Road Traffic Injury Data in Ireland:

What single vehicle collisions can tell us about roadside hazards and these hazards contribution to injury severity.

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This presentation will touch upon issues that include …

- Single Vehicle Collisions in Ireland
  - reported on the national road network (approx. 5300 km)
- Use of collision data beyond statistical reporting
  -Forgiving roadsides
- Future targets to tackle serious injury road traffic collisions
  -Scale of underreporting of collisions

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Single Vehicle Collisions in Ireland
Count of all reported injury collisions on National Roads (approx. 5300 km) – January 2014 to Dec 2016

Number of reported injury collisions during the period 2014 to 2016 on the National Road Network

3725

Number of reported multi vehicle collisions

2851 (76.5%)

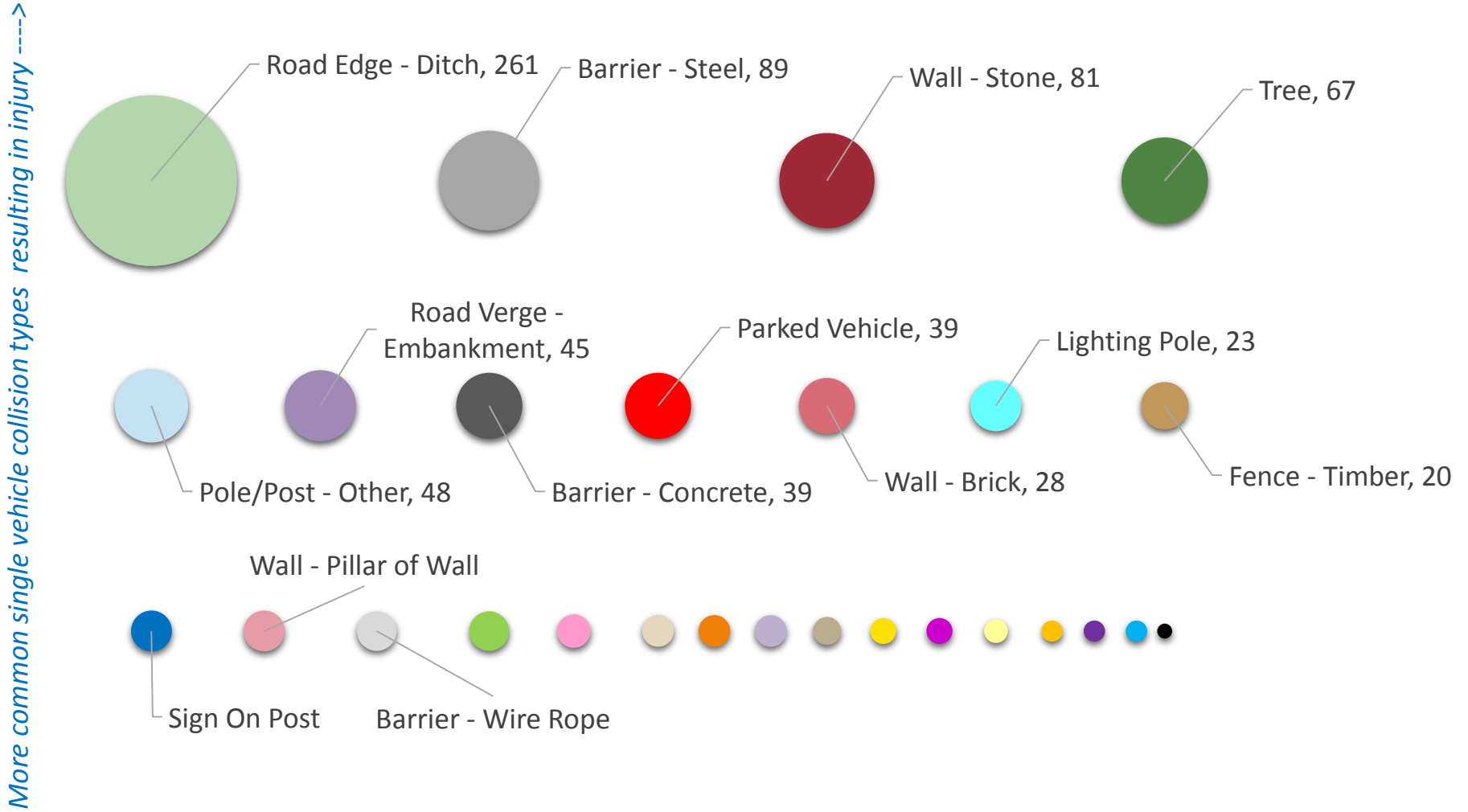
Number of reported **single vehicle collisions** (run off the road)

874* (23.5%)

* Including fatal (21%), serious injury (26%) and minor injury collisions

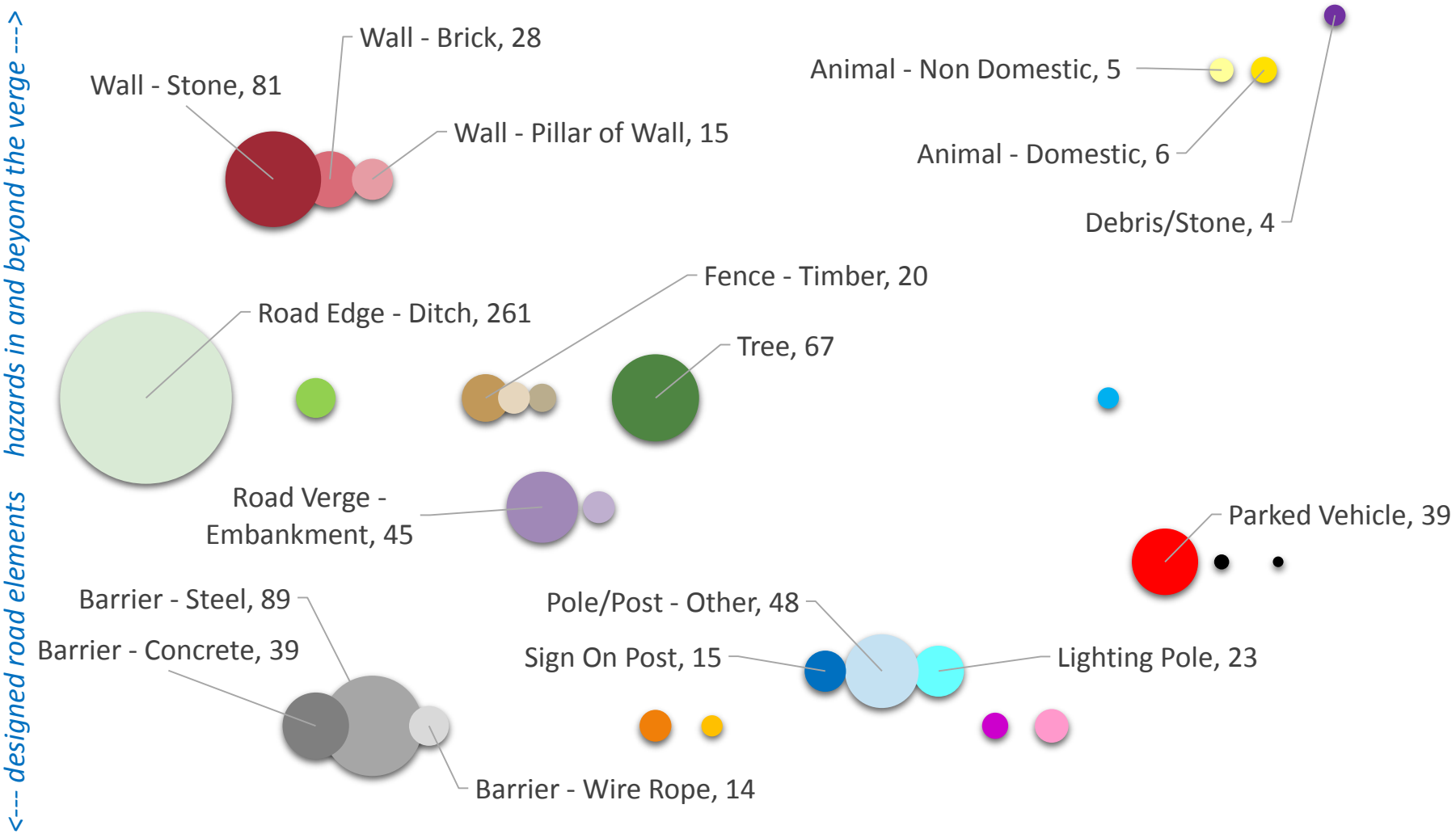
Single Vehicle Collisions in Ireland
A breakdown by type

