

# IRF - Road Safety Management and Action Plan Himachal Pradesh Case Study

May 2021



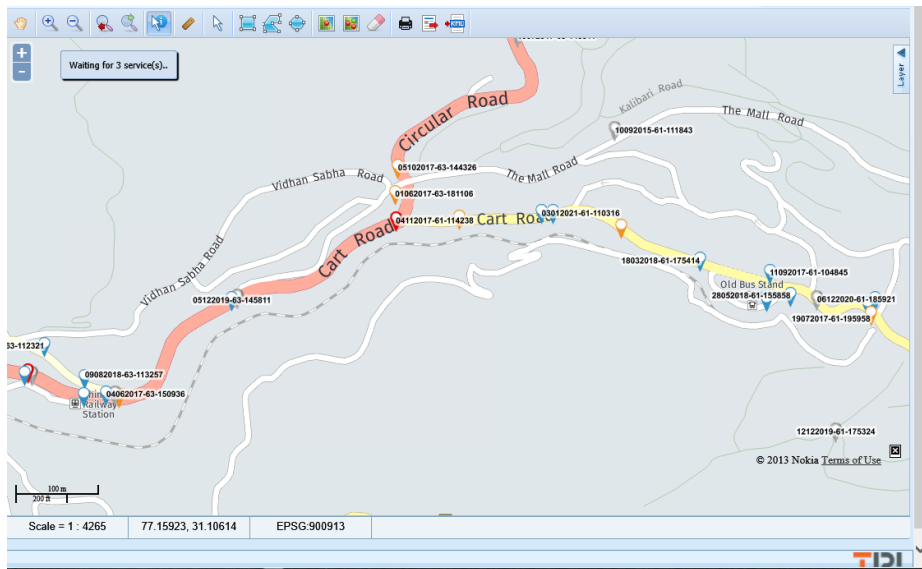


# Road safety management: based in good data intelligence

Himachal Pradesh – using TRL’s iMAAP/RADMS since 2015 for police crash reports#

Mobile devices – fast systematic web-based system:

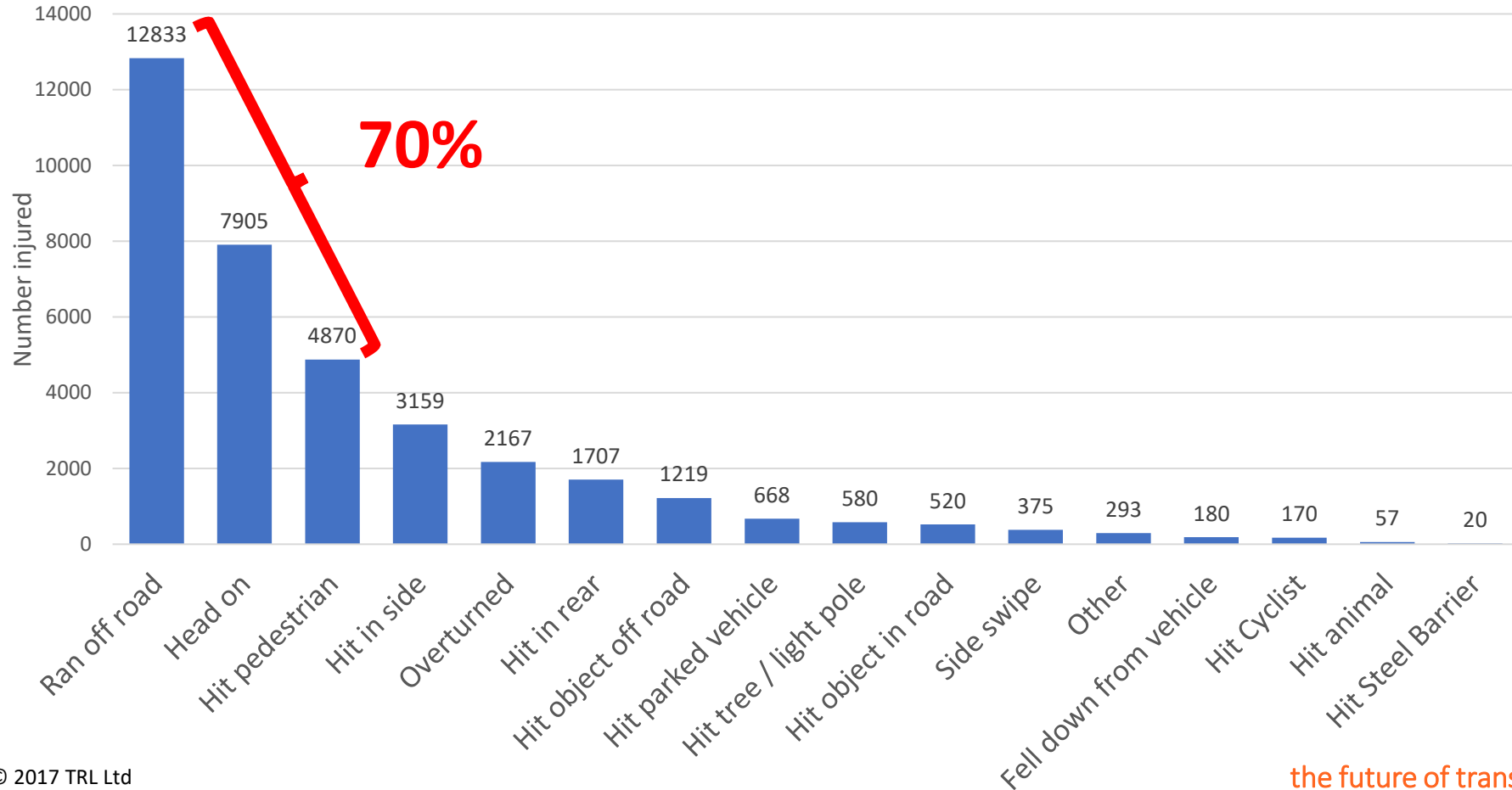
## Accurate crash locations:



