



HEREFORD & WORCESTER  
**HWFR**  
FIRE AND RESCUE SERVICE



# Service Definitions of Risk

Road Traffic Collision Risk



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## Road Traffic Collision Risk

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# Introduction

The Service adopted the NFCC's [National Risk Methodology for UK FRS: Road Traffic Collisions \(2023\)](#), to identify the Lower Super Output Areas (LSOA) of a significant concern for road safety (Figure 1). This approach leverages [Road Safety Data](#) that have been collected by the Police using the STATS19 collision reporting form, and [Highways Network - Roads data](#) that have been shared by the Ordnance Survey under Public Sector Government Agreement

(PSGA) to pinpoint factors that significantly correlate with a higher collision risk.

These factors include road function, form of way, speed limit, and urban or rural location of the road. The final risk score combines the likelihood of a road traffic collision occurrence with its potential life consequences, resulting in one of five risk levels calculated for each road.

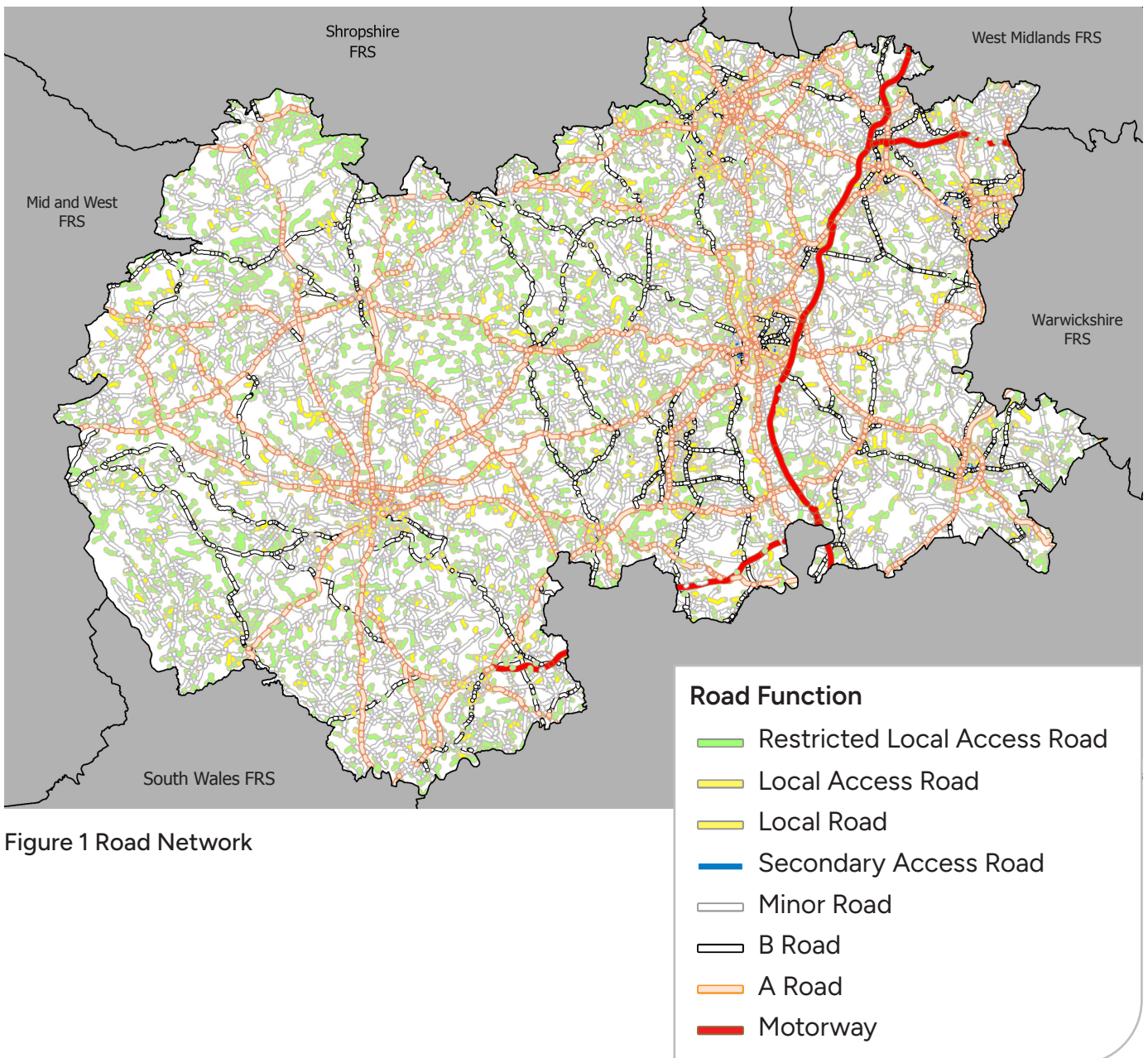


Figure 1 Road Network

# Data Summary

Overall, 31,817 roads within Herefordshire and Worcestershire were examined, and out of these only 4% were identified as either of a Medium high or High risk of a road traffic collision. Table 1 presents a breakdown of road risk categories, while Table 2 presents a breakdown of road area classification and their corresponding percentages.

Table 1 Road risk category:

Risk category	Number of roads	%
1-Low	21,180	66.57%
2-Medium Low	7,195	22.61%
3-Medium	2,169	6.82%
4-Medium High	653	2.05%
5-High	620	1.95%
<b>Grand Total</b>	<b>31,817</b>	<b>100.00%</b>

Table 2 presents a number of roads located at specific areas and their respective percentages. In rural towns, there are 3,585 roads, constituting 11.27% of the total, with the majority being classified as 'Low' in terms of quantity. Rural villages have a significantly higher number of roads at 8,277, making up 26.01% of the total, again with 'Low'

