures for public information and propaganda, providing guidance to road users to raise their awareness and safety when they pass black spots on the road.

- Undertaking punitive and enforcement measures to curb violations and thus improve safety.

- Education and enforcement measure take the focus on primary causes and violations such as: speed, lane misuse, crossing the stop line, red light violation. Enforcement should be intensified at night time.

- Improving street light conditions around black spots to give road users a better sight when driving.

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Further activities - recommendations

- Develop database of traffic accident: collect more information, accuracy, sufficiency,…, especially information of accident coordination,
- Submit the MoT the research on definition of black-spot to apply nation wide,
- Develop more detail activities in procedure of black-spot solving to execute in the fact easily,
- Research study on black-spot solving in Hanoi, and Vietnam as well

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Thank you very much for your attention!