

Crash Data systems: Successful Implementation to Safe Systems application in India

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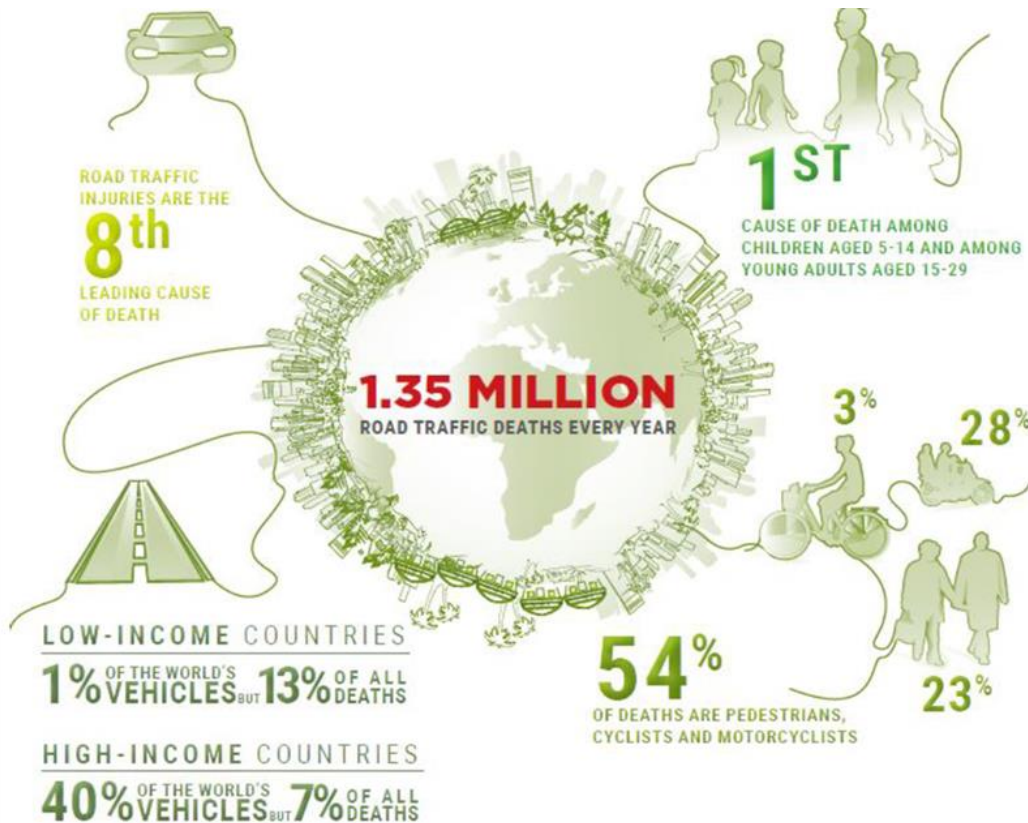
Background

- Crash Data is essential for good road safety strategy development
- Broadly available in High Income Countries
- Patchy in Low and Middle Income countries
- LMICs are where the most pressing road safety problems are globally

DECADE OF ACTION FOR
ROAD SAFETY

TRL

2021 - 2030



LMICs, HICs, road safety and crash data

- The road systems in LMICs differ significantly from HICs
 - HIC approaches will not work the same in LMICS
- We need to fully understand the safety challenges in LMICs –
 - This needs good Crash Data from these countries
 - Crash data has a vital role to play in implementing Safe System solutions

