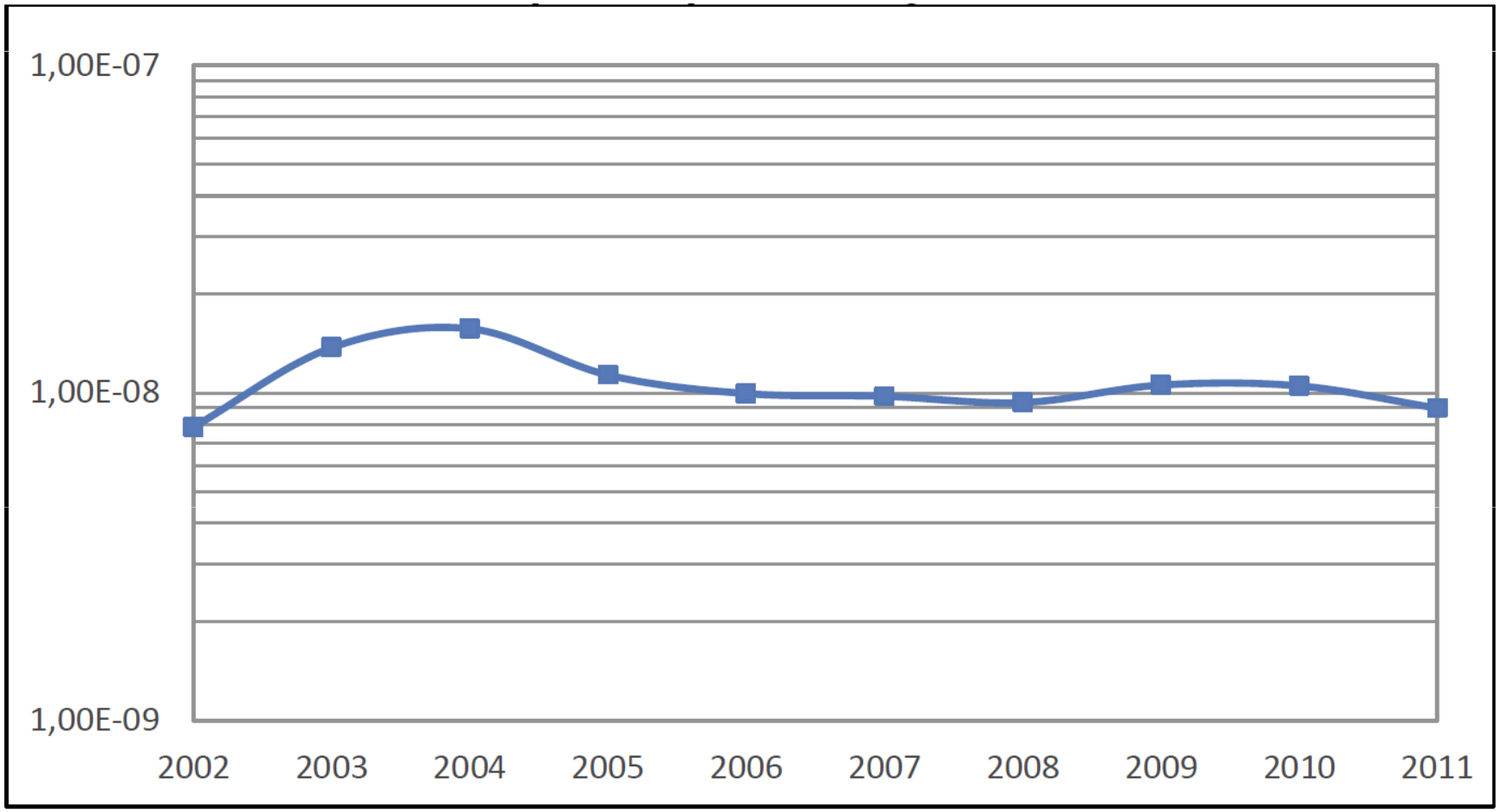
Expected fire rates

Expected rates

A paper published in 2016 used data from France in order to estimate the lokehood of a vehocle fire as a function of vehicle kilometers.

Annual fire rates for the 2002-2011 period



Source: Christophe Willmann & Raphaël Defert from Safety department Centre for Tunnel Studies & BG Consulting Engineers, France.
Article “Statistical Analyses of Breakdowns, Accidents and Fires in Road Tunnels in France” in the Proceedings Report of the “Seventh International Symposium on Tunnel Safety and Security, Montreal, Canada, March 16-18, 2016”

Expected rates

Especially interesting is the difference in the type of tunnels they found:

Rate of fires acc. to uniderectional/birectional and urban/non-urban parameters

Type of tunnel	Rate [fires/10^8 veh.km]	Type of tunnel	Rate [fires/10^8 veh.km]
Unidirectional	0.9	Urban unidirectional	0.9
Bidirectional	2	Urban bidirectional	0.7
Urban	0.9	Non-urban unidirectional	1.2
Non-urban	1.9	Non-urban bidirectional	3.5

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Conclusion

Other studies have found probabilitoes being 10-100 times less.
This can be because of different statistical collection basis (low number of incidents), different drawing patterns, etc.

However it is clear that tunnel fires will occur with a certain regularity.