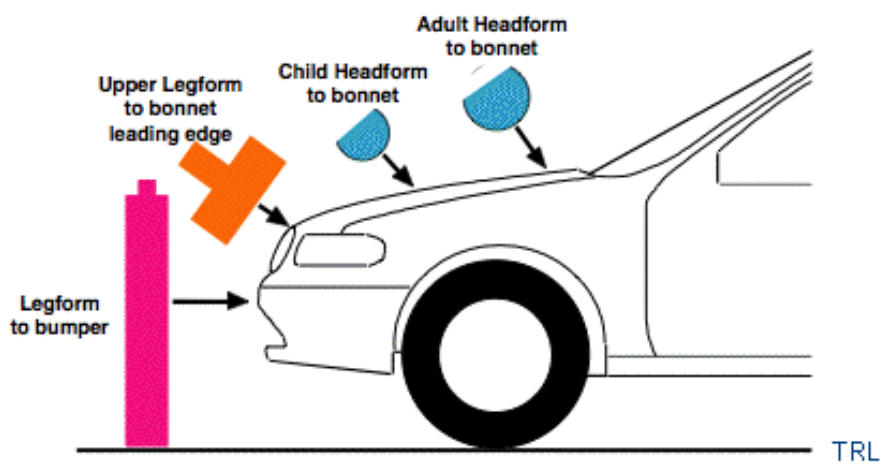


PEDESTRIAN PROTECTION THROUGH VEHICLE DESIGN

Michael Paine - Technical Manager

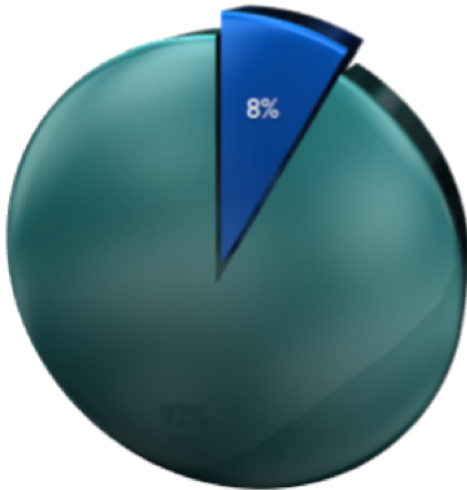


ANCAP HAS BEEN CONDUCTING PEDESTRIAN PROTECTION TESTS SINCE 2000

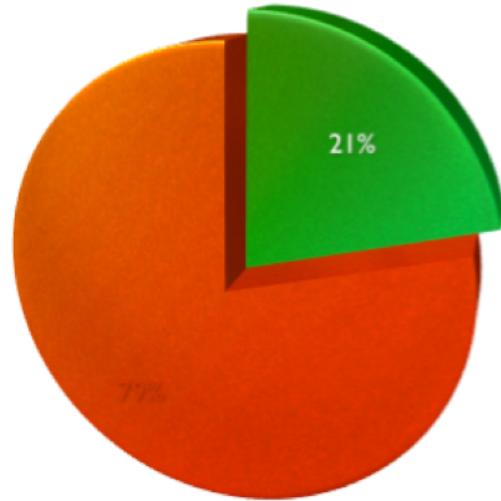


ESTIMATED BENEFITS OF A GOOD 4-STAR RATING

