ADB/RSI "PRACTICAL ROAD SAFETY ENGINEERING" ONLINE WORKSHOP - HOMEWORK (A) INVESTIGATING "BLACKSPOTS"

Two hazardous locations are outlined below – please select *one* of them, investigate it and prepare a report with your recommendations and a BCR. Crash data (some of it is basic as some was gathered from locals, and not all came from Police crash data), a hand drawn collision diagram, a crash factor grid, photographs, and Google Earth photos for both of the two "blackspots" are attached.

Participants are invited to investigate one site only (it is your choice which one). Examine the crash data (look for patterns), and look at photos of the sites, and be a detective (or a doctor for a sick patient). The photographs will be your site inspection – not the best way to investigate blackspots but the only option for us at present.

Then prepare a one-page crash treatment report with clear recommended treatments, cost, estimated benefits and a BCR.

All participants are invited to email their one page reports (in English) with their main findings and recommendations by 5pm Tuesday 4th August Manila time to magas.consultant@adb.org with a copy to msayon.consultant@adb.org

Feedback will be given at the beginning of Session 6 on Thursday 6th August; all reports will be assessed, and results sent to participants as soon as possible after that and hopefully by the end of the workshop on August 13th.

SITE 1 A pedestrian blackspot on a wide arterial road in a capital city. (Driving on the right side)

A 200m section of urban arterial road has experienced 14 collisions (8 at night, and 3 or maybe 4 at dawn/dusk, and 2 in daytime) in the past three years. Eight of these involved a pedestrian. The road has six traffic lanes (plus a bus lane on each side); it is straight and flat, and speeds can be above the 60kmh speed limit, particularly at night. Intersection traffic signals are 600m away in both directions; they are fixed time signals and they have no pedestrian signals. There is a large pedestrian subway under this section of road (authorities are dismayed that so many pedestrian crashes happen while this facility is so close).

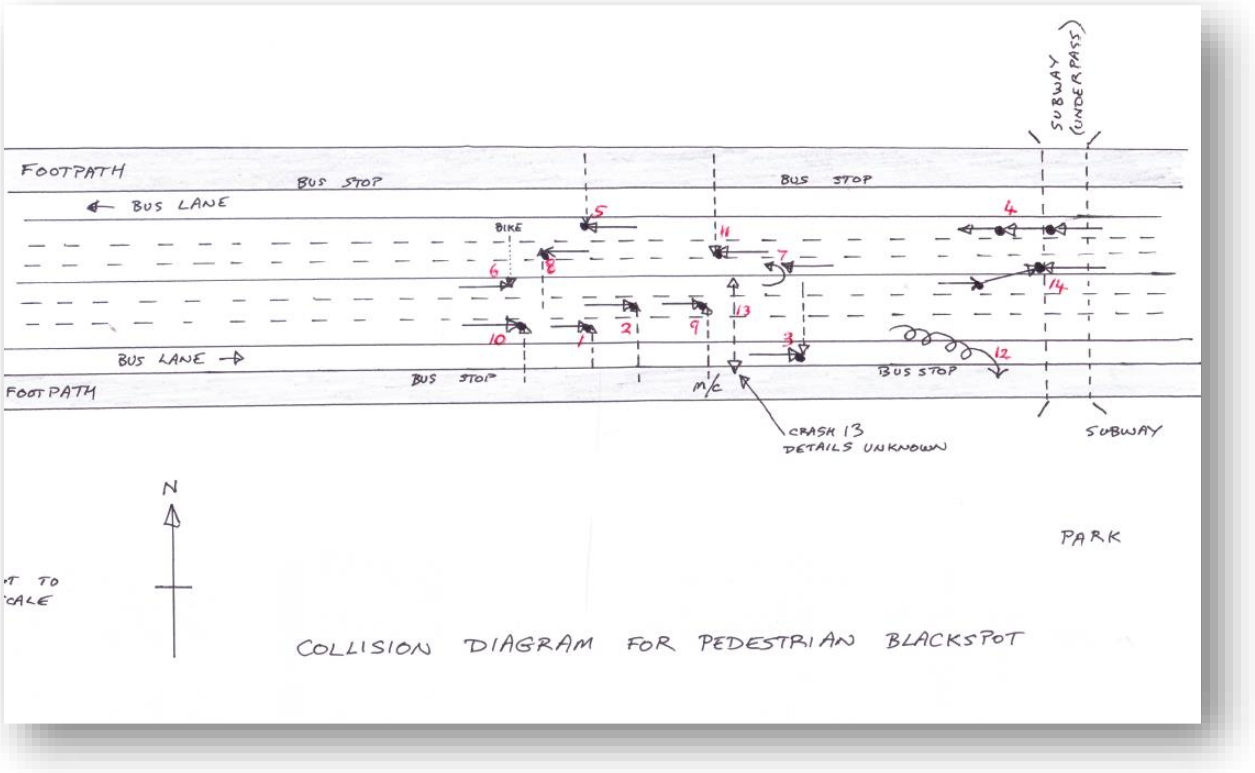
The surrounding area has several commercial multi-storey buildings, a University, and a large park. Most of the pedestrians who cross the road are young adults (students and office workers) who cross to bus stops. Some pedestrians wait on the centre line before crossing the second half of the road. More than 100 pedestrians per hour cross the road while less than 50 pedestrians per hour use the underpass. The underpass is wide, quite open, clean, and reasonably well maintained. There are no shops or attendants in it, and the lighting is poor. To access the underpass, pedestrians must use steps. The underpass serves the park well but is located east of where most pedestrians want to cross this busy road.