All reported injury collisions involving single vehicles
- Jan '14 to Dec '16 on national roads



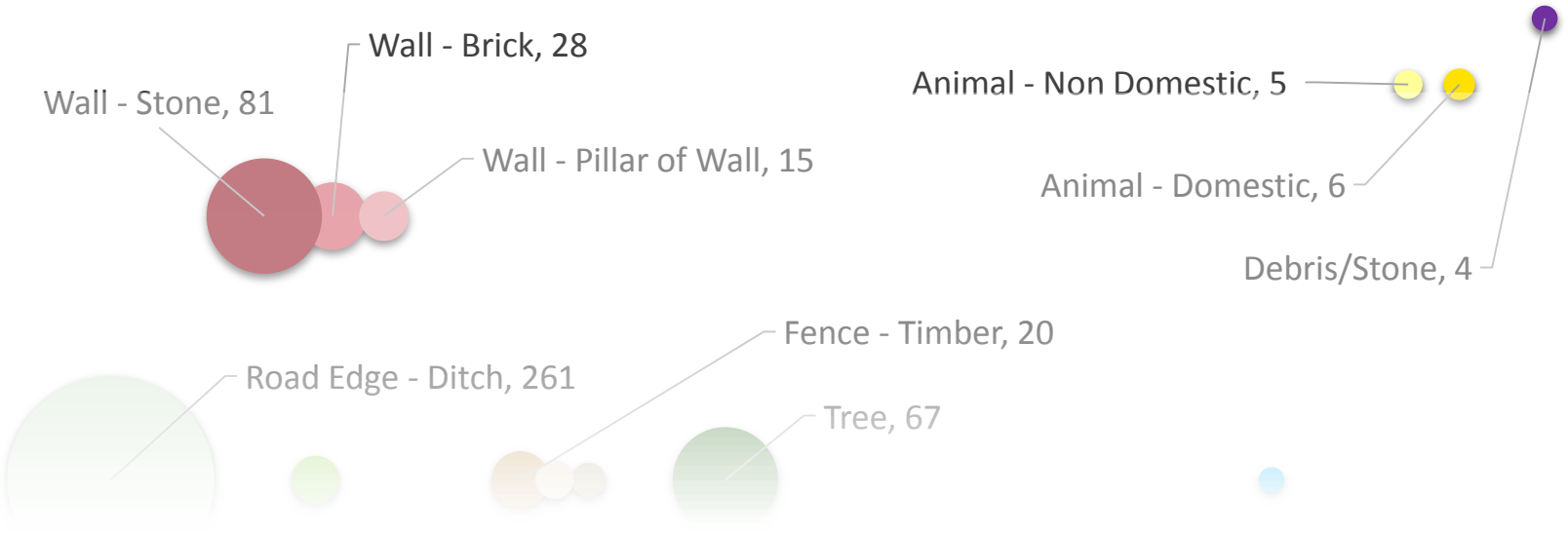
Single Vehicle Collisions in Ireland
An alternative classification of the data

All reported injury collisions involving single vehicles
- Jan '14 to Dec '16 on national roads



Hazards towards the top of the chart are roadside features (beyond the verge) associated with older legacy roads

All reported injury collisions involving single vehicles
- Jan '14 to Dec '16 on national roads



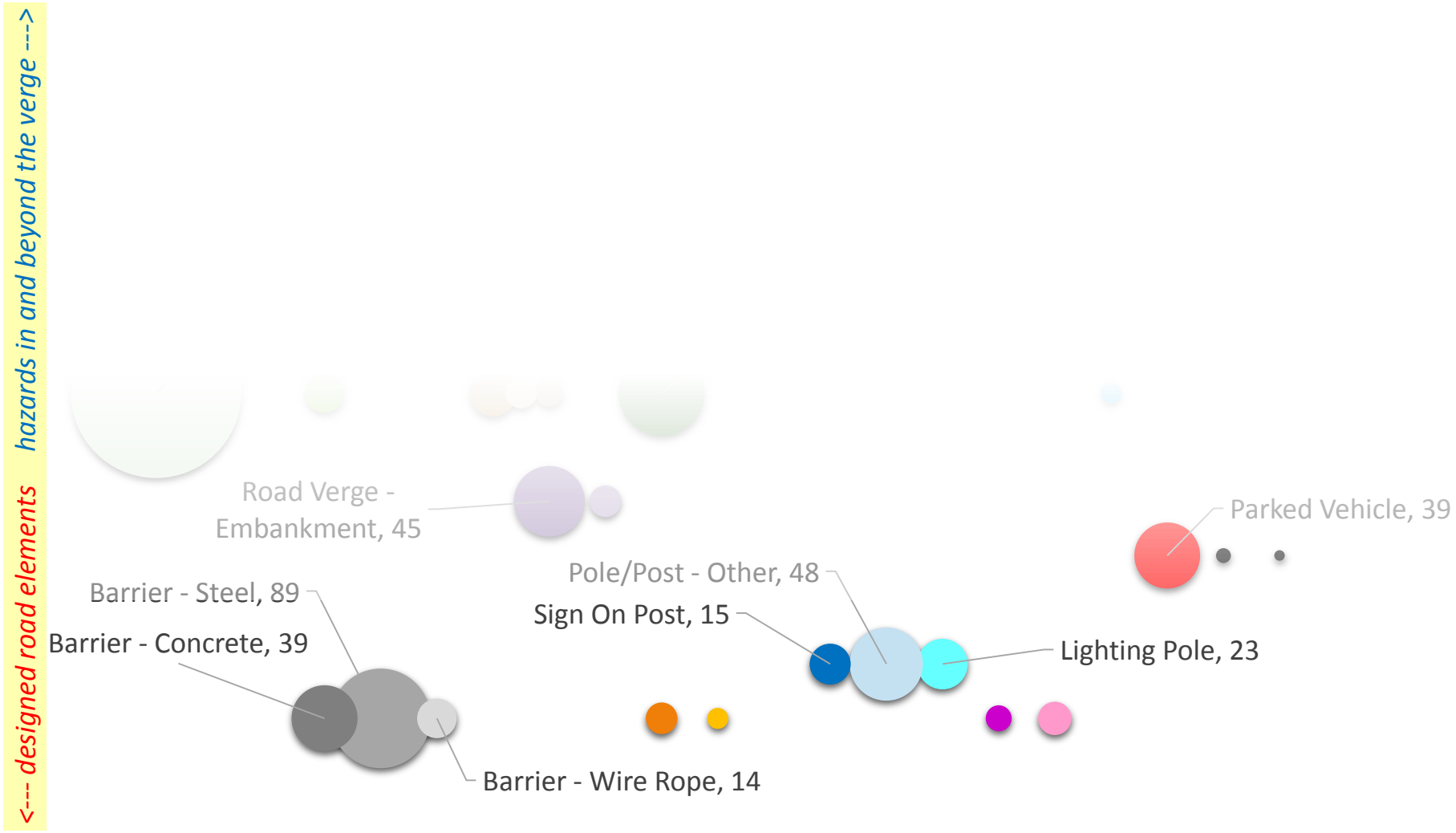
<--- designed road elements hazards in and beyond the verge --->

