



Transportation
Safety Board
of Canada

Bureau de la sécurité
des transports
du Canada



On the right track? An examination of rail safety

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Canada

TSB 101: who we are, what we do

Mandate: To advance transportation safety in the marine, pipeline, rail, and air modes by:

- conducting **independent investigations**
 - identifying **safety deficiencies, causes, and contributing factors**
 - making **recommendations** to address systemic issues
-
- It is not the function of the Board to assign fault or determine civil or criminal liability
 - TSB is not a regulator



Watchlist 2016



Railway crossing safety



Transportation of flammable liquids by rail



Following railway signal indications



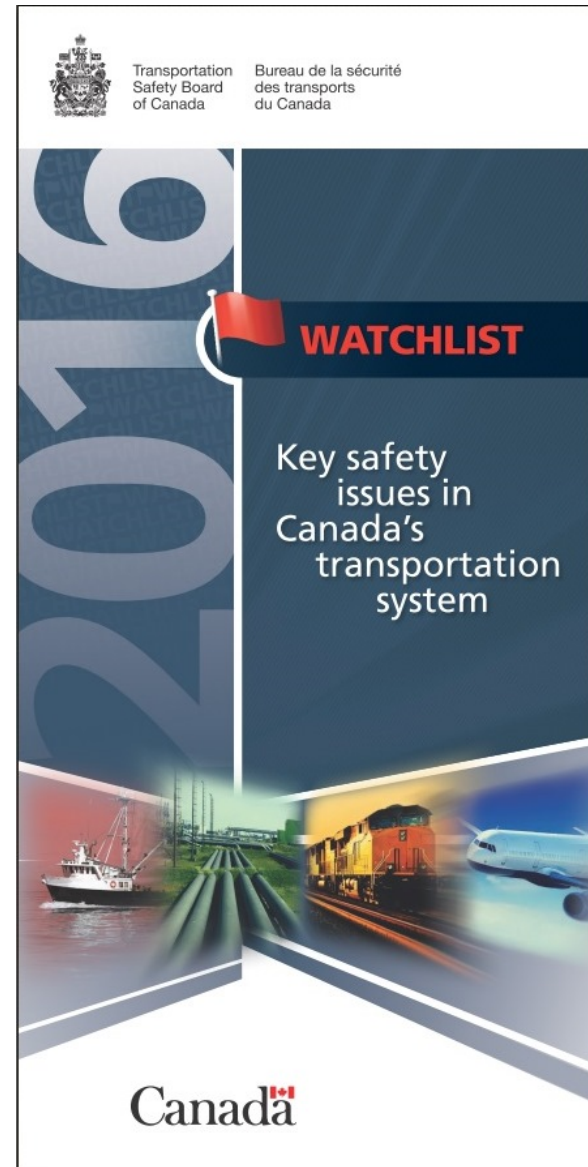
Slow progress addressing TSB recommendations



Fatigue management systems for train crews



On-board voice and video recorders



Issue removed: Railway crossing safety

- TC published new ***Grade-Crossings Regulations and Standards*** (2014)
- Crossing accidents are now declining

YTD (January-September)	
2011-2015 (avg.)	129
2015	117
2016	89

Source: TSB website



Transportation of flammable liquids

The transportation of flammable liquids, such as crude oil, by rail across North America, has created an elevated risk that needs to be mitigated effectively.