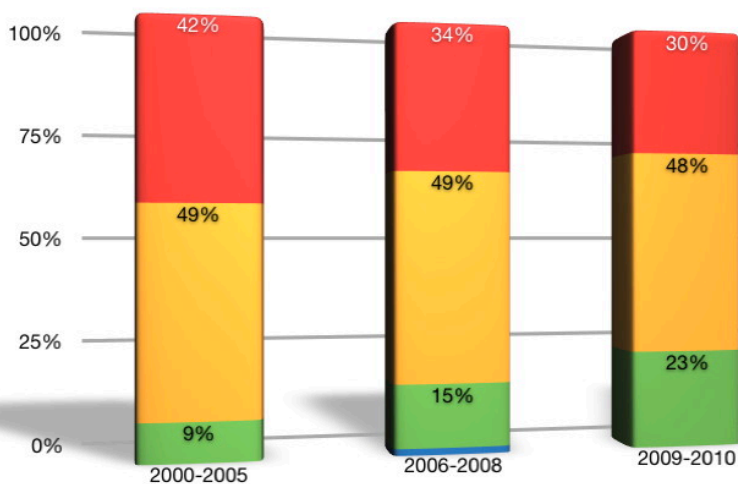
Pedestrian Fatalities



Pedestrian Serious Injuries



ANCAP Pedestrian Protection Trends - Vehicle Models

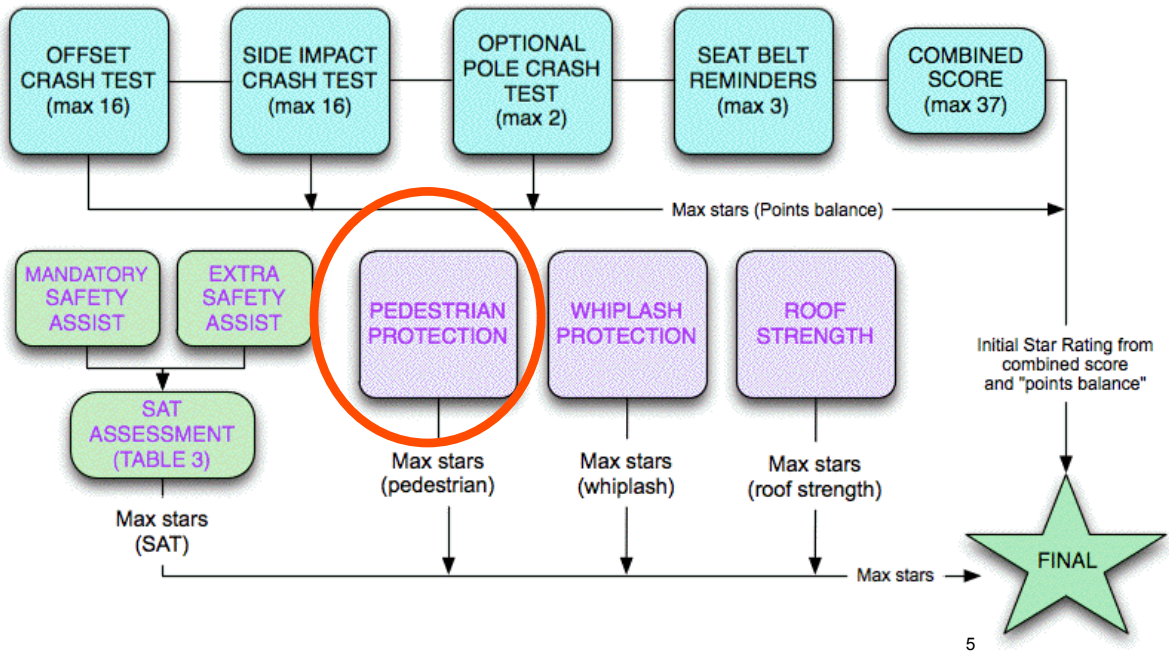


Year published by ANCAP

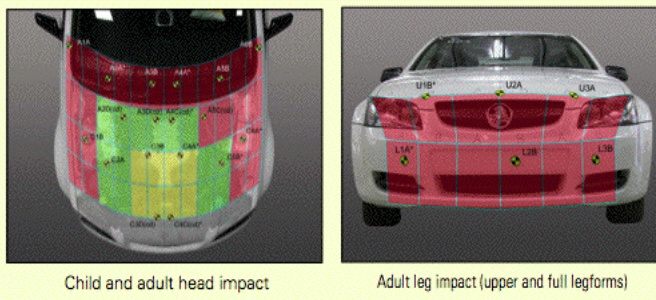
■ 4 Stars
 ■ 3 Stars
 ■ 2 Stars
 ■ 1 or Nil stars