## Scene photos:

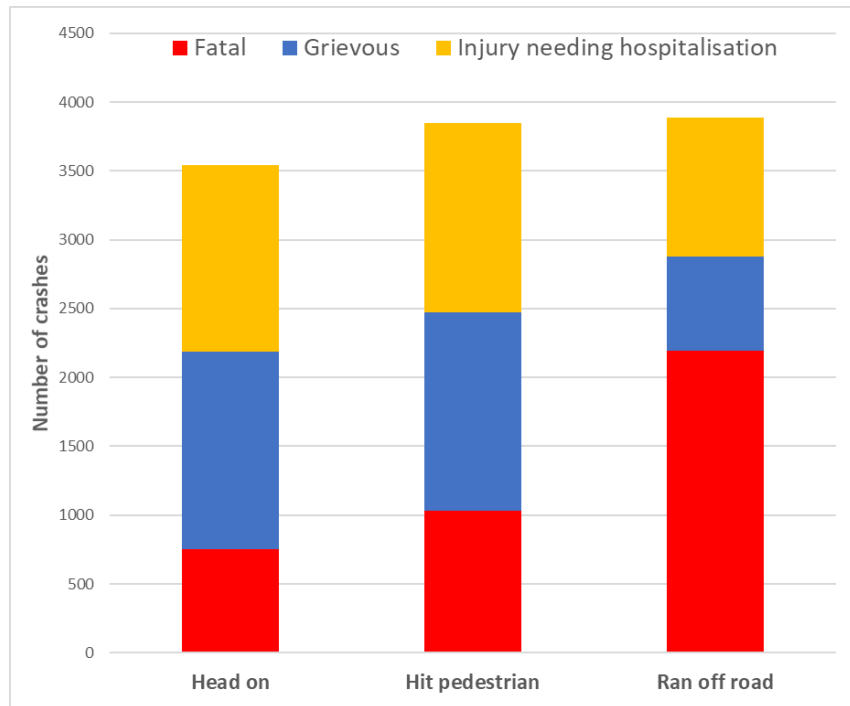


# Injury numbers by crash types (5 years data)

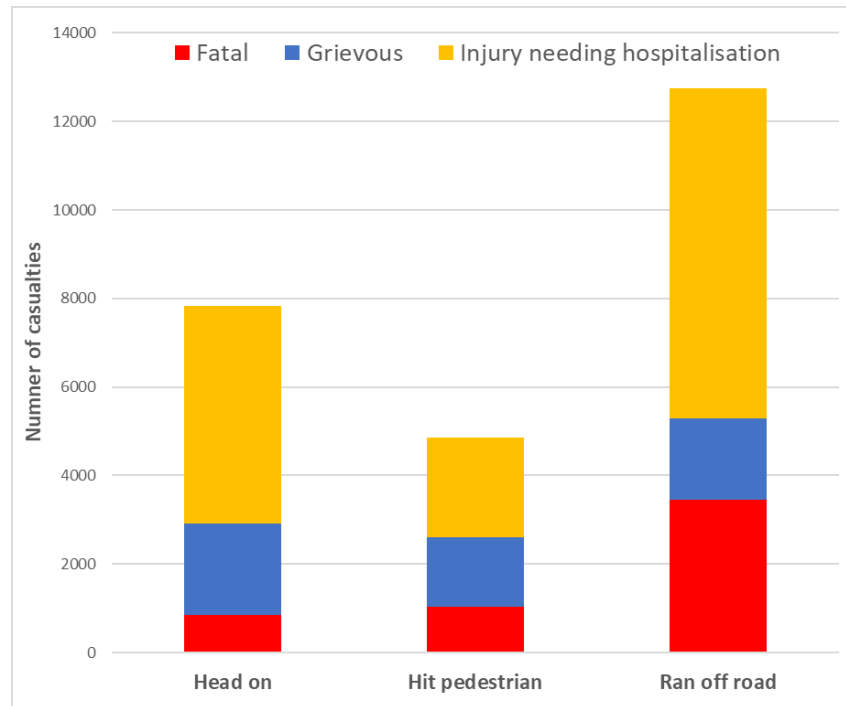


# In-depth patterns – serious injuries and fatalities:

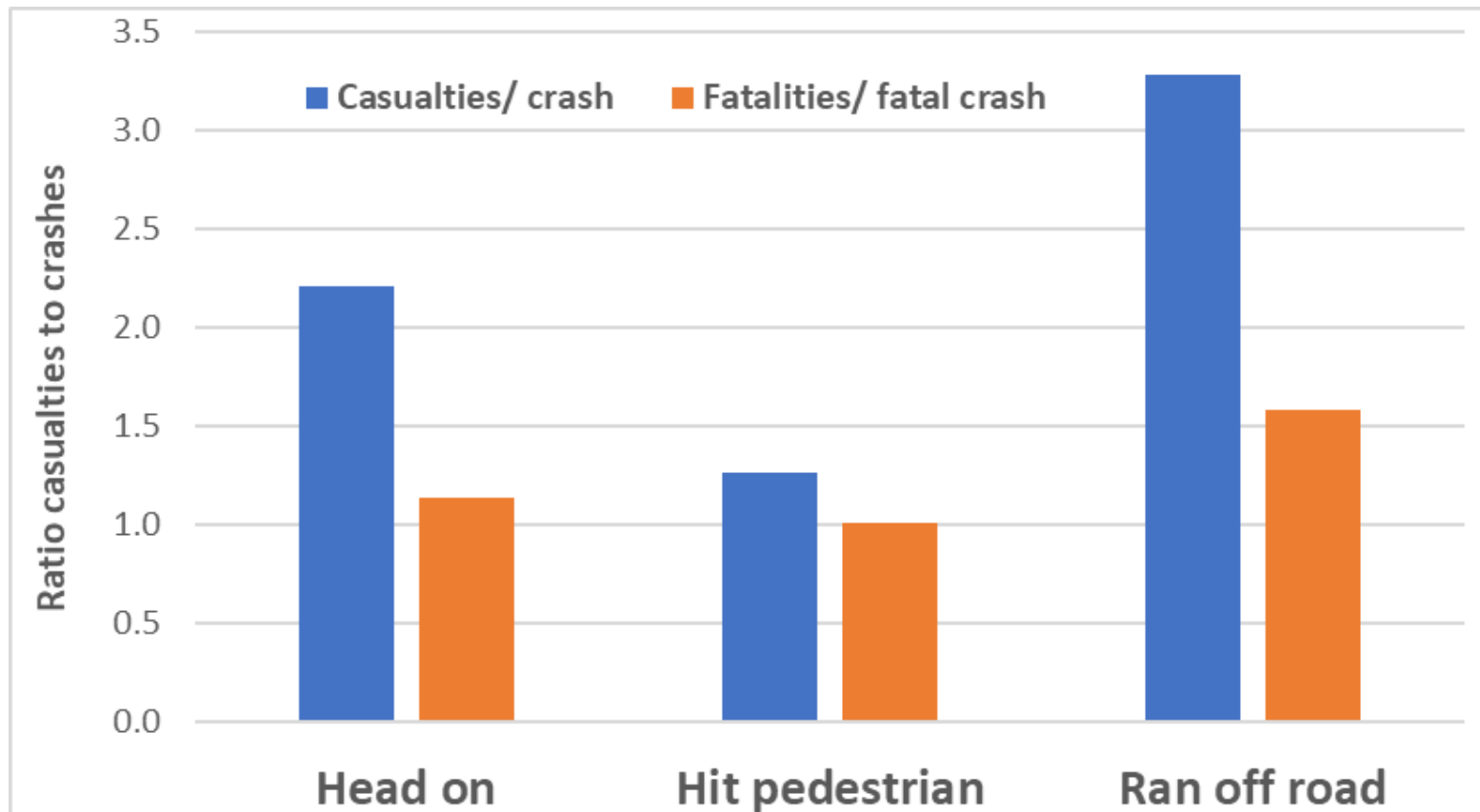
## Crash numbers:



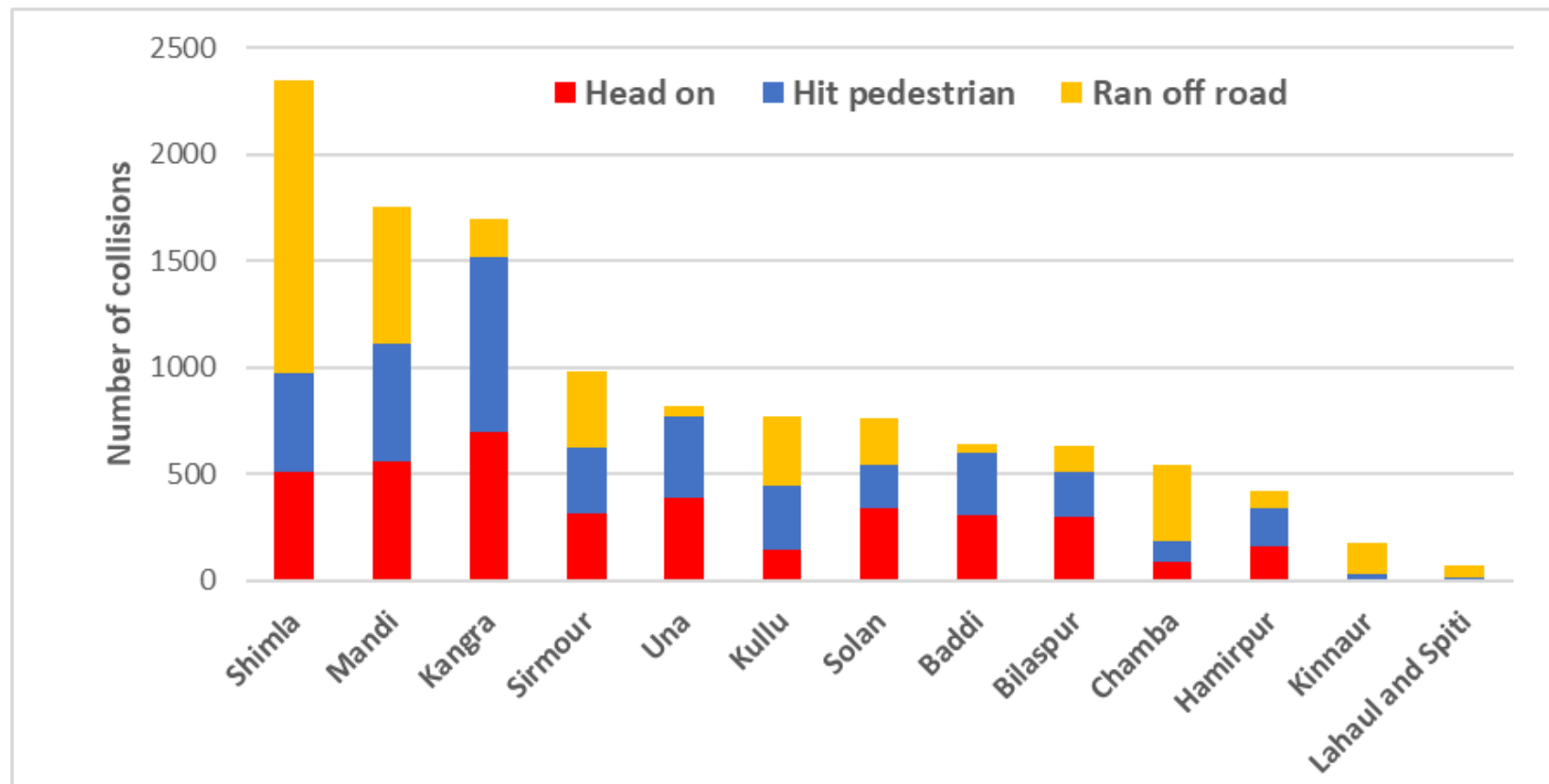
## Casualty numbers:



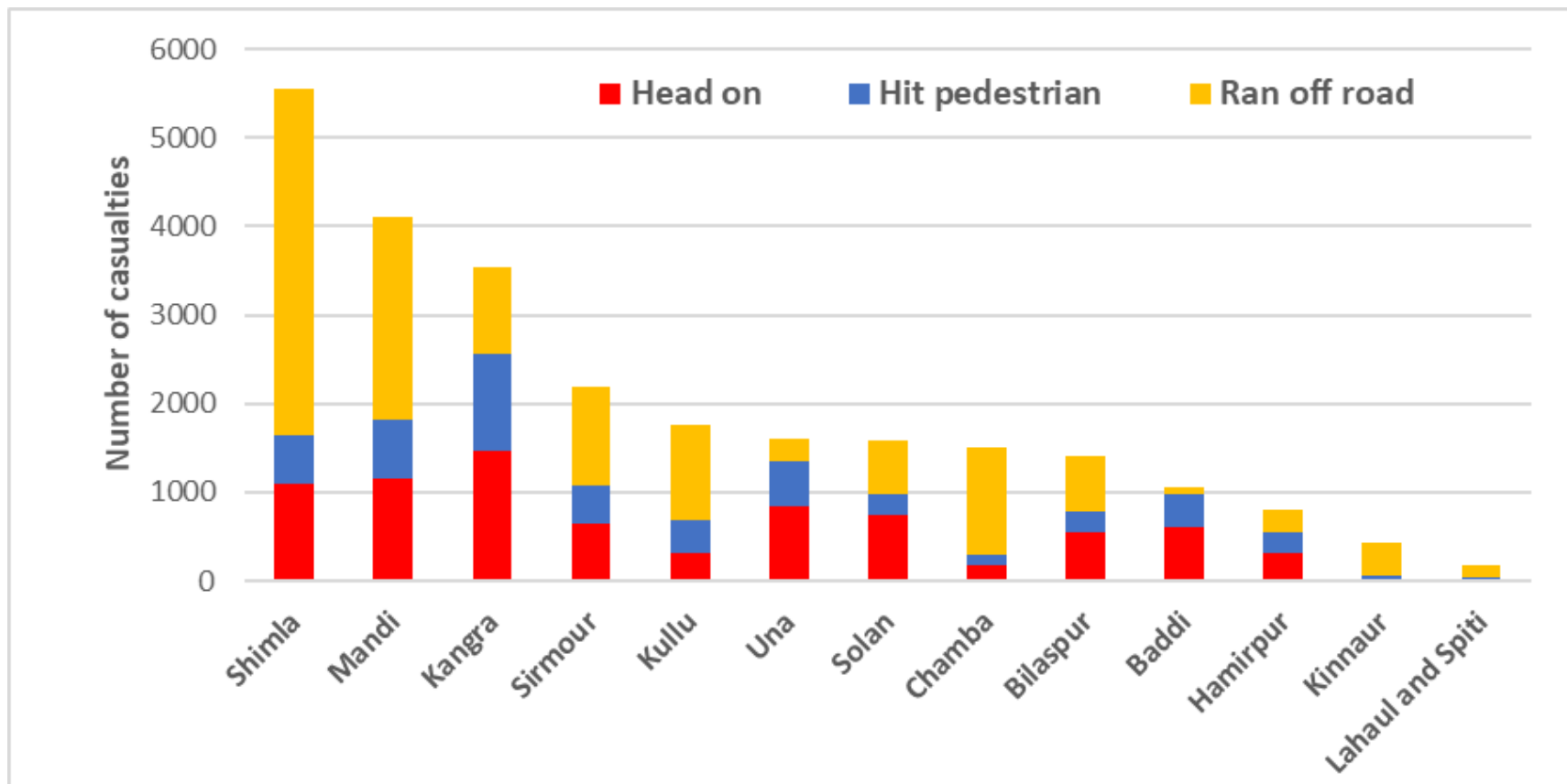
## Serious/ fatal Casualties per crash type