<--- More linear type hazards involving SVCs

More isolated / discrete hazards --->

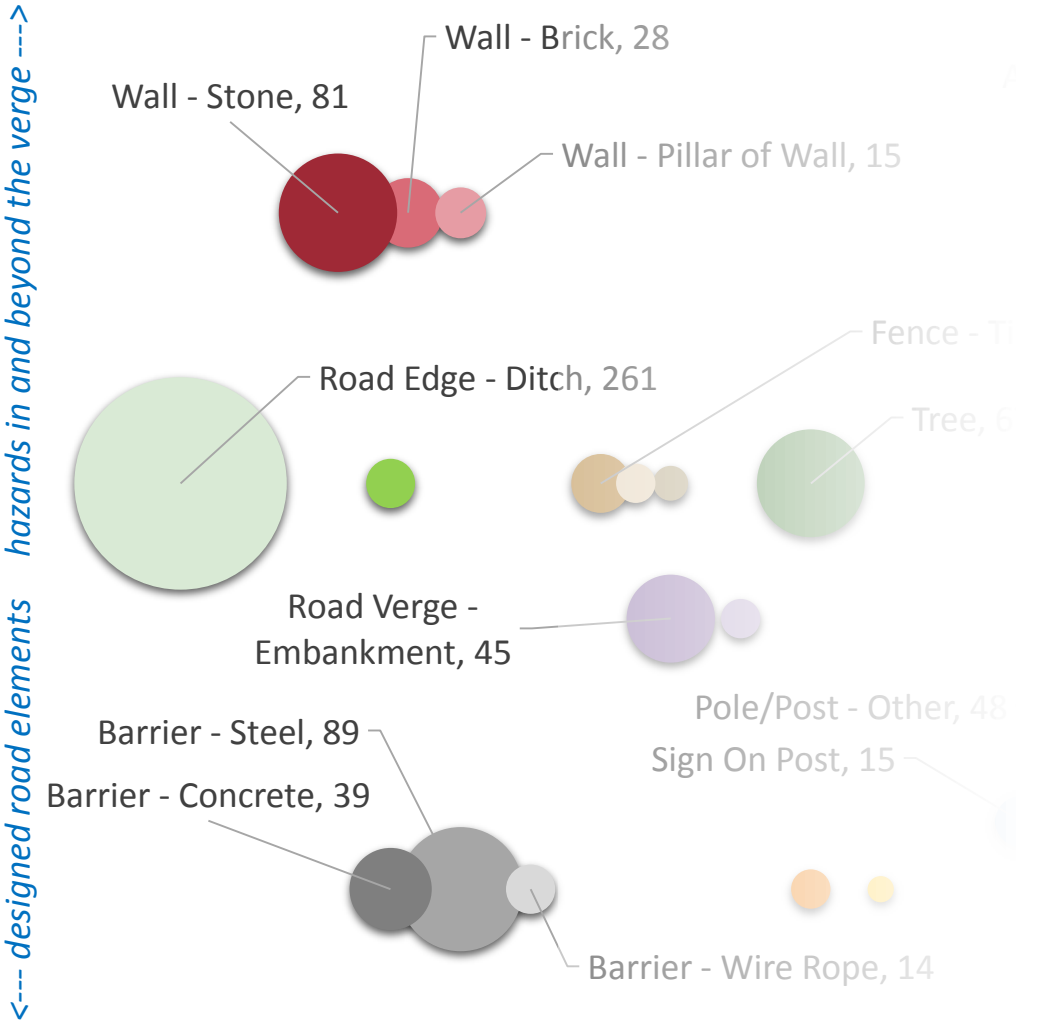
Hazards towards the bottom of the chart are within the road or close to the road edge, included as part of a road design

All reported injury collisions involving single vehicles
- Jan '14 to Dec '16 on national roads



Hazards to the left are the chart are linear/continuous type hazards

All reported injury collisions involving single vehicles - Jan '14 to Dec '16 on national roads