ANCAP ROADMAP 2011-2015



Pedestrian Protection Tests



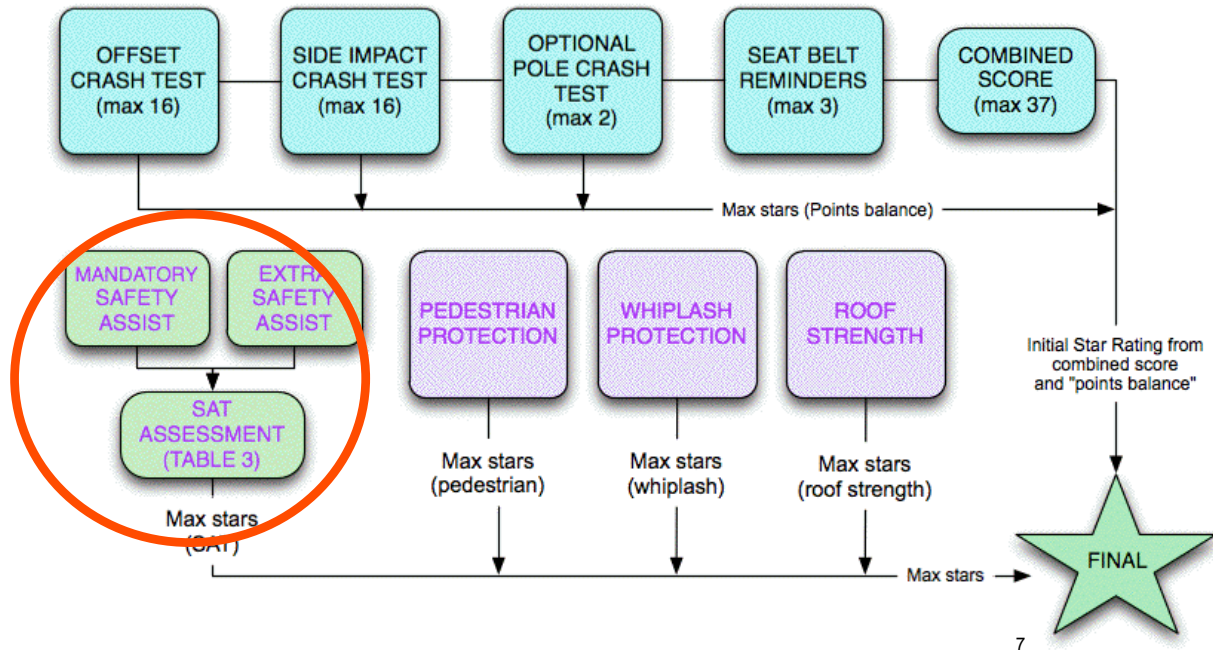
Change to test protocol during 2010. Descriptive rating being introduced to highlight the change.

Score	Old star rating	New descriptive rating
27.5 or more	ANCAP Rated ★★★★★	Good
18.5 to 27.49	ANCAP Rated ★★★★☆	Acceptable
9.5 to 18.49	ANCAP Rated ★★★☆☆	Marginal
0.5 to 9.49	ANCAP Rated ★★☆☆☆	Poor
Less than 0.5	ANCAP Rated ★☆☆☆☆	Poor

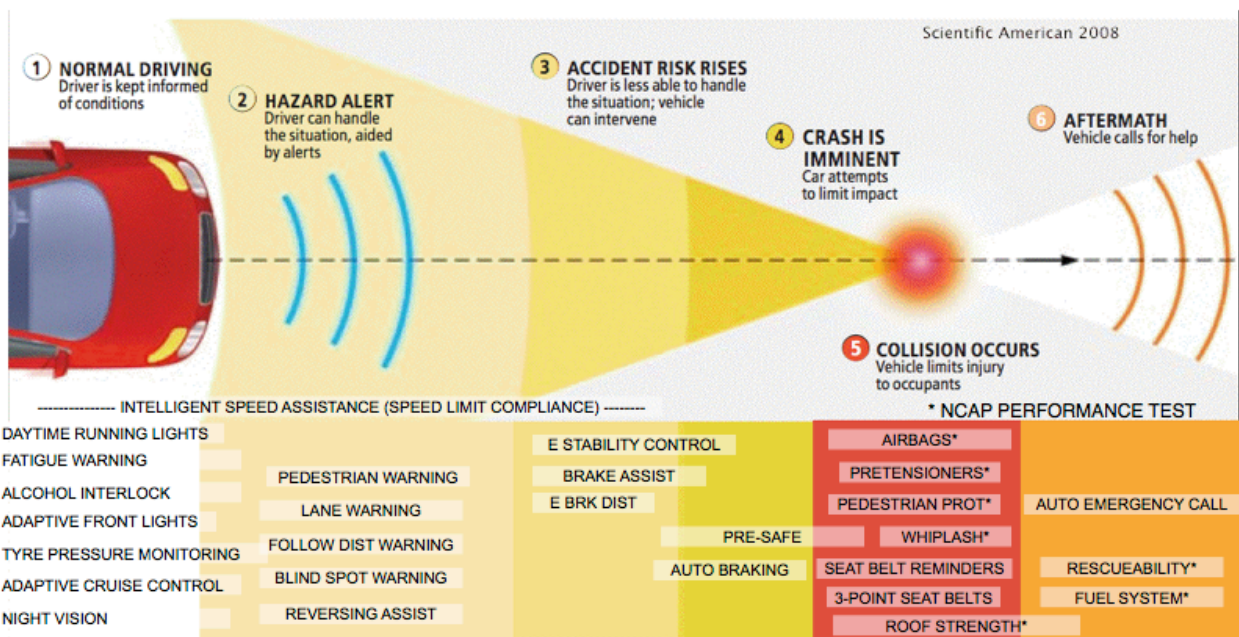
A result of at least "marginal" will be required for an ANCAP 5-star safety rating from 2012.