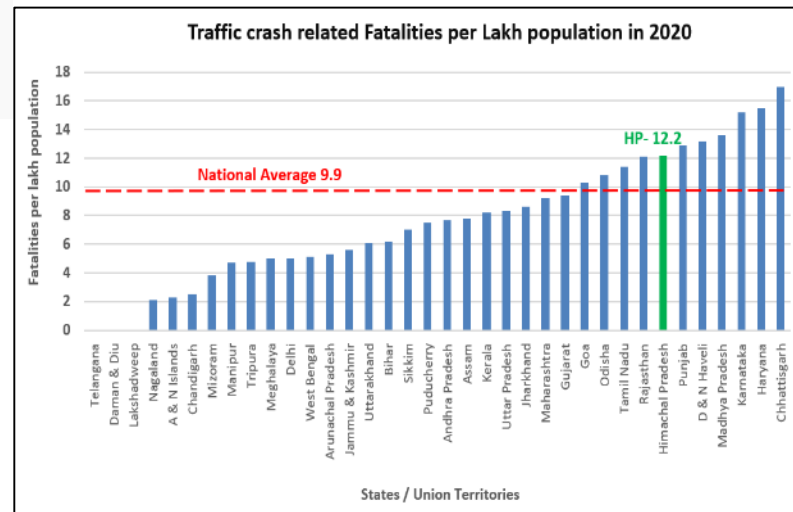
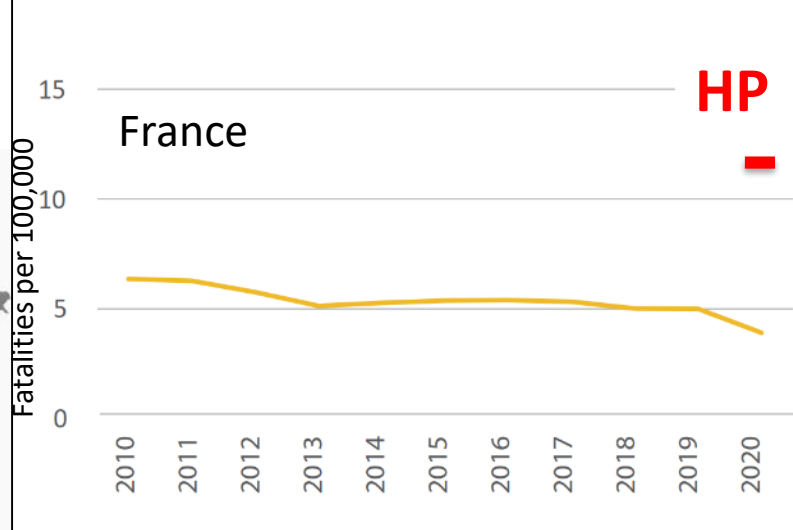
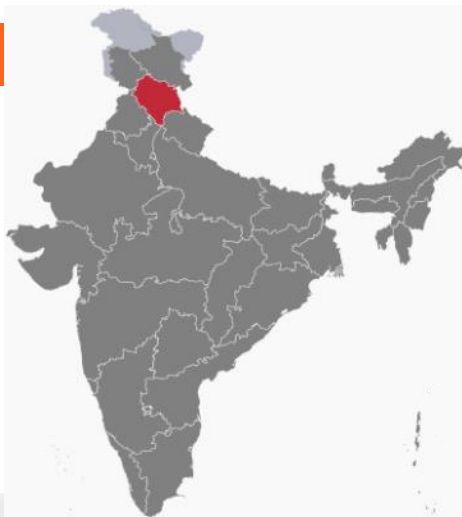


- Example of real success in India

State of Himachal Pradesh (HP) – India

Features of the State

- Rural / hilly
- 7M people
- 31,000 km road
- 300+ Police stations
- 1,400+ Road fatalities per year
 - 2,541 - France
- Road death rate 12.2 per 100,000 population (2020)



TRL in Himachal Pradesh since 2015 towards institutional changes

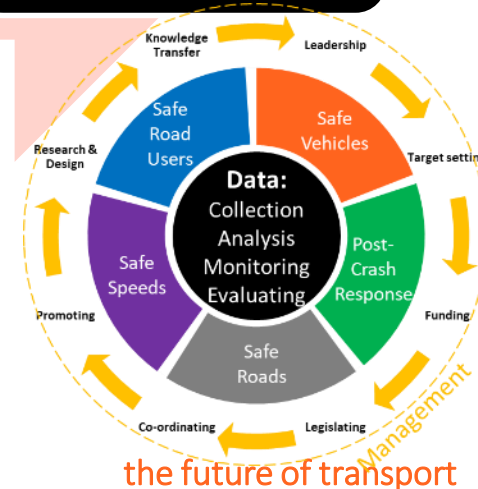
Himachal Pradesh State Roads Transformation Programme (HPSRTP) funded by World Bank