# Main crash type number per District



# Main casualty type number per District

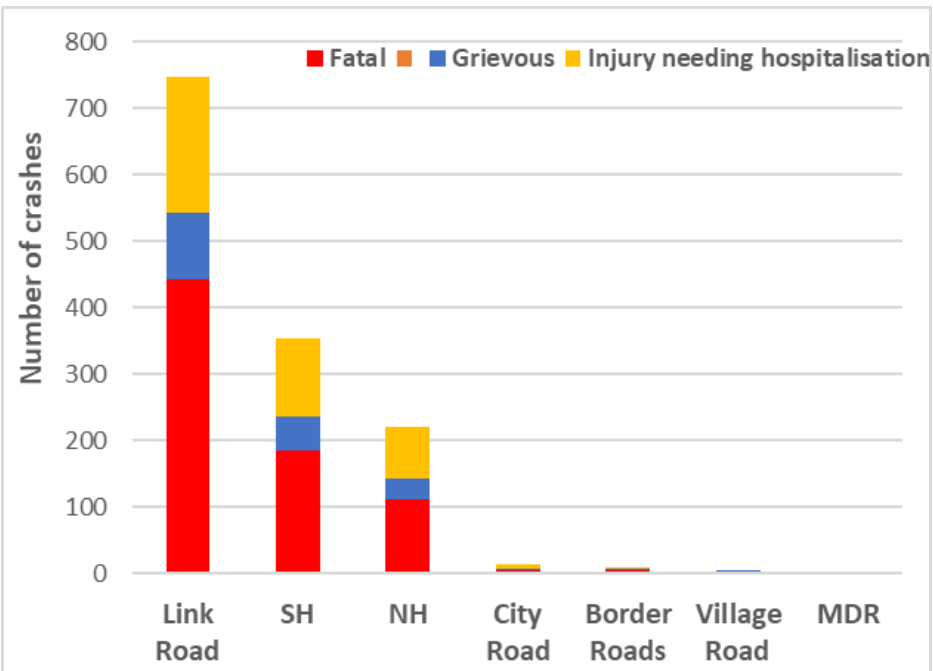


# Shimla focus: Fatal/ Grievous/ Hospitalised

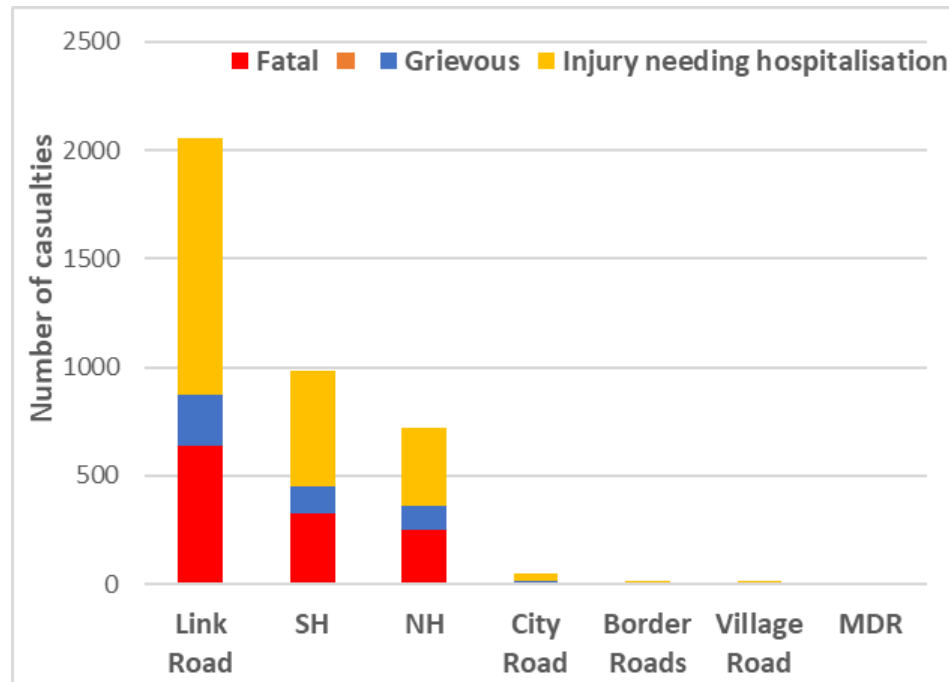
SHIMLA District	Collisions		FSI Injuries/ casualties	
	Ran off road	1360	47%	3835
Hit pedestrian	464	16%	1075	16%
Head on	427	15%	542	8%
<b>Total</b>		<b>78%</b>		<b>80%</b>

# Shimla – ran off road – road types

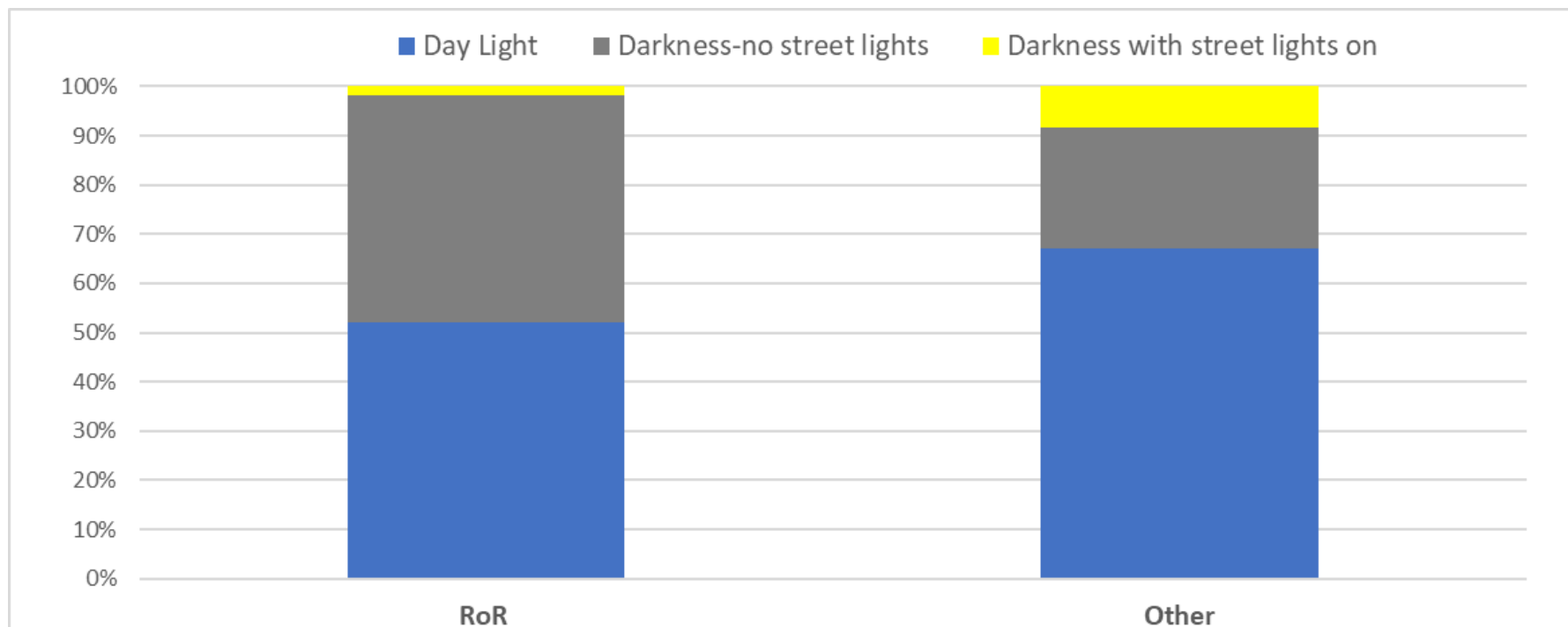
## Crash numbers:



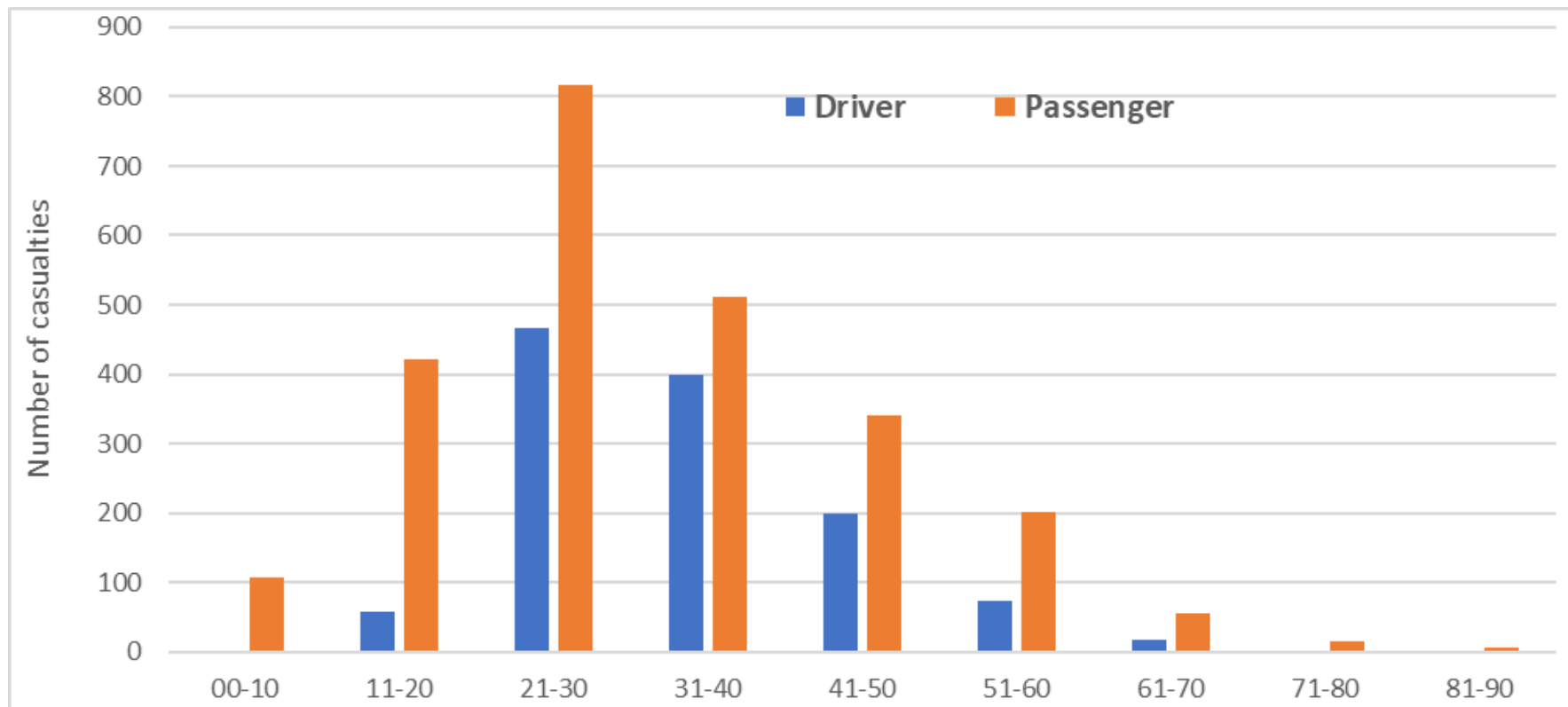
## Casualty numbers:



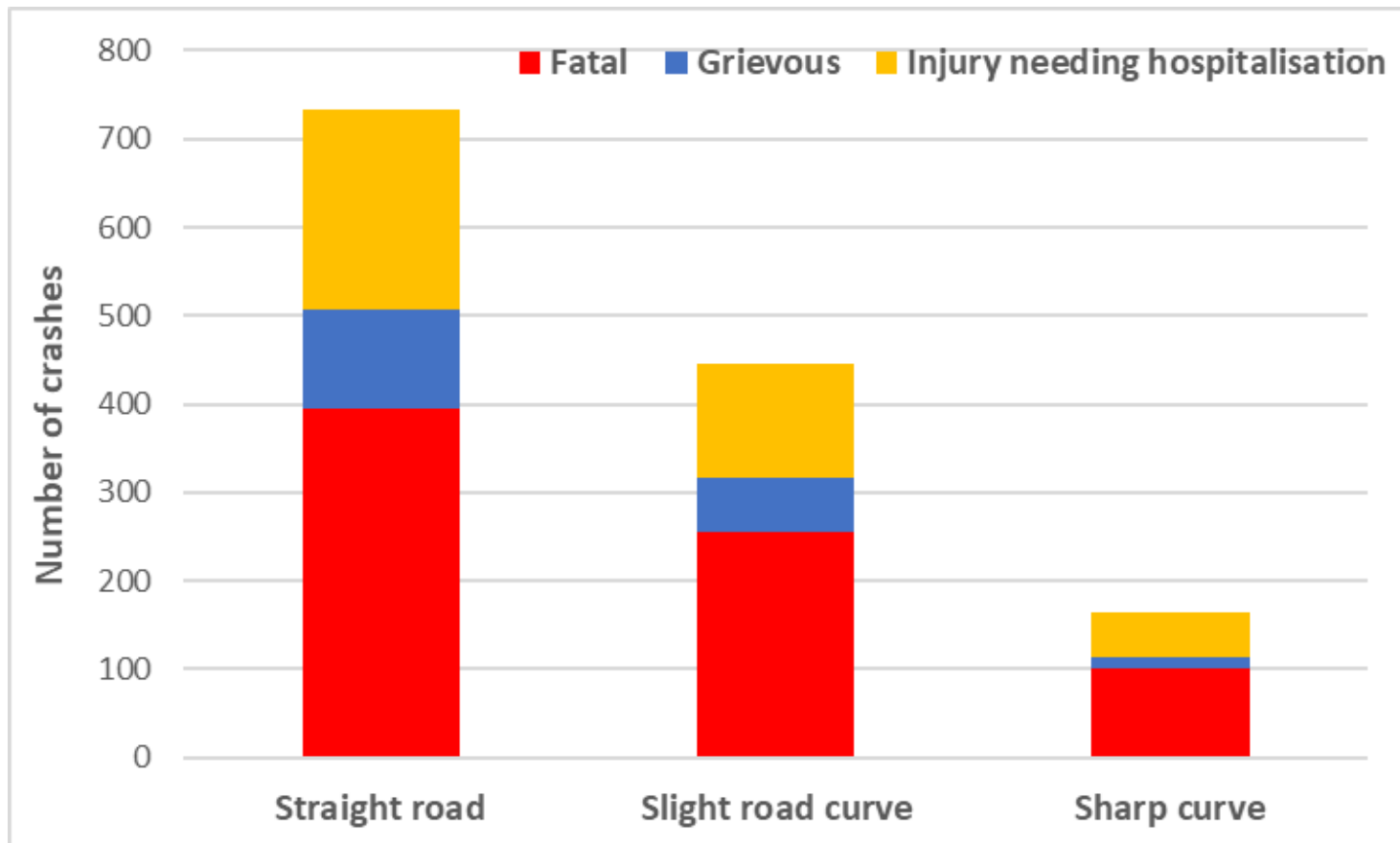
# Shimla: Light conditions RoR - greater proportion darkness