The community has been requesting action. Will renovating the underpass, and improving its attractiveness to pedestrians, address the pedestrian safety problem here? Will it be necessary to use fencing to restrict pedestrians from crossing at road level, and directing them into the underpass? Signals, refuges, kerb extensions? What other options may there be?

If necessary, make assumptions and state these in your report.

Assume a casualty crash (fatal and serious injury) costs average $150,000USD in this country. Crash costs for this blackspot are therefore = 14 x $150,000 = **$2,100,000USD**

CRASH NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14
DATE	12/3	5/5	11/10	29/11	20/1	28/3	1/4	5/9	8/12	31/12	2/2	10/3	5/6	7/9
DAY OF WEEK	SUN	FRI	WED	WED	SAT	WED	SUN	WED	SAT	MON	MON	SUN	WED	SAT
TIME OF DAY	01.15	22.30	19.20	17.50	11.10	20.55	18.30	23.00	14.40	04.00	06.45	23.30	?	20.30
SEVERITY	1	2	2	3	3	3	2	1	3	1	3	1	2	2
LIGHT CONDITION													?	
ROAD CONDITION	WET	DRY	DRY	DRY	DRY	DRY	WET	DRY	WET	DRY	DRY	DRY	?	DRY
CRASH TYPE	003	003	001	303	001	102	207	002	102	004	001	502	?	301
VEHICLE 1	CAR	CAR	BUS	BUS	CAR	CAR	M/C	CAR	CAR	CAR	M/C	M/C	PED	CAR
VEHICLE 2	PED	PED	PED	TRUCK	PED	BIKE	CAR	PED	M/C	PED	PED		?	CAR
VEHICLE 3				CAR										CAR
DIRECTION VEH. 1	E	E	E	W	W	E	W	W	E	E	W	E	?	E
DIRECTION VEH.2	N	N	S	W	S	S	W	N	NE	N	S	N	?	?
DIRECTION VEH.3				W										W
OBSERVATIONS	ALC	ALC	SPEED					ALC & SPEED				SPEED		U TURN



Make any assumptions you need about costs, and use the attached Crash Reduction Factors to make a reasoned estimate for the benefits you will get from your treatments (use the largest CRF of any of the treatments you recommend – do not add CRF's together!!)





PHOTOGRAPHS OF PEDESTRIAN BLACKSPOT, URBAN ARTERIAL ROAD

SITE 2 A Y-junction of a national highway and a state highway (both are 2 lane, 2-way roads) in a rural area. (Driving on the left side).