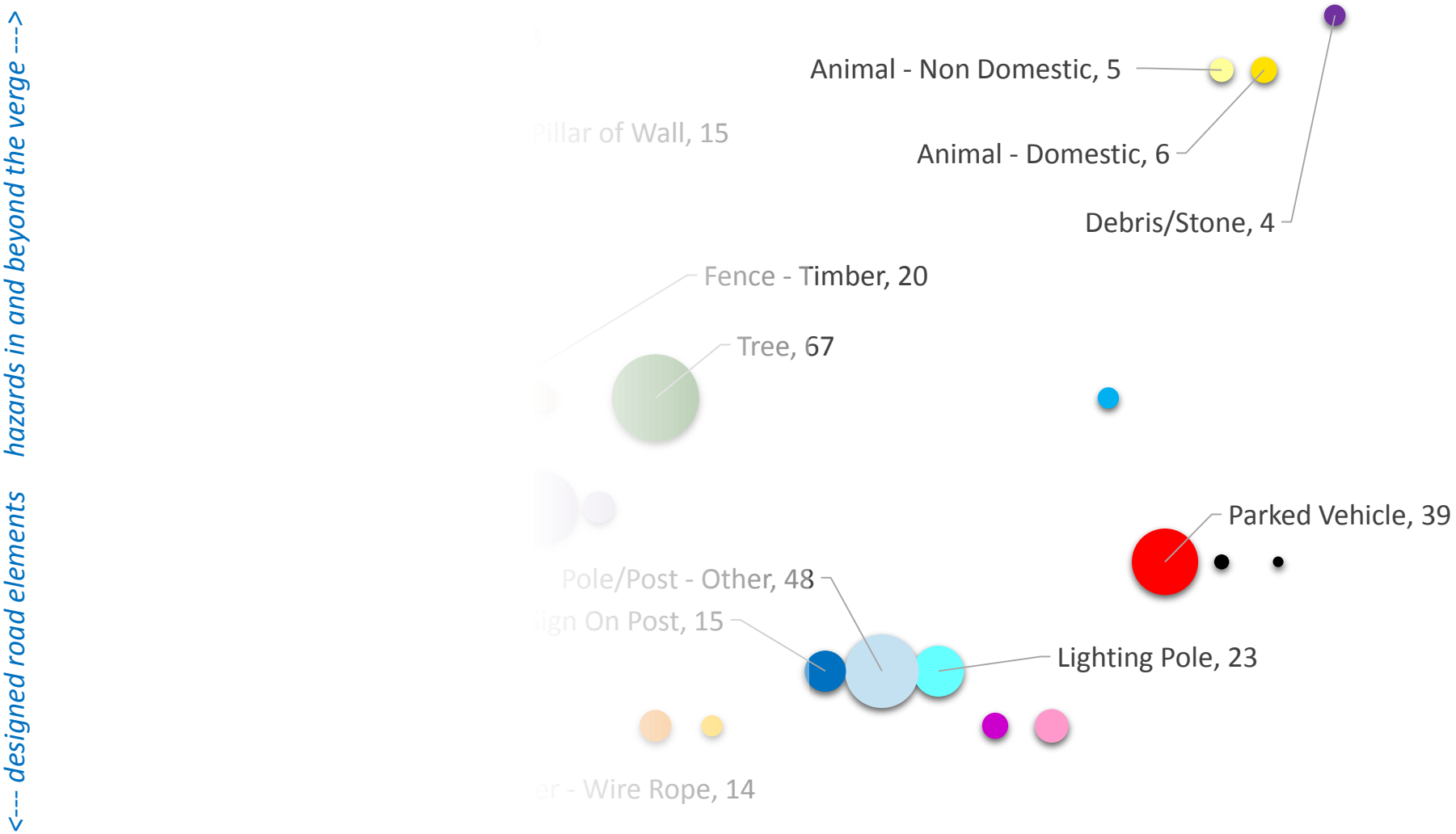
<--- designed road elements hazards in and beyond the verge --->

<--- More linear type hazards involving SVCs

More isolated / discrete hazards --->

Hazards to the right of the chart are usually single isolated type hazards

All reported injury collisions involving single vehicles
- Jan '14 to Dec '16 on national roads



<--- designed road elements hazards in and beyond the verge --->

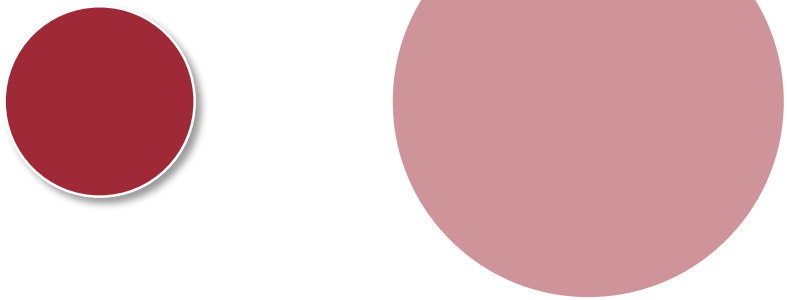
<--- More linear type hazards involving SVCs

More isolated / discrete hazards --->

Combining all reported Material Damage Only collisions (RMDOC) with reported Injury collisions (RIC)
A proxy for reported collisions severity based on all available SVC data

The chance of injury resulting in this type SVC is

1 : 3



81

Reported SVCs injury collisions with …..

Wall - Stone

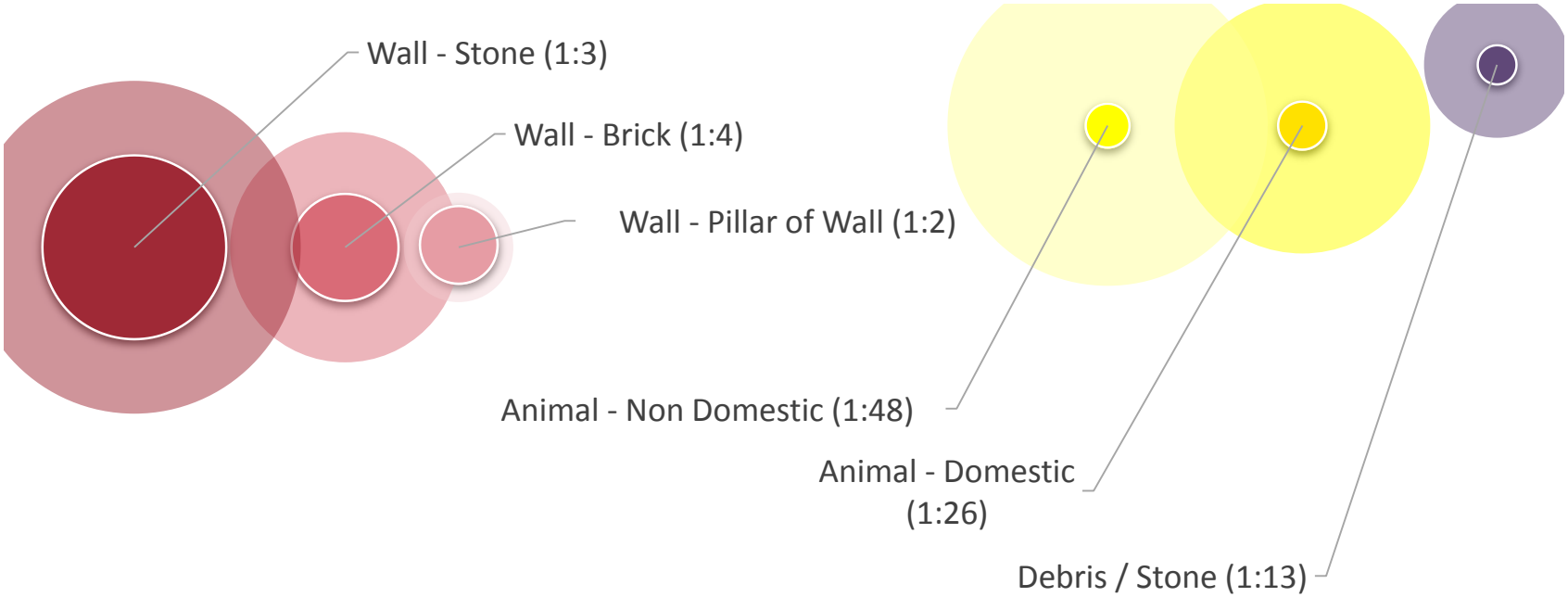
259

Reported SVCs material damage only collisions with …..