Phase 1 –
Implemented iMAAP
in 2015

Data Collection (2016
– ongoing)

Evidence based
interventions (2018 –
ongoing)

Phase 2 -Crash data-
led Safe System
approach 2021-23



Crash data innovation

- Mobile devices used to collect crash data at scenes

- Scene photographs

- Available with crash details

- Accurate locations

The screenshot displays the iMAAP RADMS web application interface. The top navigation bar includes links for Data, Query, Map, Analysis, Advanced Analysis, Blackspot, Reports, Dashboards, and Auditing. The main content area shows the 'Summary of Accident (14052021-21-182516)' with a map of the accident location. The map shows a road intersection with a red pin indicating the accident site. To the right of the map is a section for 'Accident Images' showing a photograph of the scene. Below the map and images is a table of accident details.

Accident Reference Number	Accident Date	Accident Time	Police Station	Accident Severity	Accident Date	District	Junction Type	Weather Condition	No. of Vehicles	Accident Time	Police Station	Junction Control	Class of injured person
15052021-1-092712	15-05-2021	09:27	1	1									
14052021-21-182516	14-05-2021	21:18	2	3									
14052021-53-18342	14-05-2021	53:18	1	1									
12052021-62-12481	12-05-2021	62:12	1	1									
12052021-65-13303	12-05-2021	65:13	2	3									
12052021-11-18372	12-05-2021	11:18	1	1									
11052021-66-20031	11-05-2021	66:20	1	3									
11052021-22-12215	11-05-2021	22:12	2	1									
11052021-59-07175	11-05-2021	59:07	1	3									
10052021-26-16394	10-05-2021	26:16	2	1									
10052021-44-17493	10-05-2021	44:17	1	1									
13052021-65-15265	13-05-2021	65:15	1	1									
10052021-51-16361	10-05-2021	51:16	2	1									
09052021-122-1021	09-05-2021	122:10	1	1									
09052021-33-10440	09-05-2021	33:10	1	3									

The summary of accident details for 14052021-21-182516 includes:

- Accident Severity: Injury...
- Accident Date: 14-05-2021
- District: Kangra
- Junction Type: No Junction
- Weather Condition: Light Rain
- No. of Vehicles: 2
- Accident Time: 23:00
- Police Station: Dharams...
- Junction Control: No control
- Class of injured person: Passenger

iMAAP implementation: RADMS

Success factors:

- Systems/ road safety review
- Training 300+ police stations
- Accident Data Management Cell (ADMC) developed
- Agreed S.O.P. for police:
 - Standard Operation Procedures
- 2017 – support project to the crash data system
 - National blackspot advice developed