ANCAP ROADMAP 2011-2015



Safety Assist Technologies



1 NORMAL DRIVING
Driver is kept informed of conditions

1 NOR Driver of con

ISA

DAYTIME RUNNING LIGHTS

FATIGUE WARNING

ALCOHOL INTERLOCK

ADAPTIVE FRONT LIGHTS

TYRE PRESSURE MONITORING

ADAPTIVE CRUISE CONTROL

NIGHT VISION

Scientific American 2008

4 CRASH IS IMMINENT
Car attempts to limit impact

5 COLLISION OCCURS
Vehicle limits injury to occupants

6 AFTERMATH
Vehicle calls for help

* NCAP PERFORMANCE TEST

AIRBAGS*	AUTO EMERGENCY CALL
PRE-TENSIONERS*	
PEDESTRIAN PROT*	
PRE-SAFE	WHIPLASH*
PRE-SAFE BRAKING	SEAT BELT REMINDERS
	3-POINT SEAT BELTS
	ROOF STRENGTH*
	RESCUEABILITY*
	FUEL SYSTEM*

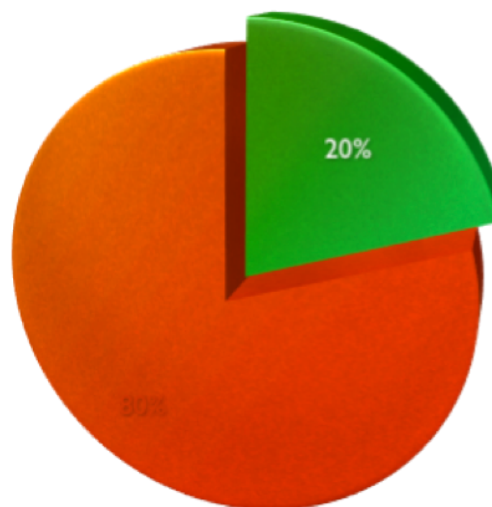
Logos: RAA, RACV, RACQ, SVU, TAC

Intelligent Speed Assistance

- Encourages drivers to comply with speed limits
- Speed limit mapping of Australia is well underway
- Many sat-nav systems have ISA or ISA capability
- ETSC estimates 20% of urban pedestrian casualties could be saved through ISA



Urban Pedestrian Casualties



1 NORMAL DRIVING
Driver is kept informed of conditions

1 NOR Driver of con

ISA

DAYTIME RUNNING LIGHTS

FATIGUE WARNING

ALCOHOL INTERLOCK

ADAPTIVE FRONT LIGHTS

TYRE PRESSURE MONITORING

ADAPTIVE CRUISE CONTROL

NIGHT VISION

Scientific American 2008

4 **CRASH IS IMMINENT**
Car attempts to limit impact

5 **AFTERMATH**
Vehicle calls for help

5 **COLLISION OCCURS**
Vehicle limits injury to occupants

* NCAP PERFORMANCE TEST

	AIRBAGS*	
	PRE-TENSIONERS*	
	PEDESTRIAN PROT*	AUTO EMERGENCY CALL
PRE-SAFE	WHIPLASH*	
NO BRAKING	SEAT BELT REMINDERS	RESCUEABILITY*
	3-POINT SEAT BELTS	FUEL SYSTEM*
	ROOF STRENGTH*	