Wall - Stone

Combining all reported Material Damage Only collisions (RMDOC) with reported Injury collisions (RIC)
A proxy for reported collisions severity based on all available SVC data

Ratio of reported injury collisions to material damage only collisions from Jan '14 to Dec '16 on national roads : Sub group 1 of SVCs



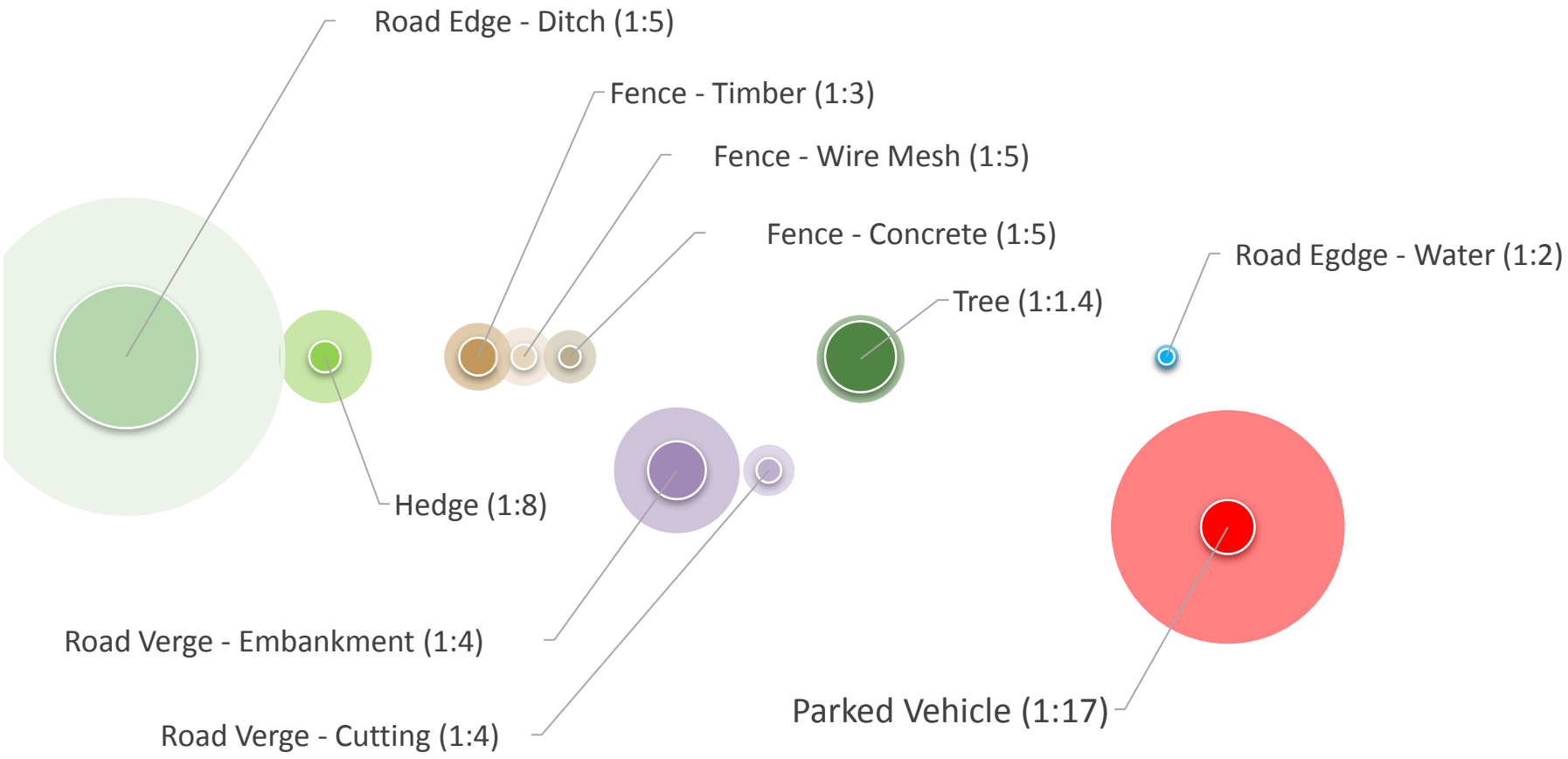
<--- designed road elements hazards in and beyond the verge --->

<--- More linear type hazards involving SVCs

More isolated / discrete hazards --->

Combining all reported Material Damage Only collisions (RMDOC) with reported Injury collisions (RIC)
A proxy for reported collisions severity based on all available SVC data

Ratio of reported injury collisions to material damage only collisions from Jan '14 to Dec '16 on national roads : Sub group 2 of SVCs



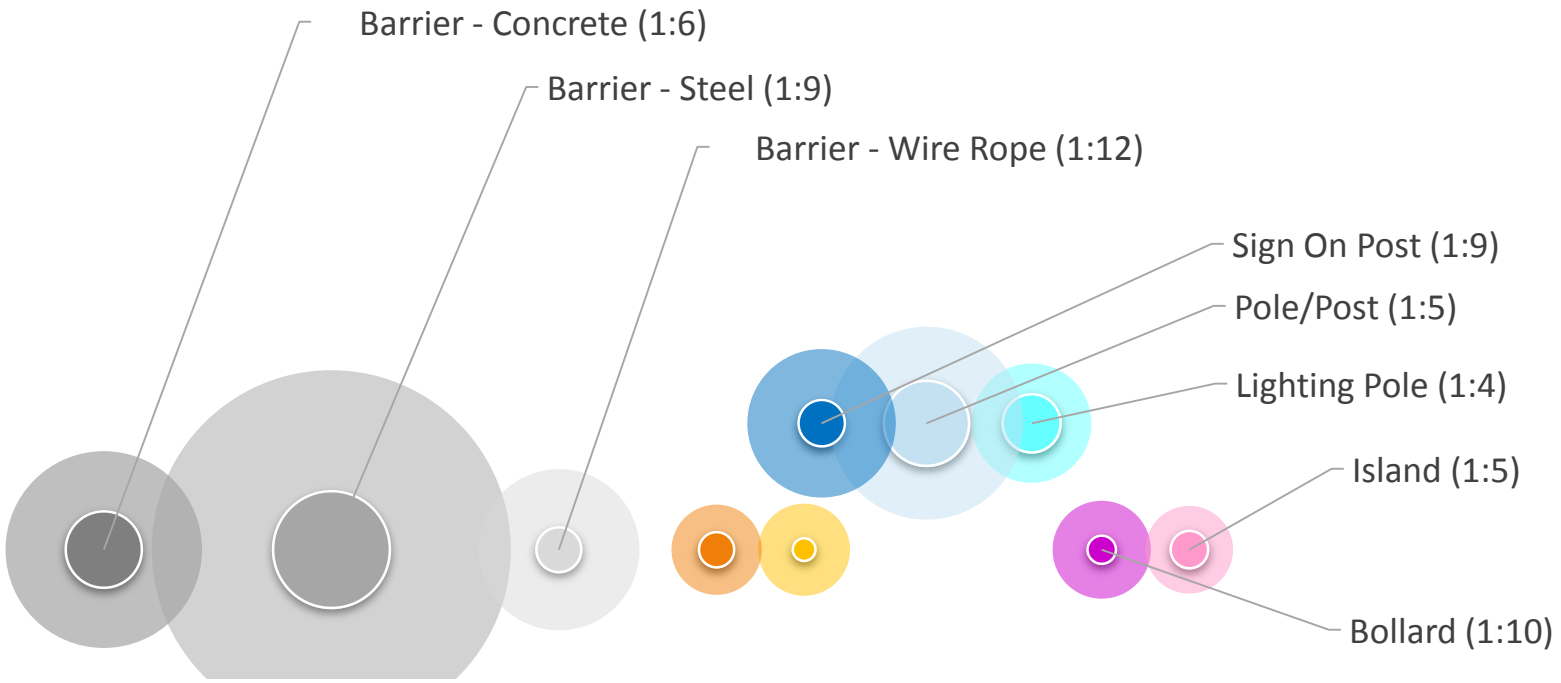
<--- designed road elements hazards in and beyond the verge --->