Phase 2: Data-led interventions/ Road Safety Action Plan

Consultancy Services for Road Safety Advisory for the State of Himachal Pradesh

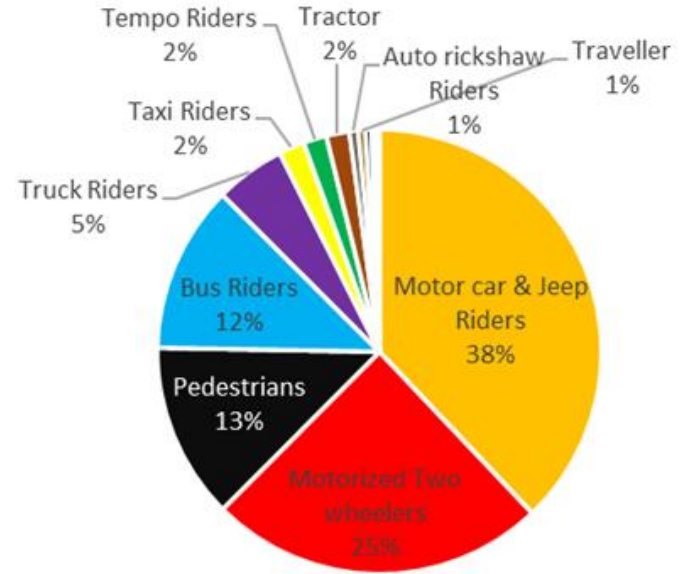
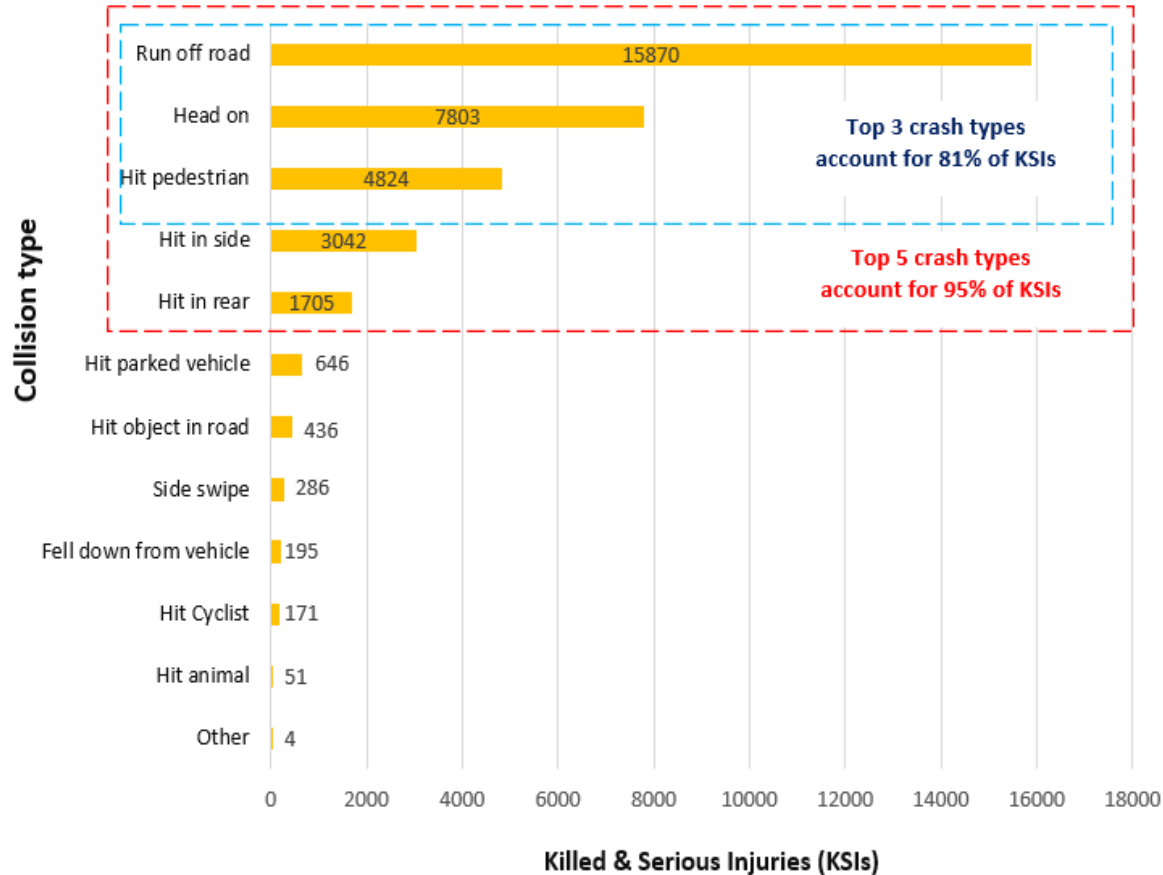
- Technical support/ capacity building
- Focus: Engineering and Police/ Emergency Response
- development 4 demonstration corridors
- Focus on 3 Regions
 - **Trial/Testing/ Evaluation innovative approaches**
- Road Safety Action Plan for the State
 - Wide roll-out of successful measures 2023+