In the past 3 years there have been 12 casualty crashes at this Y junction. 7 were "right-turn against through" crashes mainly at dusk and night, 3 were rear-end collisions, one was a run-off-road collision and one involved a pedestrian. The Police reports do not give many details of the crashes, but residents say that mostly the "right-turn-against" collisions occur at night as trucks/buses turn right from the north to the west – and are struck by vehicles heading north.

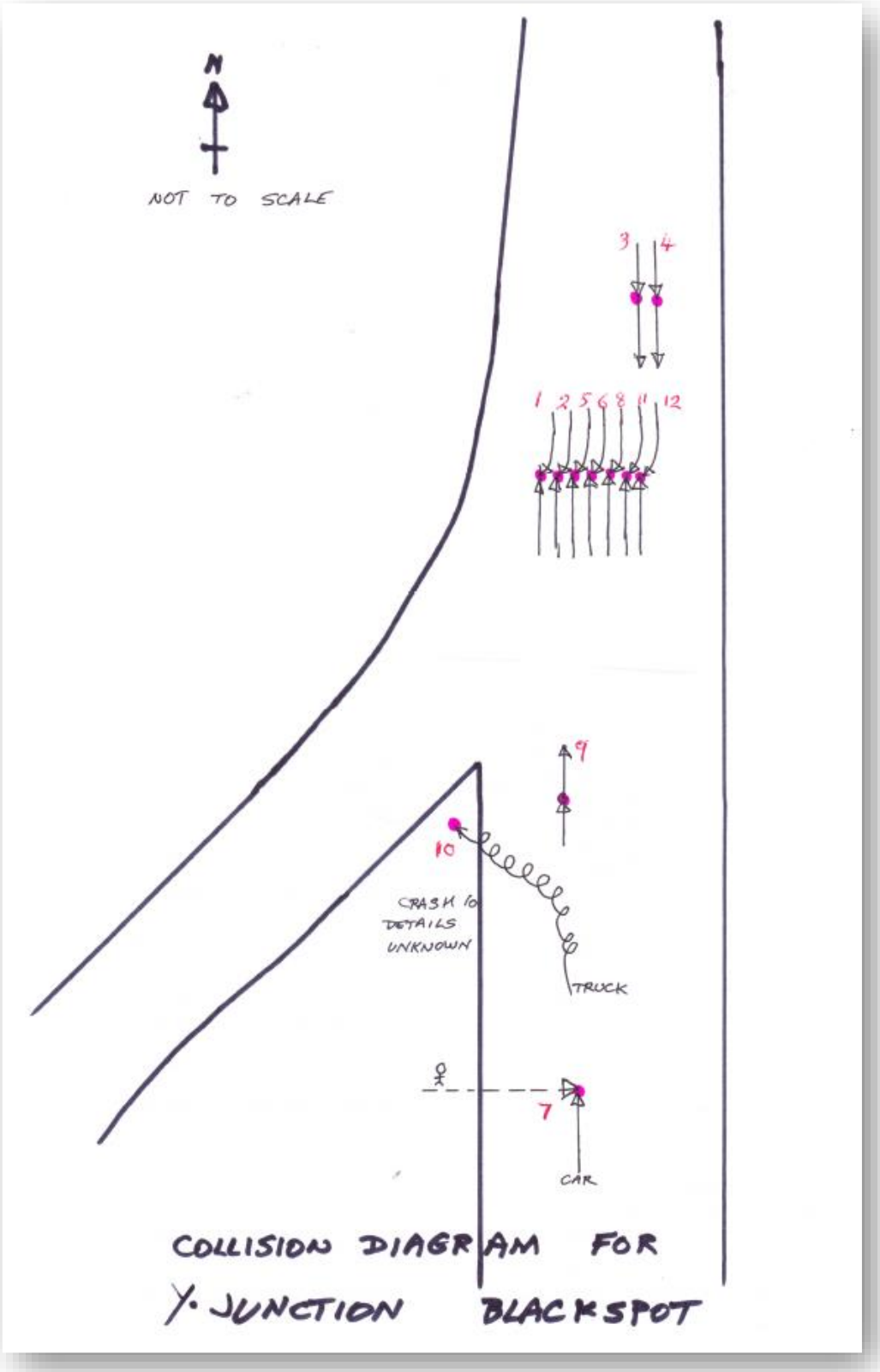
Two of the rear-end collisions are vehicles from the north striking vehicles on the national highway as they wait to turn right (from north to west). The other rear-end collision occurred on the southern approach (apparently when a northbound car braked hard to avoid a turning vehicle from the north). There is no information about the run-off-road crash except it occurred at night and it involved a truck. A pedestrian was struck while running across the national highway about 30-40m south of the junction, at about 10pm on a weeknight.