<--- More linear type hazards involving SVCs

More isolated / discrete hazards --->

Combining all reported Material Damage Only collisions (RMDOC) with reported Injury collisions (RIC)
A proxy for reported collisions severity based on all available SVC data

Ratio of reported injury collisions to material damage only collisions from Jan '14 to Dec '16 on national roads : Sub group 3 of SVCs



<--- designed road elements hazards in and beyond the verge --->

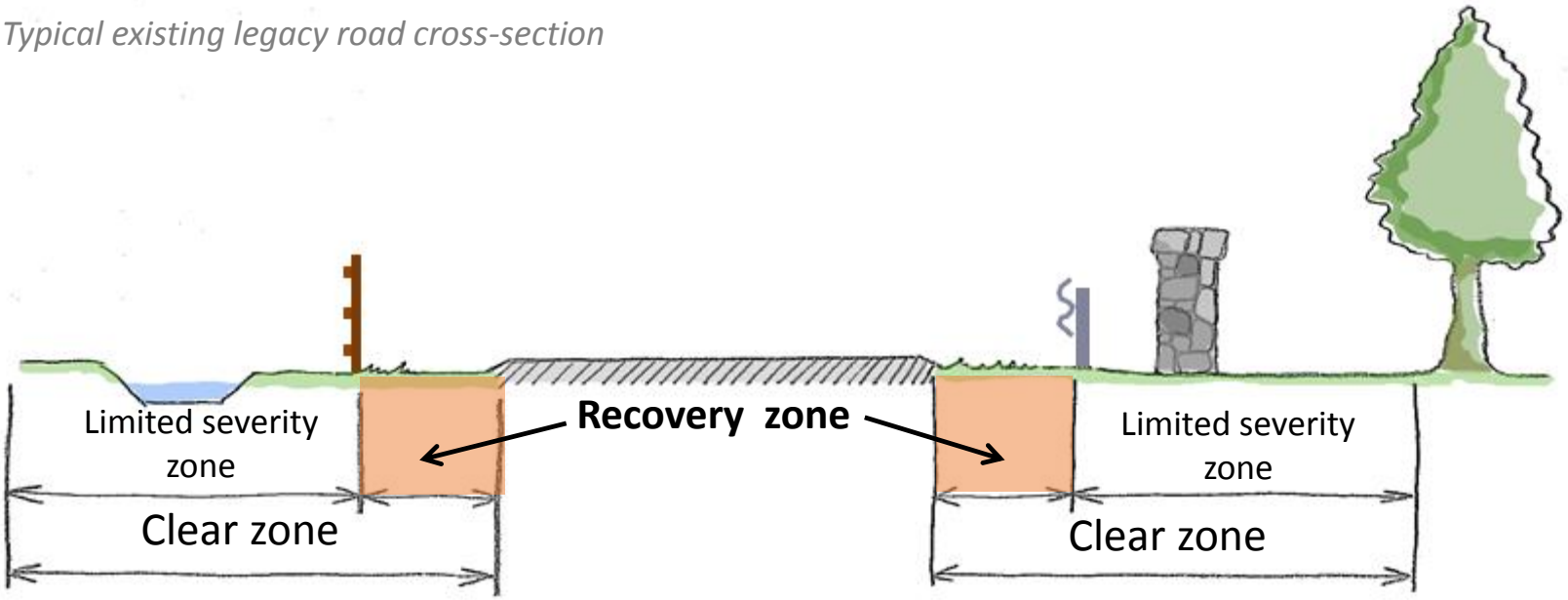
<--- More linear type hazards involving SVCs

More isolated / discrete hazards --->

Safe Systems approach acknowledges ….

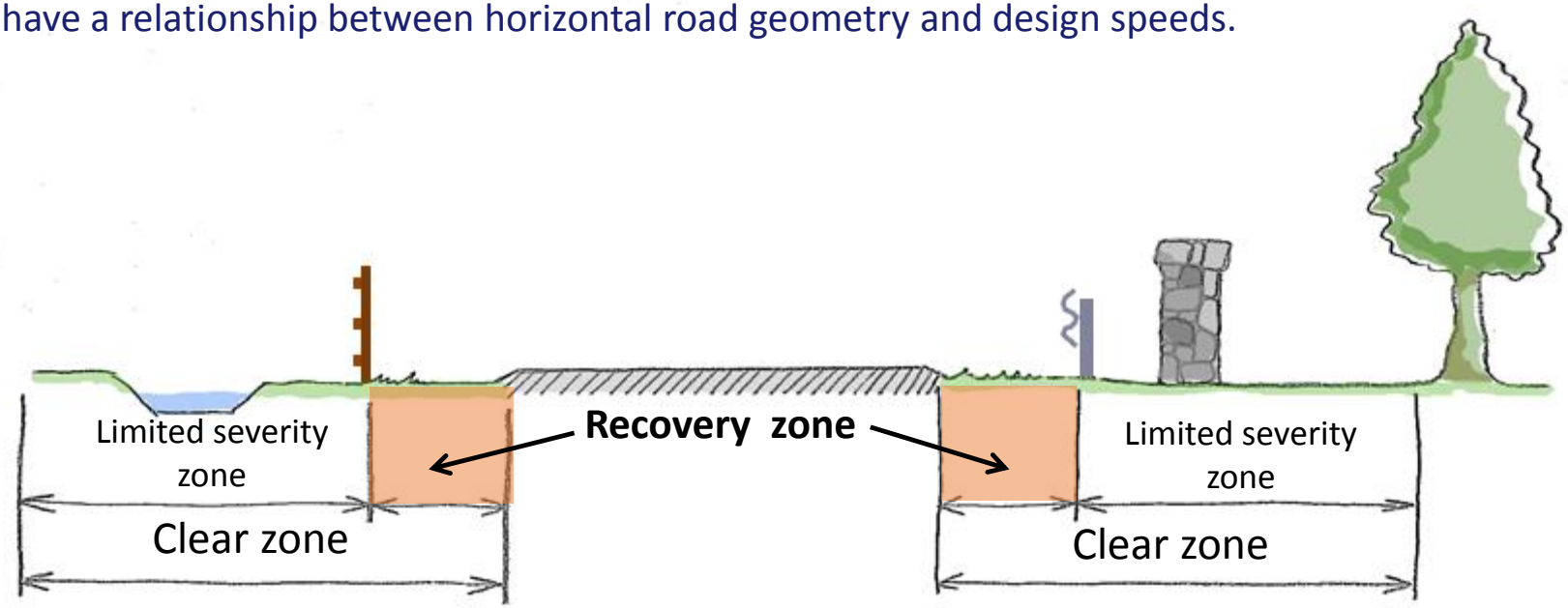
- ✓ People make mistakes and the road transport system needs to accommodate this fact.
- ✓ The human body has finite capacity to withstand physical force before sustaining a serious injury or fatality.
- ✓ Roads that we travel on, vehicles we travel in, speeds we travel at need to be more forgiving of human error.