Logos: RAA, RACV, RACQ, SVU, TAC

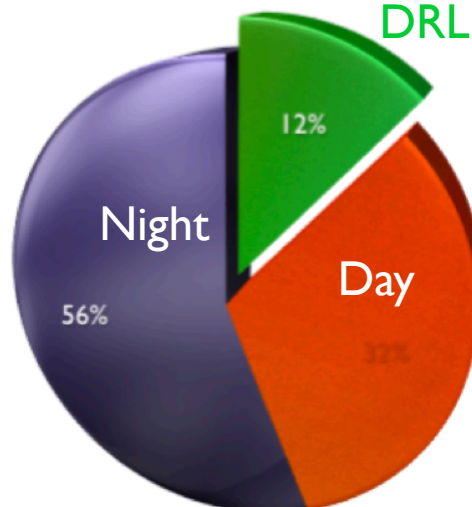
Daytime Running Lights

- Increases forward conspicuity
- Now mandatory in Europe
- Dedicated DRLs far more effective than low beam headlights
- Estimated that 12% of pedestrian fatalities could be saved through DRLs



Pedestrian Fatalities

DRL saving:



1 NORMAL DRIVING
Driver is kept informed of conditions

ISA

DAYTIME RUNNING LIGHTS

FATIGUE WARNING

ALCOHOL INTERLOCK

ADAPTIVE FRONT LIGHTS

TYRE PRESSURE MONITORING

ADAPTIVE CRUISE CONTROL

NIGHT VISION

Scientific American 2008

1 CRASH RISKS
Driver handles

4 CRASH IS IMMINENT
Car attempts to limit impact

5 COLLISION OCCURS
Vehicle limits injury to occupants

6 AFTERMATH
Vehicle calls for help

* NCAP PERFORMANCE TEST

	AIRBAGS*	
	PRETENSIONERS*	
	PEDESTRIAN PROT*	AUTO EMERGENCY CALL
PRE-SAFE	WHIPLASH*	
ADAPTIVE BRAKING	SEAT BELT REMINDERS	RESCUEABILITY*
	3-POINT SEAT BELTS	FUEL SYSTEM*
	ROOF STRENGTH*	

RAA RACV RACQ SVU TAC

1 NORMAL DRIVING
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ISA

DAYTIME RUNNING LIGHTS

FATIGUE WARNING

ALCOHOL INTERLOCK

ADAPTIVE FRONT LIGHTS

TYRE PRESSURE MONITORING

ADAPTIVE CRUISE CONTROL

NIGHT VISION

Scientific American 2008

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	PRETENSIONERS*	
	PEDESTRIAN PROT*	AUTO EMERGENCY CALL
PRE-SAFE	WHIPLASH*	
ADAPTIVE BRAKING	SEAT BELT REMINDERS	RESCUEABILITY*
	3-POINT SEAT BELTS	FUEL SYSTEM*
	ROOF STRENGTH*	

RAA RACV RACQ SVU TAC

Safety Assist Technologies

1 NORMAL DRIVING
Driver is kept informed of conditions

2 HAZARD ALERT
Driver can handle the situation, aided by alerts

ISA

PEDESTRIAN WARNING

LANE WARNING

FOLLOW DIST WARNING

BLIND SPOT WARNING

REVERSING ASSIST

DAYTIME RUNNING LIGHTS
FATIGUE WARNING
ALCOHOL INTERLOCK
ADAPTIVE FRONT LIGHTS
TYRE PRESSURE MONITORING
ADAPTIVE CRUISE CONTROL
NIGHT VISION

5 AFTERMATH
Vehicle calls for help

COLLISION OCCURS
Vehicle limits injury to occupants

* NCAP PERFORMANCE TEST

AIRBAGS*	AUTO EMERGENCY CALL
SEATBELT RETENTIONERS*	RESCUEABILITY*
PEDESTRIAN PROTECTION*	FUEL SYSTEM*
WHIPLASH*	
BELT REMINDERS	
CHILD SEAT BELTS	
ROOF STRENGTH*	