There is no information about the weather at the time of these crashes (fine, or wet etc.). If necessary, make assumptions and state these in your report.

Assume a casualty crash (fatal and serious injury) costs average $75,000USD in this country. Crash costs for this blackspot are therefore = 12 x $75,000 = **$900,000USD**

CRASH NUMBER	**1**	**2**	**3**	**4**	**5**	**6**	7	**8**	9	**10**	**11**	**12**
DATE	12/3	?	11/7	29/1	28/3	1/4	5/9	8/2	31/4	?	10/8	7/9
DAY OF WEEK	SUN	FRI	WED	WED	WED	SUN	WED	SAT	MON		SUN	SAT
TIME OF DAY	01.00	?	19.30	17.50	?	18.30	22.00	14.40	04.00	?	23.30	20.30
SEVERITY	1	2	2	3	3	2	2	3	1	2	1	2
LIGHT CONDITION												
ROAD CONDITION	WET	DRY	DRY	DRY	DRY	WET	DRY	WET	DRY	DRY	DRY	DRY
CRASH TYPE	202	202	301	301	202	202	002	202	301	701	202	202
VEHICLE 1	TRUCK	CAR	BUS	BUS	CAR	M/C	PED	TRUCK	CAR	TRUCK	M/C	TRUCK
VEHICLE 2	BUS	TRUCK	TRUCK	TRUCK	M/C	BUS	CAR	M/C	CAR		TRUCK	CAR
VEHICLE 3												
DIRECTION VEH. 1	S	S	S	S	S	S	E	S	N	N	S	S
DIRECTION VEH.2	N	N	S	S	N	N	N	N	N		N	N
DIRECTION VEH.3												
OBSERVATIONS			SPEED	SPEED							SPEED	

NOTE: All of the right turn against and the two rear end collisions where Vehicle 1 is shown to be travelling S (south) involved a vehicle that was turning from the north to the west. It was travelling S (or stationary) at the point of impact and is coded that way. The drivers were intending to head west.



Make any assumptions you need about treatment costs, and use the attached Crash Reduction Factors to make a reasoned estimate for the benefits you will get from your treatments (use the largest CRF of any of the treatments you recommend – do not add CRF's together!!)