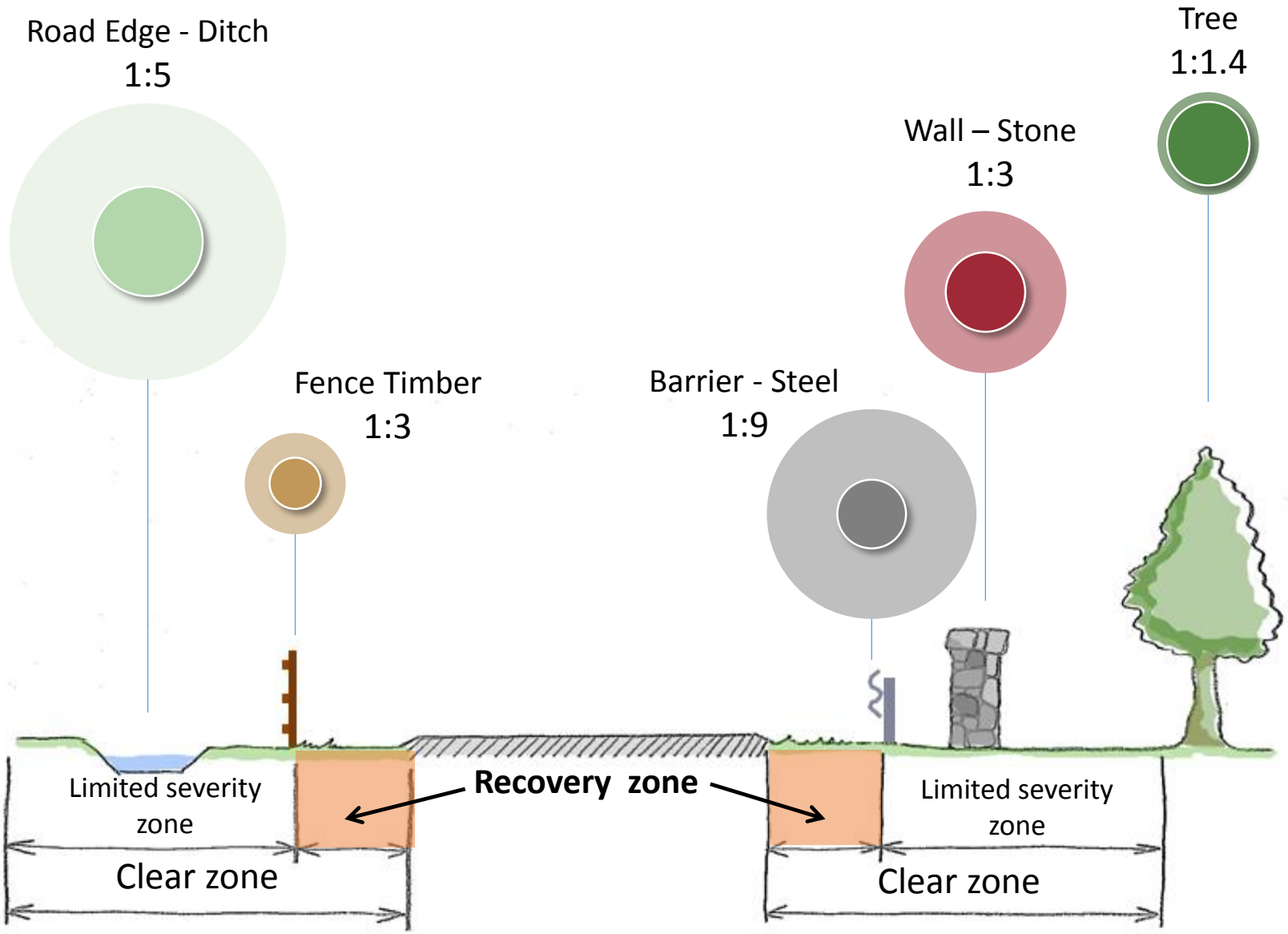
Typical existing legacy road cross-section