being the predominant classification. Urban conurbations, while having a smaller number of roads at 824, only make up 2.59% of the total, with 'Low' and 'Medium' categories being the most common. Urban towns, however, have the highest number of roads at 19,131, which is 60.13% of the total, with the 'Low' classification being the most prevalent.

Table 2 Road risk category per urban / rural area classification:

Urban / Rural Classification	Number of roads	%
<b>Rural towns</b>	<b>3,585</b>	<b>11.27%</b>
1-Low	2,225	6.99%
2-Medium low	624	1.96%
3-Medium	517	1.62%
4-Medium high	84	0.26%
5-High	135	0.42%
<b>Rural villages</b>	<b>8,277</b>	<b>26.01%</b>
1-Low	4,614	14.50%
2-Medium low	2,385	7.50%
3-Medium	866	2.72%
4-Medium high	228	0.72%
5-High	184	0.58%

Urban / Rural Classification	Number of roads	%
<b>Urban conurbations</b>	<b>824</b>	<b>2.59%</b>
1-Low	471	1.48%
2-Medium low	46	0.14%
3-Medium	300	0.94%
4-Medium high	7	0.02%
<b>Urban towns</b>	<b>19,131</b>	<b>60.13%</b>
1-Low	13,870	43.59%
2-Medium low	4,140	13.01%
3-Medium	486	1.53%
4-Medium high	334	1.05%
5-High	301	0.95%
<b>Grand Total</b>	<b>31,817</b>	<b>100.00%</b>

## Data Summary Continued

Table 3 provides a comprehensive overview of road risk categories across various councils. Overall, the data indicates that a significant majority of roads fall within the low to medium-low risk categories. However, the presence of medium-high and high-risk roads, although small in percentage, points to areas that may require more focused attention to improve safety and reduce potential hazards.

**Herefordshire** has the highest number of roads at 6,765, accounting for 21.26% of the total, with the majority falling under the low-risk category.

**Wychavon** follows with 6,243 roads, yet has a slightly lower percentage of low-risk roads compared to Herefordshire.

**Bromsgrove**, while having fewer roads at 4,474, shows a higher percentage in the medium-low risk category than Wychavon.

**Wyre Forest and Malvern Hills** have a similar number of roads, but Wyre Forest has a higher percentage of low-risk roads.

**Redditch and Worcester** have the least number of roads, with Redditch displaying a notably small percentage of high-risk roads at 0.03%.