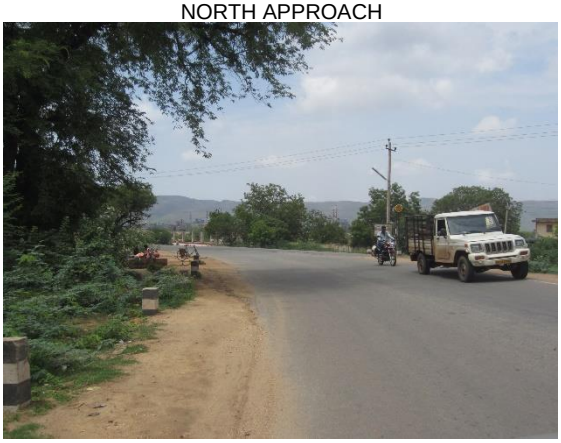
Y-JUNCTION

NORTH APPROACH

NORTH APPROACH

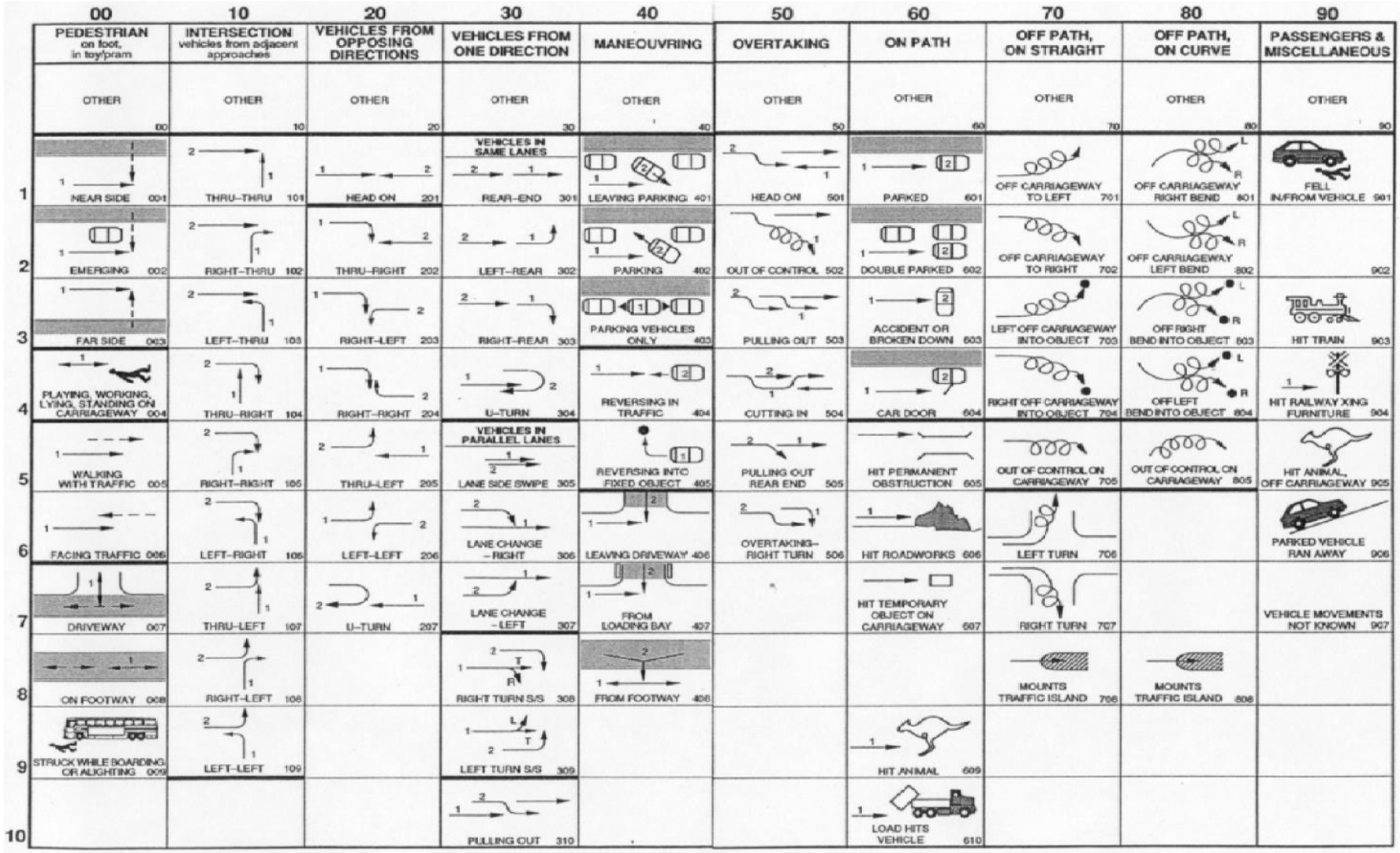
NORTH APPROACH

SOUTH APPROACH



WEST APPROACH

Figure 2.1: Standard accident-type codes for definitions for coding accidents (DCAs) in Australia



DEFINITION FOR CLASSIFYING ACCIDENTS (DCA) CHART – FOR DRIVING ON LEFT SIDE OF THE ROAD.