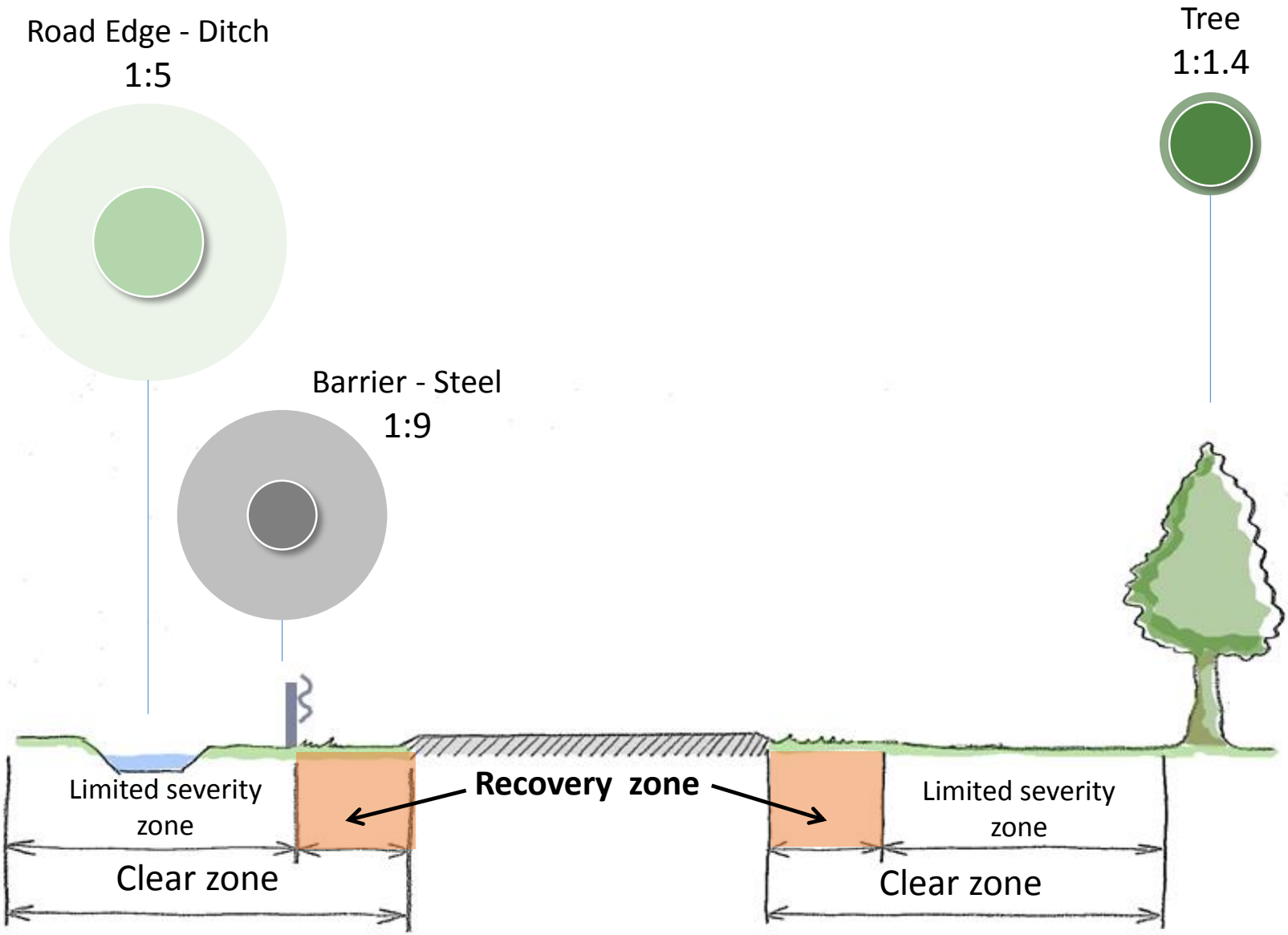


CEDR, Forgiving Roadside Design Guide (2013)

- The most effective roadside improvement can be accomplished by providing an obstacle free area.
- Objects that cannot be eliminated should be relocated outside the Clear Zone.
- The Clear Zone is composed of different areas; the recovery zone (hard shoulders) and the limited severity zone.
- The width of Clear Zones varies depending on underlying policy and practicability and have a relationship between horizontal road geometry and design speeds.




Road Edge - Ditch
1:5
Fence Timber
1:3
Barrier - Steel
1:9
Wall – Stone
1:3
Tree
1:1.4
Limited severity zone
Clear zone
Recovery zone
Limited severity zone
Clear zone


Road Edge - Ditch
1:5
Barrier - Steel
1:9
Tree
1:1.4
Limited severity zone
Clear zone
Recovery zone
Limited severity zone
Clear zone

Participants attending the first ‘Vehicle Restraint Systems Design Course’ in Dublin, Dec 2015

- 7 courses completed since December 2015
- Total of 246 people completed training to date
- Next training course - Dublin 24th Oct 2017

http://www.engineersireland.ie/cpd-training/cpd-training/training-calendar/2017/october/vehicle-restraint-systems-design-course.aspx


SVBRF NYHETSLÄNKEN 2015 DEC

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Irland kräver utbildade räckes-projektörer

TII

- The course aim is to develop a better understanding of design, installation and maintenance of VRS in accordance with relevant standards.

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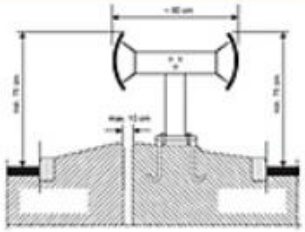
SAVeRS

Selection of Appropriate Vehicle Restraint Systems

CEDR
Conférence Européenne des Directeurs des Routes
Conference of European Directors of Roads

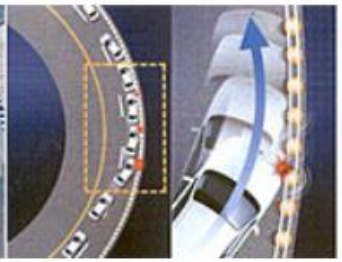



Project SAVeRS (Selection of Appropriate Vehicle Restraint Systems) aims at reducing the severity of "run-off-road" (ROR) crashes. Besides constructing so called "forgiving roadsides", an operator of the road network must also know what appropriate vehicle restraint systems (VRS) should be selected for certain traffic conditions and identify the location where to install these systems.

Expected end result of the project is a practical and readily understandable VRS guidance document and a user-friendly web-based tool that will allow the operator to select the most appropriate solution in different road and traffic configurations for all types of VRS.

SAVeRS Final conference,
18th May 2015, Rome, Italy





- The success or otherwise of road safety policy has until now been evaluated almost entirely by reductions in the number of fatalities.
- The large number of injury collisions compared to those involving a fatality can provide statistically significant results for policy analysis and collision risk factors.
- Road Safety Policy has mainly focused on reducing fatalities. The assumption behind this is that by reducing fatalities, injury and material damage consequences will also be reduced.
  - However this assumption is not entirely accurate. In the period from 2005 to 2013, fatalities reduced by 50% while injuries as measured by the total in police and hospital data fell by only 27%.

Short, J. (2017)
Trinity College Dublin

Future targets to tackle serious injury road traffic collisions - European

25,500 people died on EU roads in 2016, a figure virtually unchanged in three years. In addition, the European Commission estimates that more than 135,000 suffer serious injuries each year.

European Union transport ministers have formally agreed to set a target of halving the number of serious injuries on roads in the EU by 2030 from their 2020 level.

- Ministers also called on the European Commission to come forward with a new road safety strategy for the decade 2020-2030.
- "We warmly welcome today's commitment to a long term target to tackle deaths and, for the first time, serious injuries on EU roads. …..
- ……Every day of delay will lead to more unnecessary deaths and serious injuries on our roads."

Antonio Avenoso, Executive Director of ETSC

ETSC – European Transport Safety Council: Press release June8th, 2017
http://etsc.eu/eu-sets-new-target-to-cut-serious-road-injuries/

- The underreporting of road traffic collisions has been acknowledged problem for many years – most countries continue to record only the number of reported causalities
- If underreporting goes unrecognized, the magnitude of any road traffic safety problems are not known, or are seriously underestimated. This could lead to incorrect prioritising, or to less efficient or inappropriate countermeasures

Derrika, H, M. Mak, P, M. (2007)
OECD, IRTAD

- In Ireland the data (police & hospital) suggest that the number of traffic injuries could exceed the official number by a factor of 2 with higher factors for particular classes of casualty like serious injuries, cyclists or motorcyclists

Short, J. Caulfield, B. (2013)
Trinity College Dublin

"Progress is impossible without change and those who cannot change their minds cannot change anything"

George Bernard Shaw

What type of change is needed for the next EU safety strategy?

- Changes to data collection procedures?
- Definition of serious injury (police/hospital data)?
- Better understanding of underreporting?
- etc

Thank You.

References

- CEDR. (2013) Forgiving Roadside Design Guide, http://www.cedr.eu/download/Publications/2013/T10_Forgiving_roadsides.pdf
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