Table 3 Road risk category per council:

Council / Risk category	Number of roads	%
<b>Herefordshire</b>	<b>6,765</b>	<b>21.26%</b>
1-Low	4,379	13.76%
2-Medium low	1,773	5.57%
3-Medium	327	1.03%
4-Medium high	92	0.29%
5-High	194	0.61%
<b>Wychavon</b>	<b>6,243</b>	<b>19.62%</b>
1-Low	4,178	13.13%
2-Medium low	1,172	3.68%
3-Medium	586	1.84%
4-Medium high	178	0.56%
5-High	129	0.41%
<b>Bromsgrove</b>	<b>4,474</b>	<b>14.06%</b>
1-Low	2,448	7.69%
2-Medium low	1,297	4.08%

## Data Summary Continued

Council / Risk category	Number of roads	%
3-Medium	492	1.55%
4-Medium high	133	0.42%
5-High	104	0.33%
<b>Wyre Forest</b>	<b>4,001</b>	<b>12.58%</b>
1-Low	2,653	8.34%
2-Medium low	1,013	3.18%
3-Medium	220	0.69%
4-Medium high	64	0.20%
5-High	51	0.16%
<b>Malvern Hills</b>	<b>3,527</b>	<b>11.09%</b>
1-Low	2,253	7.08%
2-Medium low	902	2.83%
3-Medium	242	0.76%
4-Medium high	48	0.15%
5-High	82	0.26%
<b>Redditch</b>	<b>3,422</b>	<b>10.76%</b>
1-Low	2,691	8.46%
2-Medium low	361	1.13%
3-Medium	269	0.85%
4-Medium high	92	0.29%
5-High	9	0.03%
<b>Worcester</b>	<b>3,385</b>	<b>10.64%</b>
1-Low	2,578	8.10%
2-Medium low	677	2.13%
3-Medium	33	0.10%
4-Medium high	46	0.14%
5-High	51	0.16%
<b>Grand Total</b>	<b>31,817</b>	<b>100.00%</b>

## Data Summary Continued

Table 4 presents a breakdown of High risk roads, along with associated usage percentages. The most prevalent category is B Roads with a single carriageway and a speed limit of 60 in the Urban towns (U2) accounting for 32.90% of the high risk roads. This is followed by A Roads with a single carriageway and a speed limit of 60 in the Rural villages (R2) making up 13.87%.

The 'R1' designation (Rural towns) also appears frequently, suggesting a consistent pattern

in accident occurrences. Roundabouts on 'A Roads' account for approximately 11.61% of accidents, which could point to issues with design or traffic flow. The data also show that as the speed limit decreases to 50, the percentage of accidents also decreases, which could imply that lower speed limits contribute to safer driving conditions. Dual carriageways and slip roads have the lowest percentages, which may reflect better road conditions or less complex driving environments.

Table 4 List of roads of a high risk of a road traffic collision

Road category	5-High	%
B Road Single Carriageway 60 U2	204	32.90%
A Road Single Carriageway 60 R2	86	13.87%
A Road Single Carriageway 60 U2	55	8.87%
A Road Single Carriageway 60 R1	52	8.39%
B Road Single Carriageway 60 R1	48	7.74%
A Road Roundabout 60 R2	45	7.26%
A Road Single Carriageway 50 U2	27	4.35%
A Road Roundabout 60 R1	27	4.35%
A Road Single Carriageway 50 R2	17	2.74%
B Road Single Carriageway 50 U2	12	1.94%
A Road Dual Carriageway 60 R2	11	1.77%
A Road Slip Road 60 R2	8	1.29%
Minor Road Slip Road 60 R2	6	0.97%
B Road Roundabout 60 R1	4	0.65%
B Road Single Carriageway 50 R2	3	0.48%
Minor Road Single Carriageway 50 U2	3	0.48%
B Road Roundabout 60 R2	3	0.48%
B Road Slip Road 60 R2	3	0.48%
A Road Slip Road 60 R1	2	0.32%
Minor Road Slip Road 50 R2	2	0.32%
B Road Slip Road 60 R1	2	0.32%
<b>Grand Total</b>	<b>620</b>	<b>100.00%</b>

## Data Summary Continued

Table 5 presents a breakdown of Medium high risk roads, along with associated usage percentages. The 'A Road|Single Carriageway|40|U2' category has the highest number of incidents at 156, indicating a potentially significant concern for traffic safety at these locations.