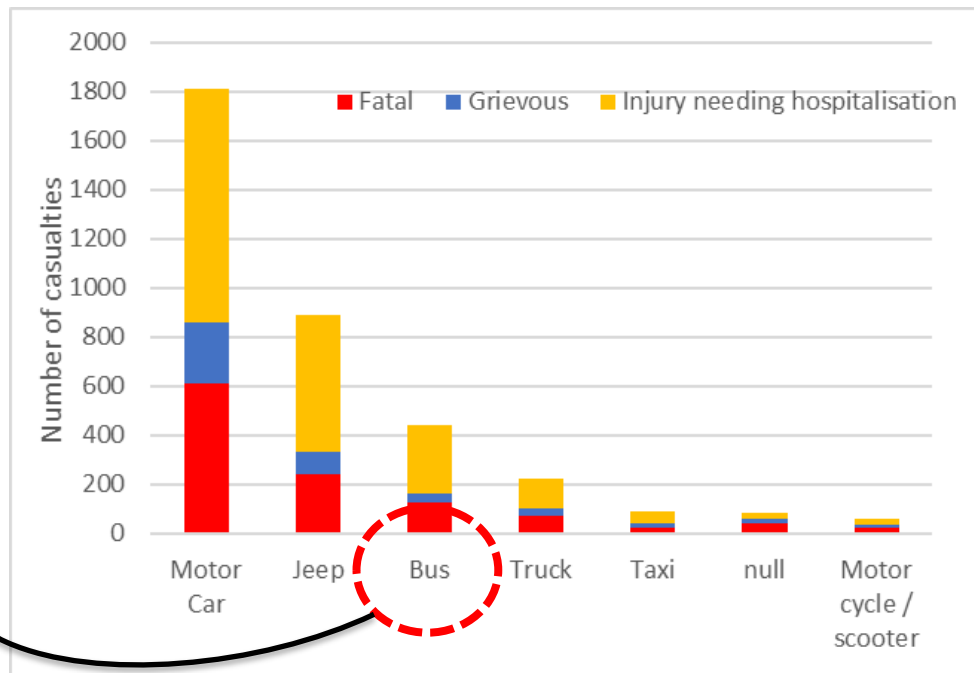
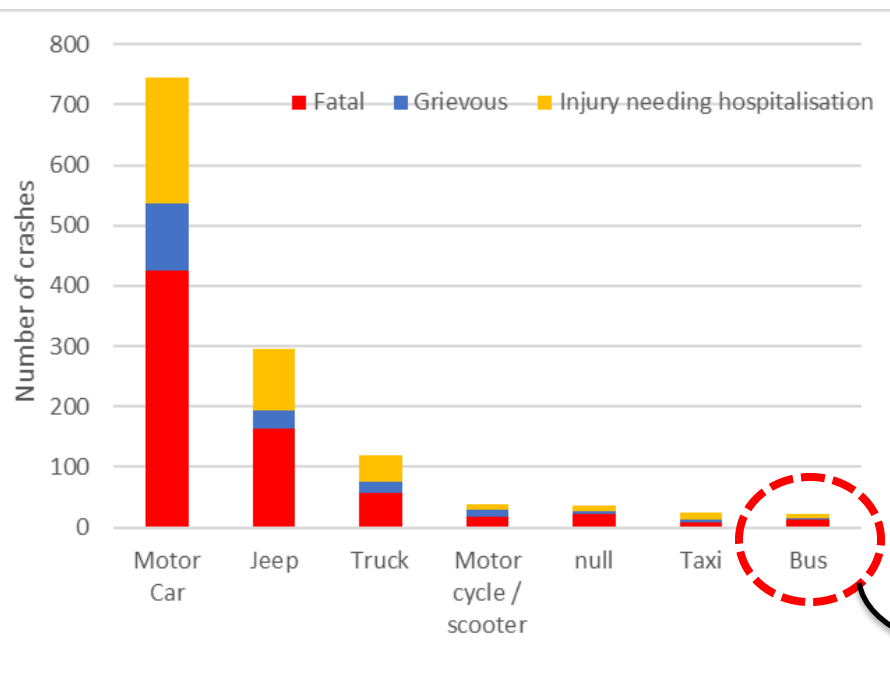
# Shimla: Driver and passenger casualty age bands



# Shimla – Road Geometry Features

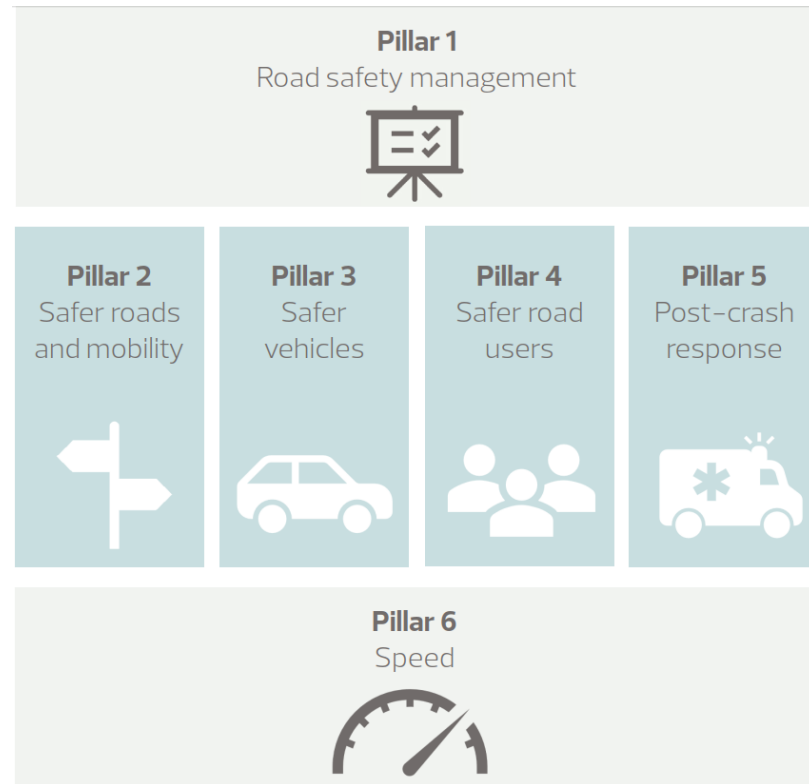


# Shimla: Top 7 Vehicles involved - per crash and casualty



# Safe systems Road Safety Management – means:

- Do more approaches to tackle single issues
  - Multiple sectors or UN ‘Pillars’
- Reduce Fatal/ Serious injuries
  - Avoid crashes occurring if possible
  - Reduce severity when this is not possible
- Use data to plan strategies targeted at the real risks/ problems
- Use data to Monitor and Evaluate