Scientific American 2008

ANCAP
Crash testing for safety
AUSTRALASIAN NEW CAR ASSESSMENT PROGRAM

New Zealand, FIA Foundation, ULTRANSPORT AGENCY, VIC ROADTS, RAA, RACV, RACQ, TAC

Safety Assist Technologies

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PEDESTRIAN WARNING

LANE WARNING

FOLLOW DIST WARNING

BLIND SPOT WARNING

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PEDESTRIAN PROTECTION*	FUEL SYSTEM*
WHIPLASH*	
BELT REMINDERS	
CHILD SEAT BELTS	
ROOF STRENGTH*	

Scientific American 2008

ANCAP
Crash testing for safety
AUSTRALASIAN NEW CAR ASSESSMENT PROGRAM

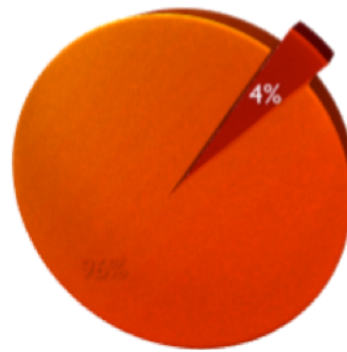
New Zealand, FIA Foundation, ULTRANSPORT AGENCY, VIC ROADTS, RAA, RACV, RACQ, TAC

Reversing Assistance

- All vehicles have a poor rearward field of view
- Toddlers are particularly at risk
- Reversing cameras can reduce risk (but are not a substitute for adult supervision)
- NHTSA about to regulate in the USA. Estimates 42% effectiveness for rearview cameras



All Pedestrian Fatalities



Children in low-speed accidents

17



Safety A

3 ACCIDENT RISK RISES
Driver is less able to handle the situation; vehicle can intervene

ISA
E STABILITY CONTROL
BRAKE ASSIST
E BRK DIST
PRE-SAFE
AUTO BRAKING

Scientific American 2008

5 AFTERMATH
Vehicle calls for help

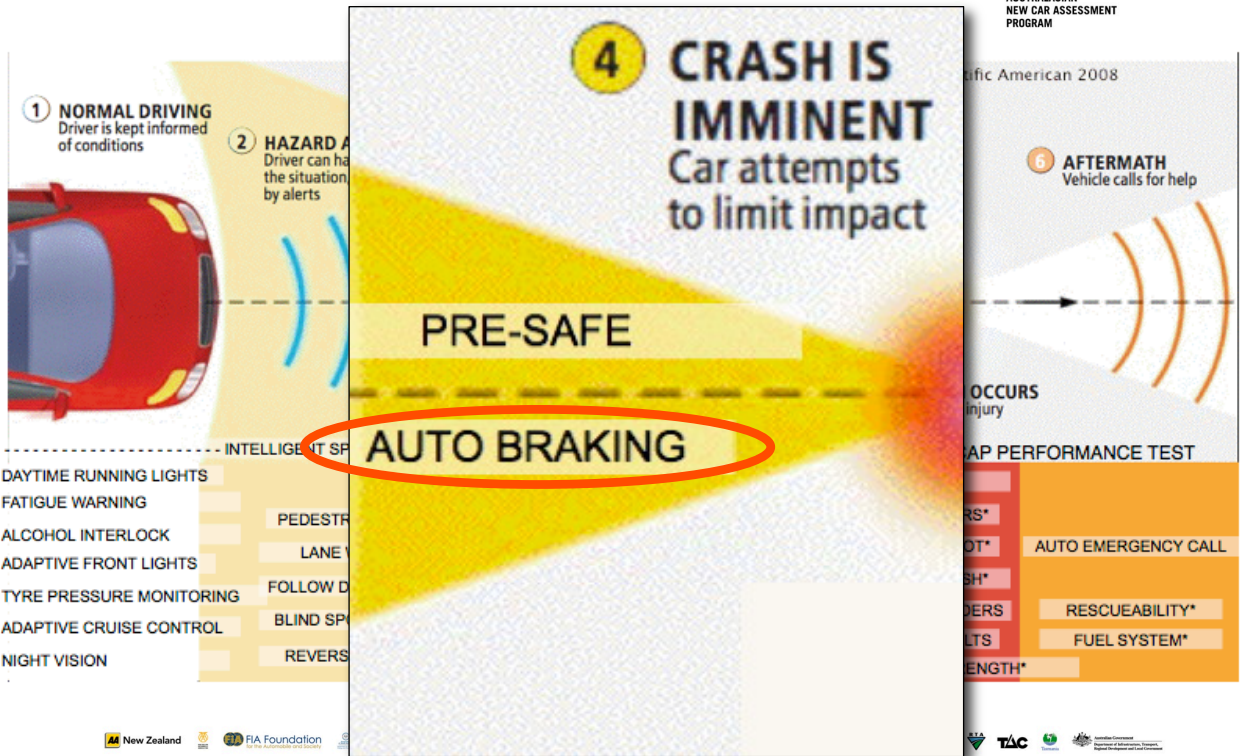
COLLISION OCCURS
Vehicle limits injury to occupants