It's important to note that Medium high risk roads occurred mostly in the Urban towns and Rural villages, similarly to High risk roads.

The speed limit also varies across the data, with incidents occurring at limits from 30 to 70 miles per hour. Interestingly, the highest

speed limit of 70 does not correspond to the highest number of incidents, which could suggest that factors other than speed may significantly influence the occurrence of incidents.

In terms of road types, 'Roundabout' and 'Slip Road' are less frequent than 'Single Carriageway', which could indicate a higher incidence rate on straight roads compared to intersections or connecting roads. However, without additional context such as traffic volume or environmental conditions, it's difficult to draw definitive conclusions.

Table 5 List of roads of a Medium high risk of a road traffic collision

Road category	4-Medium High	%
A Road Single Carriageway 40 U2	156	23.89%
B Road Single Carriageway 60 R2	137	20.98%
A Road Single Carriageway 40 R1	64	9.80%
A Road Roundabout 60 U2	34	5.21%
A Road Roundabout 40 R2	30	4.59%
B Road Roundabout 40 U2	30	4.59%
A Road Dual Carriageway 40 U2	28	4.29%
A Road Roundabout 30 R2	17	2.60%
Minor Road Single Carriageway 50 R2	16	2.45%
A Road Roundabout 70 U2	15	2.30%
A Road Slip Road 30 U2	14	2.14%
Minor Road Roundabout 40 U2	14	2.14%
B Road Slip Road 40 U2	12	1.84%
Minor Road Slip Road 30 U2	11	1.68%
A Road Slip Road 40 U2	9	1.38%
A Road Roundabout 30 R1	9	1.38%
Minor Road Roundabout 40 R2	8	1.23%
A Road Roundabout 40 R1	6	0.92%
A Road Single Carriageway 60 U1	6	0.92%
Minor Road Slip Road 30 R2	5	0.77%



## Data Summary Continued

Road category	4-Medium High	%
B Road Roundabout 40 R2	4	0.61%
B Road Roundabout 60 U2	4	0.61%
Local Road Roundabout 30 R1	4	0.61%
Local Road Roundabout 30 R2	3	0.46%
A Road Slip Road 30 R2	2	0.31%
Minor Road Dual Carriageway 40 U2	2	0.31%
Local Road Slip Road 30 R2	2	0.31%
B Road Slip Road 40 R2	2	0.31%
Minor Road Slip Road 40 U2	1	0.15%
Local Road Single Carriageway 50 R2	1	0.15%
A Road Slip Road 60 U2	1	0.15%
A Road Slip Road 70 U2	1	0.15%
Minor Road Slip Road 60 U2	1	0.15%
Secondary Access Road Single Carriageway 60 R2	1	0.15%
Local Road Slip Road 40 U2	1	0.15%
B Road Single Carriageway 40 U1	1	0.15%
Secondary Access Road Single Carriageway 60 R1	1	0.15%
<b>Grand Total</b>	<b>653</b>	<b>100.00%</b>

# Data Summary Continued

Figure 2 Road Risk Category provides a visual representation of the varying risk levels across specific Lower Super Output Areas (LSOAs), pinpointing those with an increased risk.