# Crash data figures in Safe System strategy development:

## Numbers of casualties

and economic values – to calculate societal costs



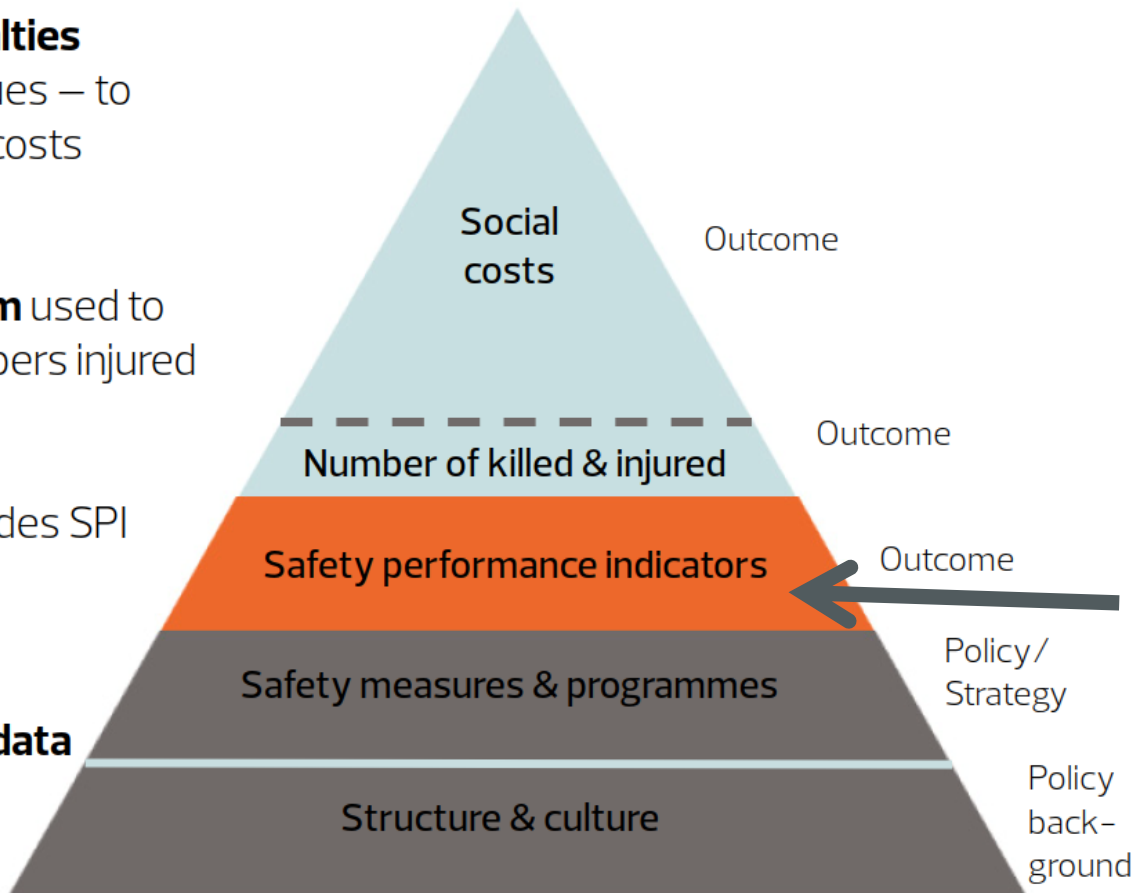
**Crash Data System** used to give national numbers injured



**Data system** includes SPI Information



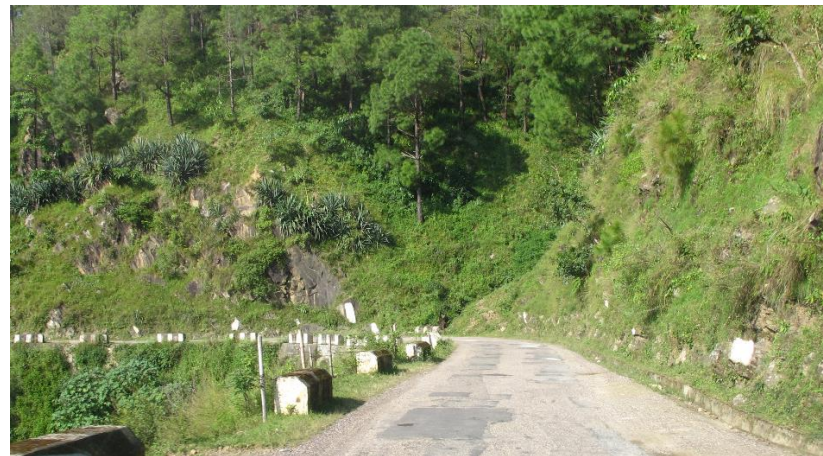
Analysis of **Crash data** Formulates **Policy** And **Strategy**



Intermediate Indicators\*

## Evidence based strategies

- Based primarily on rapid crash data analysis but also familiarity with Himachal Pradesh
- Following approaches linked to the evidence from analysis
- Far more investigation would need to be done to develop the ideas fully
- Focus on Shimla Run Off Road problem
  - Repeat for **Pedestrian** and **Head on** issues



# Spatial analysis:

Browser: <https://hpimaa pradms.hp.gov.in/imaap.aspx>

IMAAP RADMS

Welcome balu, Customer Support Admin | 17-05-2021 | My Account | Languages | About | Logout

Data | Query | Map | Analysis | Advanced Analysis | Blackspot | Reports | Dashboards | Auditing

Cluster | User Site | Grid Density | Corridor | Stick

Temporary Query: 1360 | 1375 | 3915

Cluster Analysis Parameters

Saved Templates: HP all

Date Range: From <dd-MM-yyyy> 15 To <dd-MM-yyyy> 15

Analysis Region:  Rectangle Area 104363202831.4 square metres  Polygon  Circle

Cluster Site Resolution (m): 200 Min. Number of Accidents: 2

Severity Weightings: Fatal 1, Grievous 1, Injury... 1, Not... 0, Damage... 0

Range Parameters: Number of Ranges 5, High Low, Inflection

Identify Sites:  All Sites,  Worst Sites,  Sites Above Threshold Number of Sites 15

Map: Waiting for 2 service(s)..