Safe Systems based approaches – supported by good crash data

Digging in to identify real risks and safety issues

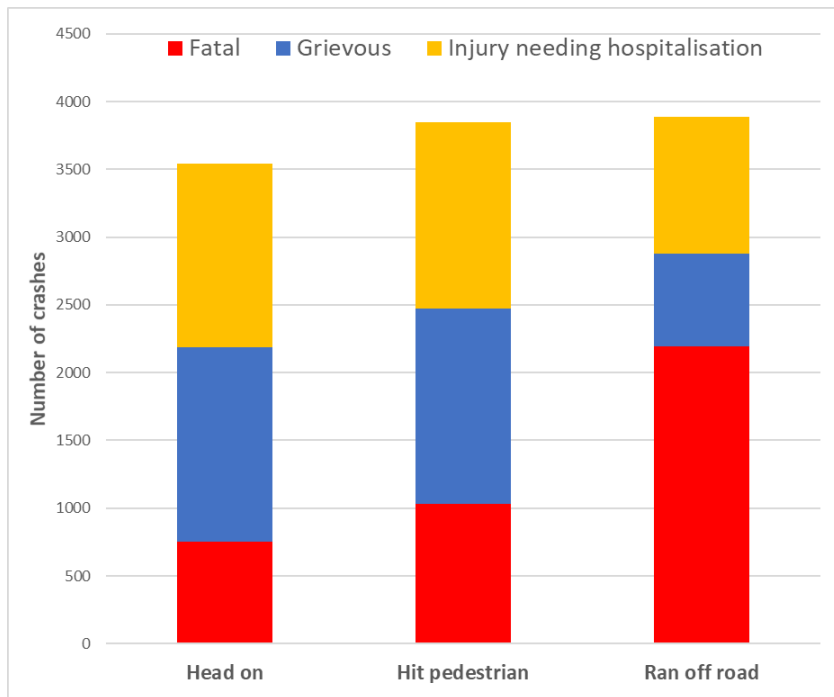
Killed and Serious Injuries in Himachal Pradesh



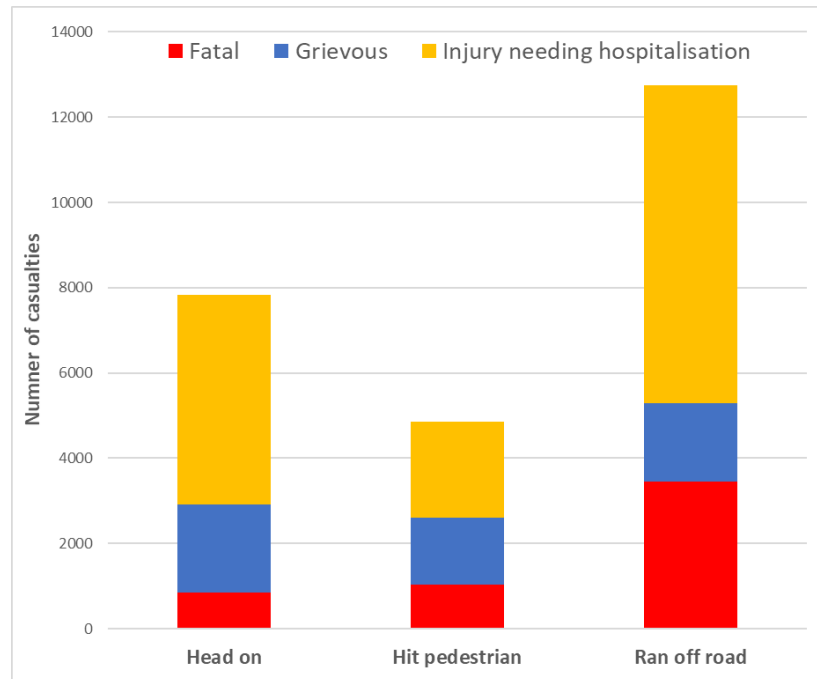
KSIs by type of road user

Patterns – KSIs - top 3 crash types:

Crash numbers:



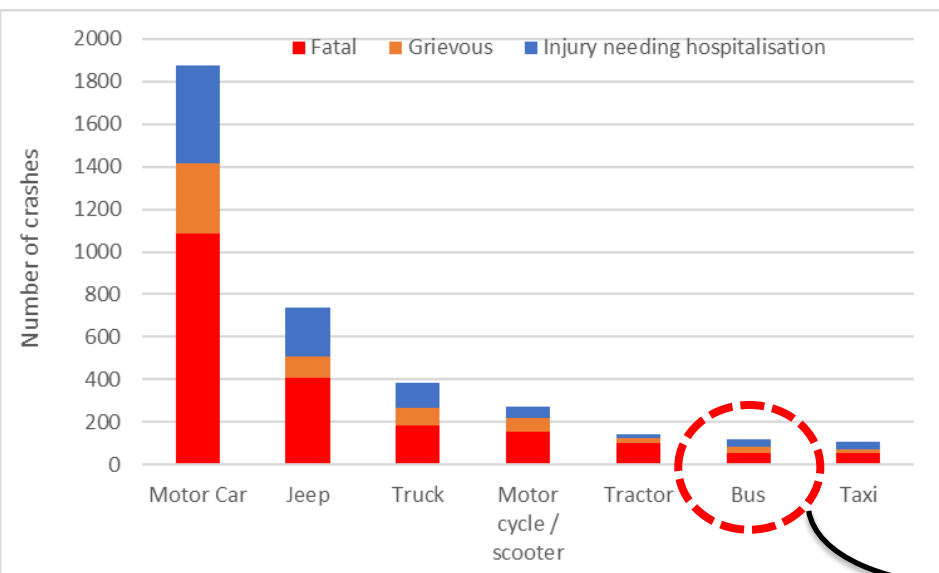
Casualty numbers:



HICs – expect greater casualties per crash for Head on

Patterns – top 3 crash types – Head on, Ped and RoR

Crash numbers:



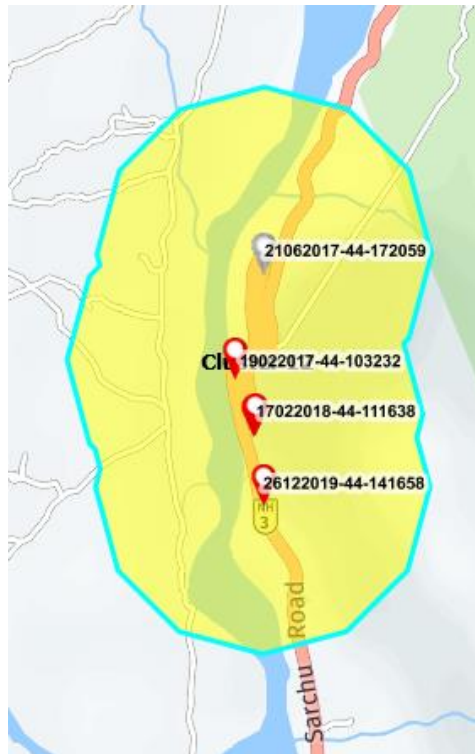
Casualty numbers:








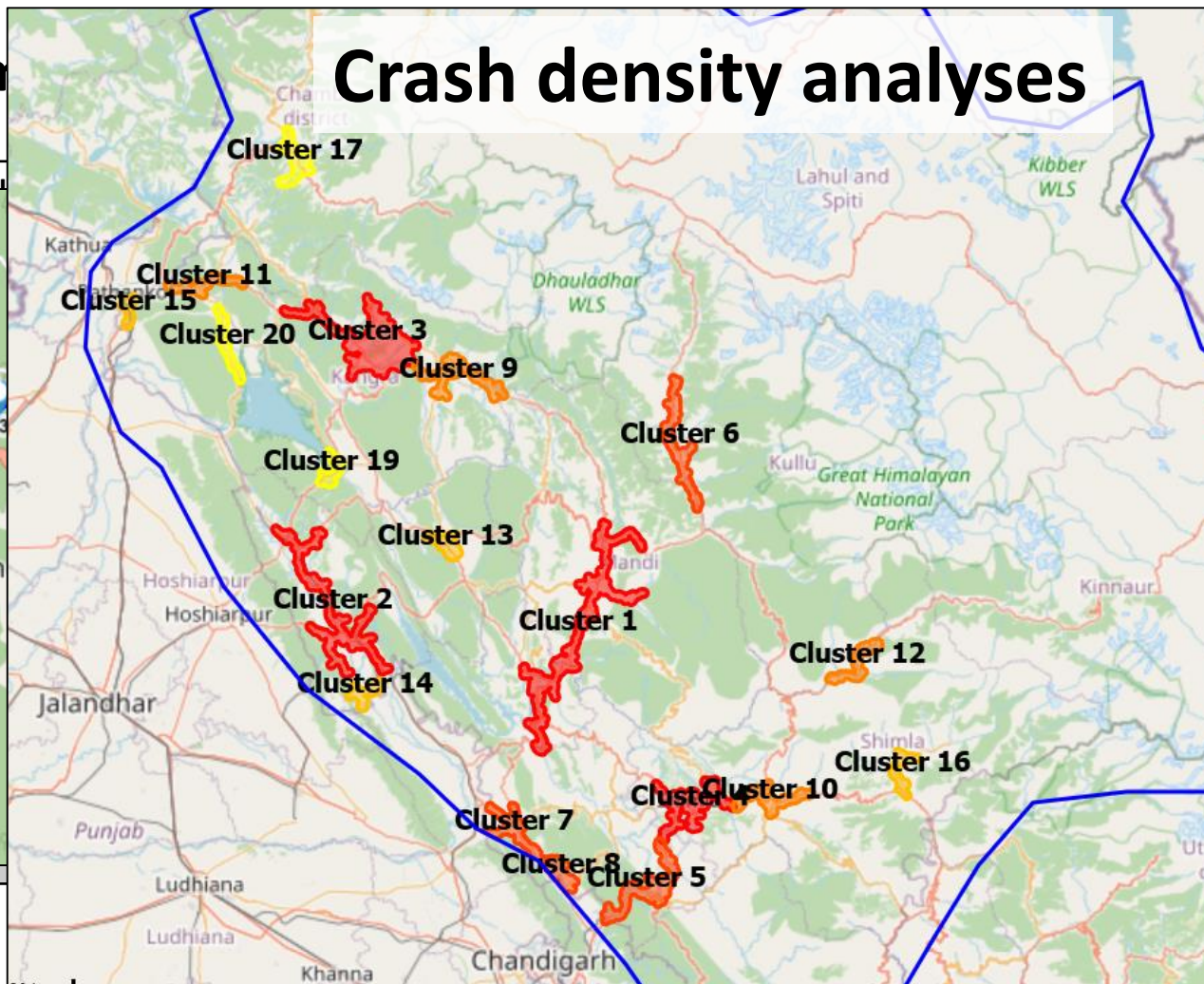
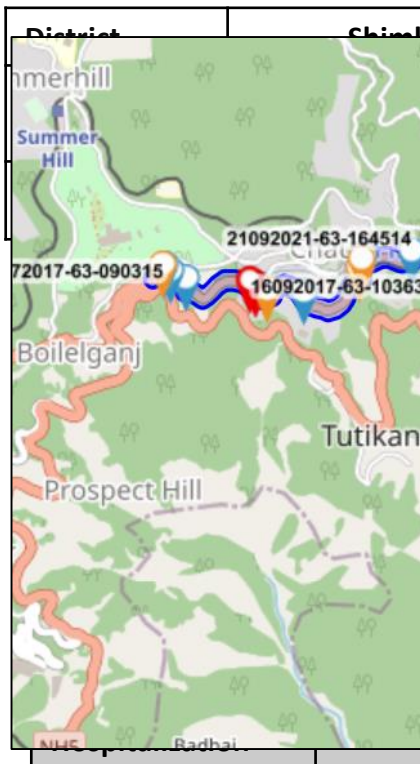
Identifies buses/ drivers a target for interventions – across pillars