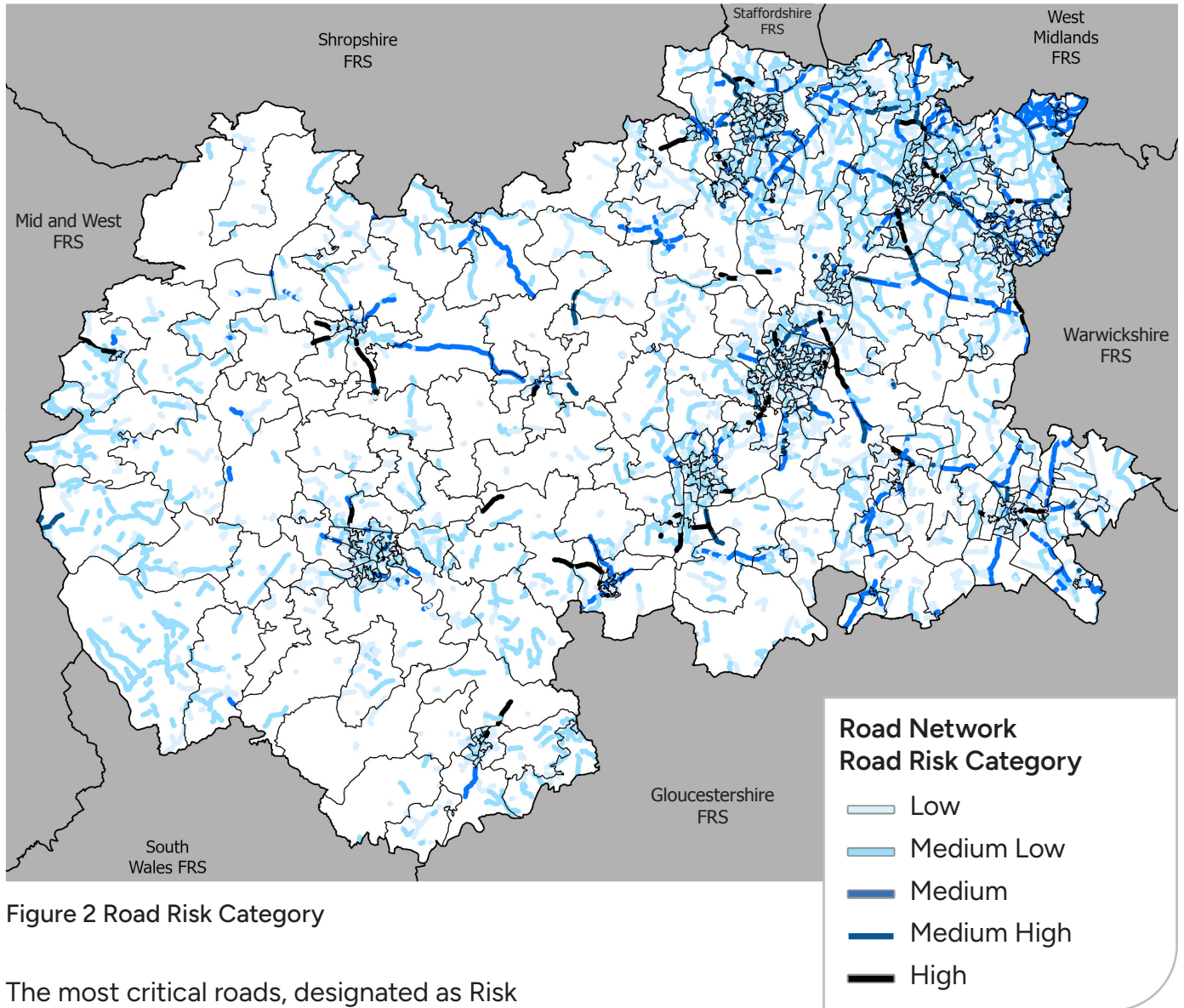


Figure 2 Road Risk Category

The most critical roads, designated as Risk Category 5 - High, are depicted in black, indicating a significant threat level, whereas the very low-risk zones, classified as Risk Category 1 - Low, are represented in light blue.

Analytical projections have identified 89 LSOAs within the Service’s jurisdiction where high risk roads occurred, 145 LSOAs with a medium high risk roads, 208 LSOAs with a medium risk roads, 447 LSOAs with a medium-low risk, while low risk roads are present in the entire area.

The analysis reveals that Bromsgrove 009B has the highest number of high-risk roads at 33, indicating a potential area of concern for road safety. Herefordshire also appears frequently in the list, with multiple areas showing a significant number of high-risk roads. It’s also interesting to note the variation in numbers, with some areas having a single high-risk road, which could point to specific issues unique to those roads or areas.



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