Cluster Analysis Results

Name	Score
Cluster 1	27
Cluster 2	17
Cluster 3	9

Legend: Analysis by SCORE

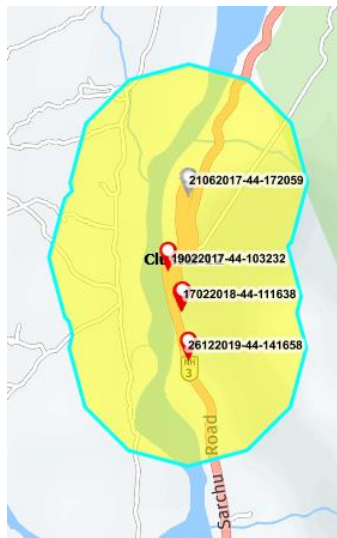
Red	9-27 (3)
Orange	8 (1)
Yellow	7 (4)

Scale = 1 : 68K | 77.42982, 31.07613 | EPSG:900913

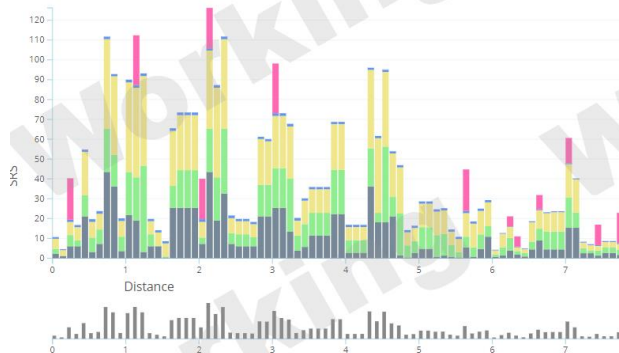
Data CC-BY-SA by OpenStreetMap

# Pillar: Roads – Strategy element

- Systematically put barriers on:
  - Link roads
- Prioritise crash prone sections
  - Cluster/ route analysis
    - Barrier improvements
    - Lighting at some locations?
    - Parapets at bridges
- Apply iRAP
  - Area wide treatment at high risk locations



Accident Reference Number	19022017-44-103232	21062017-44-172059	14012018-44-175233	17022018-44-111638	26122019-44-141658
Accident Time	20:00	22:00	18:30	19:00	19:45
No. of Injuries	3	0	12	3	5
Light Condition	Darkness -no street lights	Darkness -no street lights	Darkness -no street lights	Darkness -no street lights	Darkness -no street lights
Weather Condition					
Vehicle Type 1	Motor Car	Truck	Motor Car	Motor Car	Motor Car
Accident Factor	Dangerous driving	Turning without care	Turning without care	Blind bend	Speed
Horizontal Features	Slight road curve	Sharp curve	Sharp curve	Sharp curve	Straight road



Distance	0
Vehicle Occupant Star Rating	3
Vehicle Occupant SRS	10.8587475
Vehicle Occupant SRS Run-Off LOC Driver-Side	2.3194725
Vehicle Occupant SRS Run-Off LOC Passenger-Side	2.44155
Vehicle Occupant SRS Head-On LOC	5.0676
Vehicle Occupant SRS Head-On Overtaking	0.861
Vehicle Occupant SRS Intersection	0
Vehicle Occupant SRS Property Access	0.169125



# Vehicle pillar

- Vehicle technical fitness improved:
  - Tyres
  - Brakes
  - Head lights
- Focus on bus technical standards:
- Focus on Jeeps – they seem safe but are highly unstable
  - Awareness campaign?



## People pillar

- General driver training/ testing improvement
- Tougher on Bus driver training
- Awareness campaigns linked to police action on speed and dangerous driving focus
- Review and enforce seat belt laws



## Speed pillar

- Assess role of speed/ dangerous driving
- Targeted Speed enforcement based on crash data and where people speed



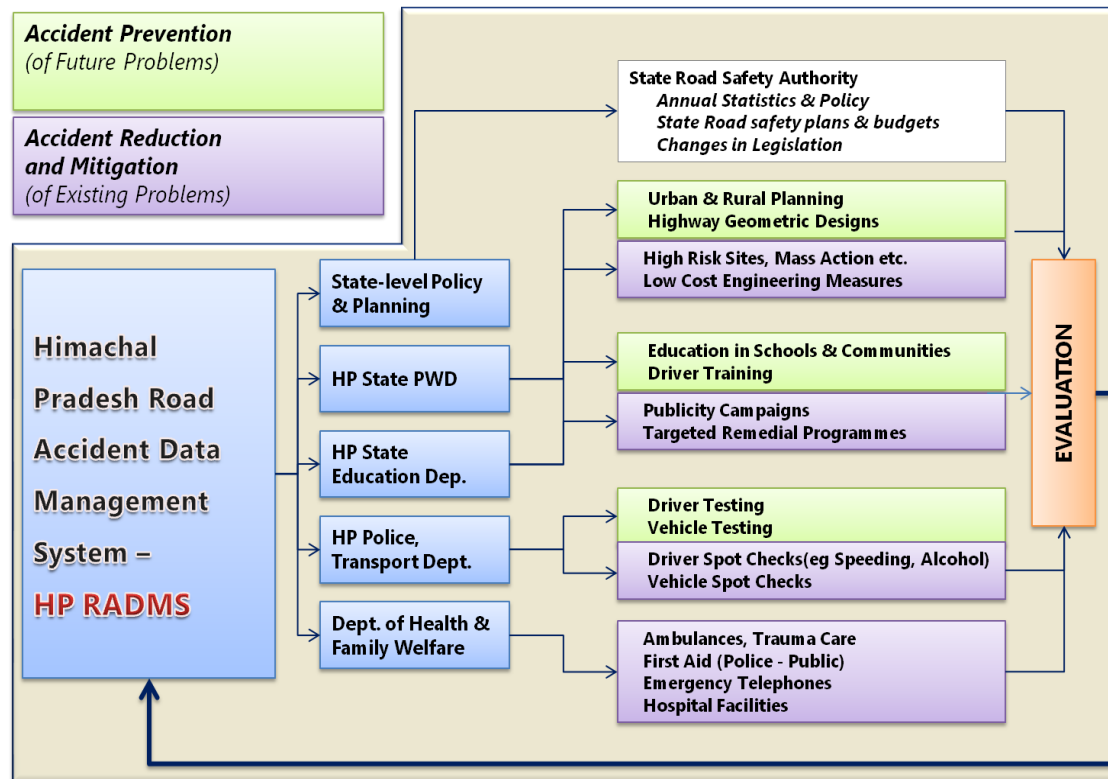
## Post crash Pillar

- Review resources distribution
- Optimise and invest
- Improve time to attend casualties and to Hospital



# Developing a Safe System strategy: Intermediate Indicators

- If speed is targeted – measure speed before and after activities
  - Speed reduces – measures are working
  - Can estimate expected reduction in FSI
- Medical response
  - Improved average time to hospital
- Barriers
  - CMF – 30-40% redn RoR KSIs
- FSI reduction target & Vision Zero





# Questions?

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