* NCAP PERFORMANCE TEST

AIRBAGS*	TENSIONERS*	PEDESTRIAN PROT*	AUTO EMERGENCY CALL
WHIPLASH*	BELT REMINDERS	CHILD SEAT BELTS	RESCUEABILITY*
ROOF STRENGTH*			FUEL SYSTEM*



Safety Assist Technologies



Auto Braking



Auto Braking

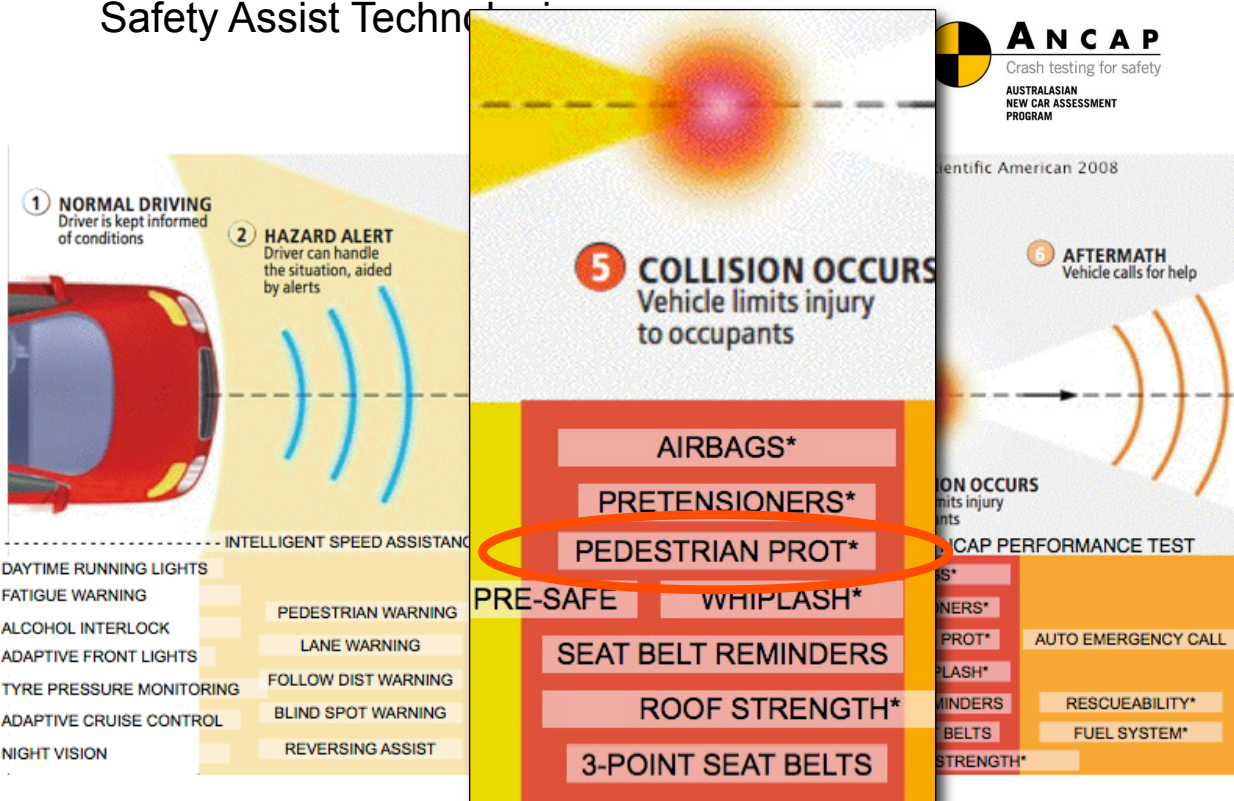
NRMA video on Subaru Eyesight



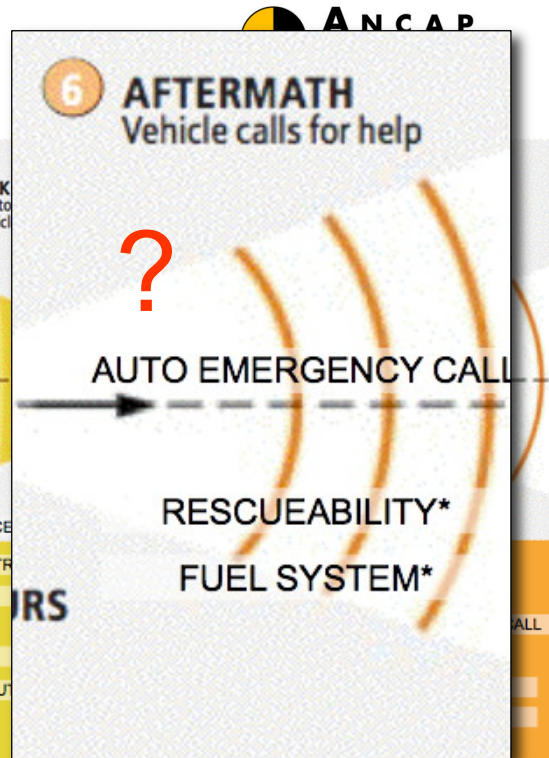
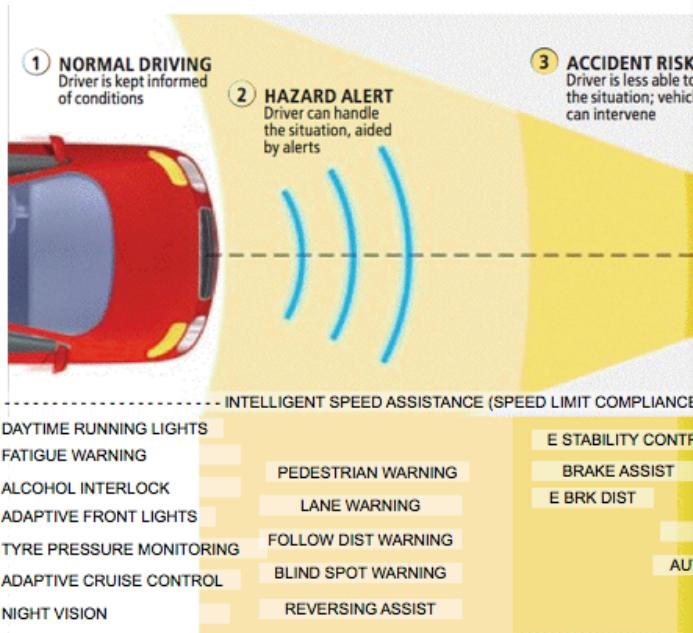
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Safety Assist Technology



Safety Assist Technologies



Proposed Requirements for a 5-star ANCAP Rating



Year	"Mandatory SAT" ¹	Minimum number of "Additional SAT" items ²	Minimum Pedestrian Rating	Minimum Whiplash Rating	Minimum Roof Strength Rating
5 Stars					
2011	ESC, 3PSB, HPT front seats	-	-	-	-
2012	"	2	Marginal	Acceptable	-
2013	2012 + SBR front seats, EBA	3	Marginal	Acceptable	-
2014	2013 + HPT 2nd row seats	4	Acceptable	Good	Acceptable
2015	2014 + SBR 2nd row fixed seats	5	Acceptable	Good	Acceptable