Reactive use of crash data: Hotspots/ Blackspots

- Investigating crash prone sections
- Cluster/ route analysis
 - Barrier improvements?
 - Lighting at some locations?
 - Delineation?
 - Speed management?



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



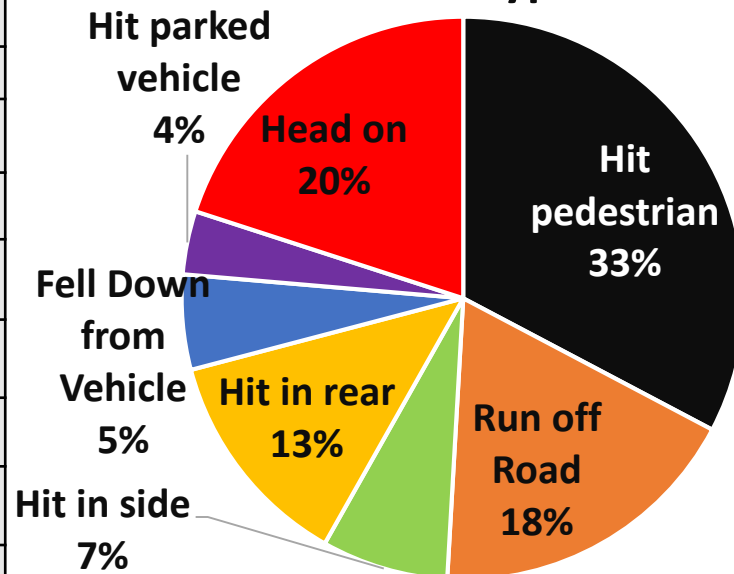
Route 1 - Fatalities by collision type

Shimla Cart road & MDR-16

Total Fatalities by Collision Type

Collision Type	2016	2017	2018	2019	2020	Total
Hit pedestrian	5	2	3	3	5	18
Run off Road		2	2	5	1	10
Hit in-side	1	1			2	4
Hit in rear	1	1	1	3	1	7
Fell Down from Vehicle		1		2		3
Hit parked vehicle		1	1			2
Head on	3	2	1	5		11
Hit object in road						0
Total	10	10	8	18	9	55

Fatalities (2016-2020) by Collision type



Route Action Plan: iRAP & Crash patterns

- ✓ Footpath, walkway & safe crossing points for pedestrians
- ✓ Crash barriers
- ✓ Edge line & center lines (with chevron marking) to reduce head-on collisions
- ✓ Extra widening on curves
- ✓ Road studs on edge lines
- ✓ Speed limit signs & no overtaking signs
- ✓ Redesign of junctions



Crash data indicates pedestrian casualties occur even on rural sections

Summary: Crash data used intensively - Safe System approaches

12 minutes not enough – scratching surface – come and talk to me!

- LMIC Technical assistance projects don't generally have good crash data
- Supports far better targeting of limited resources:
 - Focus on Crash Types resulting in most KSIs
 - Identify target regions and corridors where efforts will have greatest impact
 - Shapes the Safe System trial approaches
 - Can be evaluated
- Underlines why crash data is so relevant to Safe System strategies
 - Safety Performance Indicators reducing focus on Crash Data???

Identifies real issues, permits evaluation and identifies different patterns from HICs

Police assigned factors