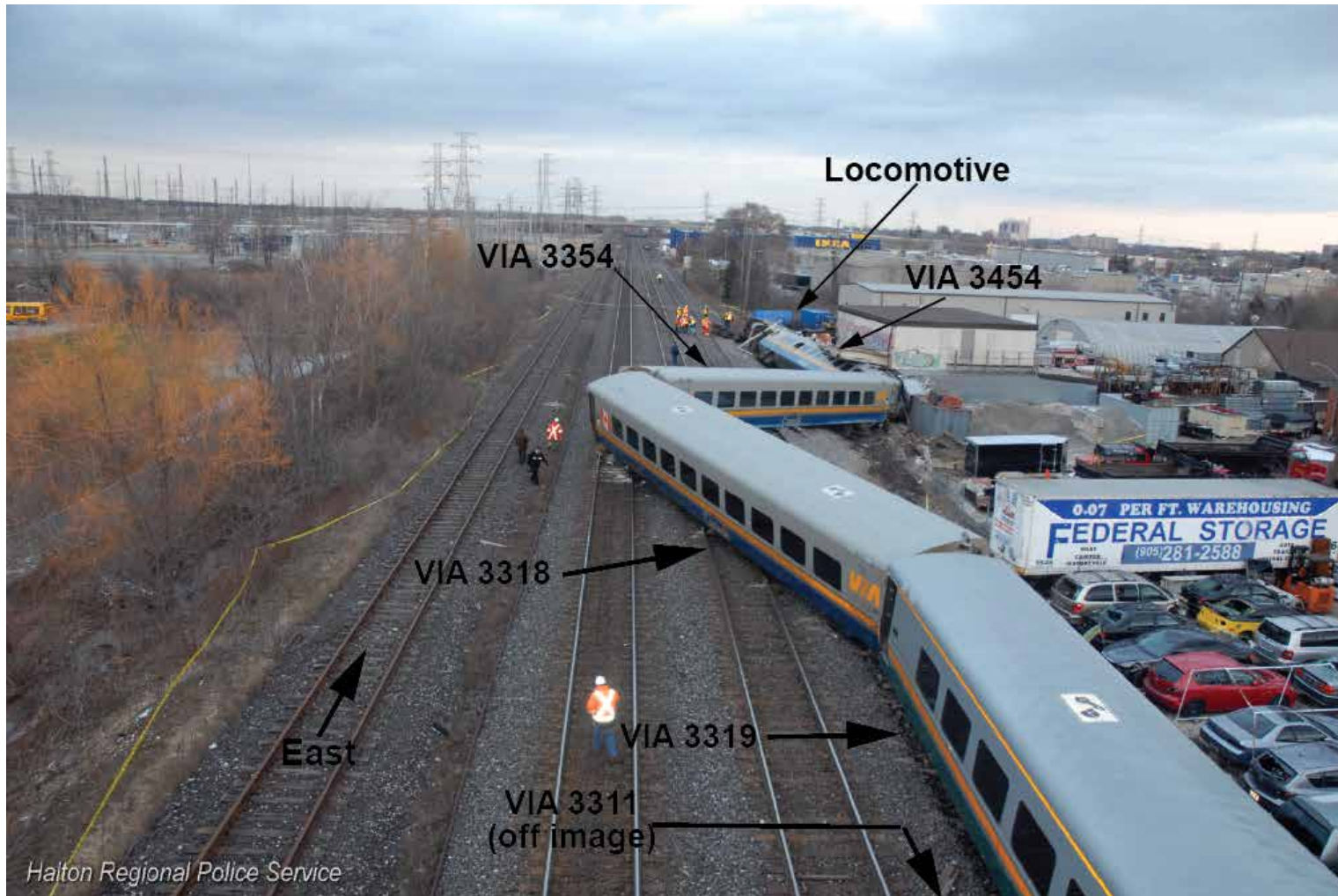


Following signal indications

Railways signals are not consistently recognized and followed, which poses the risk of serious collisions or derailments



R12T0038 – Main track derailment near Burlington, Ontario (February 2012)



Slow progress on addressing TSB recommendations

Transport Canada action to address TSB recommendations is too slow.

Outstanding recommendations (2016)

Mode	10–14 years	15–19 years	More than 20 years	Total
Air	3	4	32	39
Rail	1	1	1	3
Marine	3	1	6	10
Total	7	6	39	52



Fatigue management systems for train crews

Sleep-related fatigue in operating crew can impair the safe operation of freight trains.

Why this matters:

- Since 1994, **20%** of TSB investigations involving human factors showed fatigue as a contributing or risk factor.
- **Almost all** of these (19 of 23) involved operating crews on **freight trains**



On-board locomotive voice and video recorders

Without these, key information to advance railway safety may not always be available for accident investigations and proactive safety management.



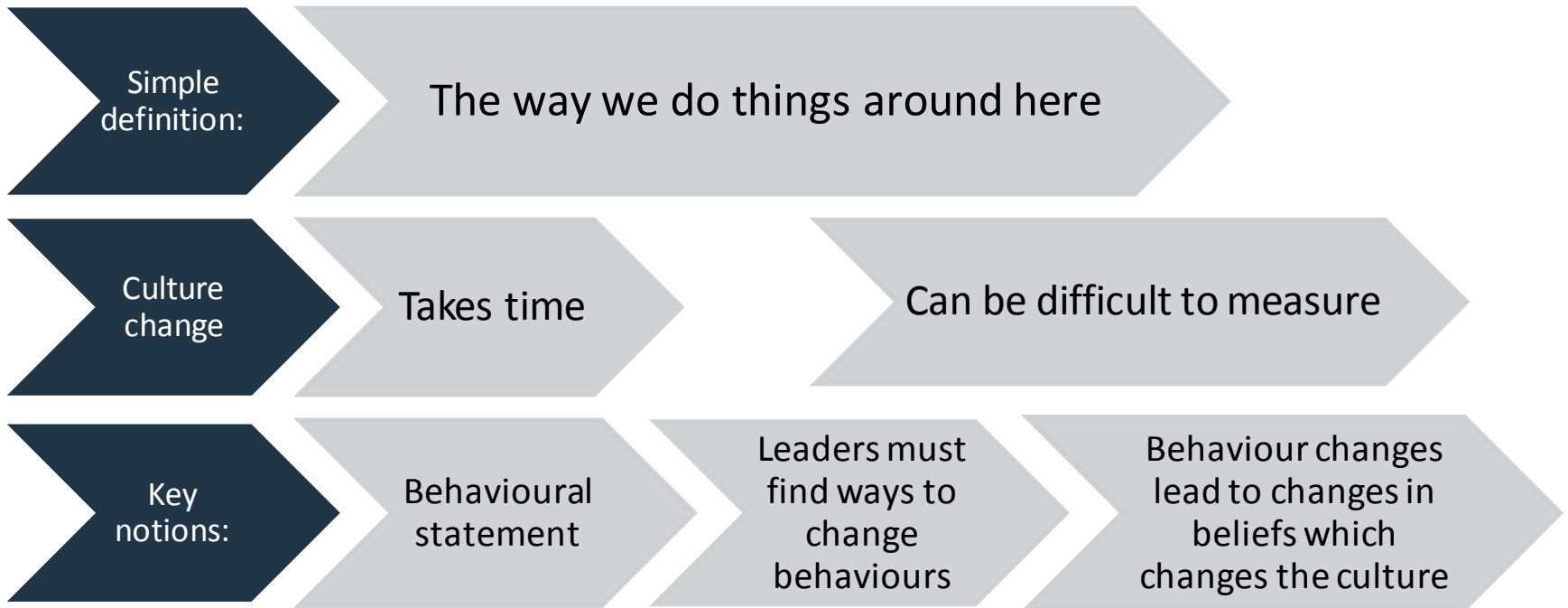
Source: TSB investigation report R16H0002



Source: TSB investigation report R16H0002



What is culture, and why is it so important?



Over 100 years of:

- History
- pride
- ... and inertia

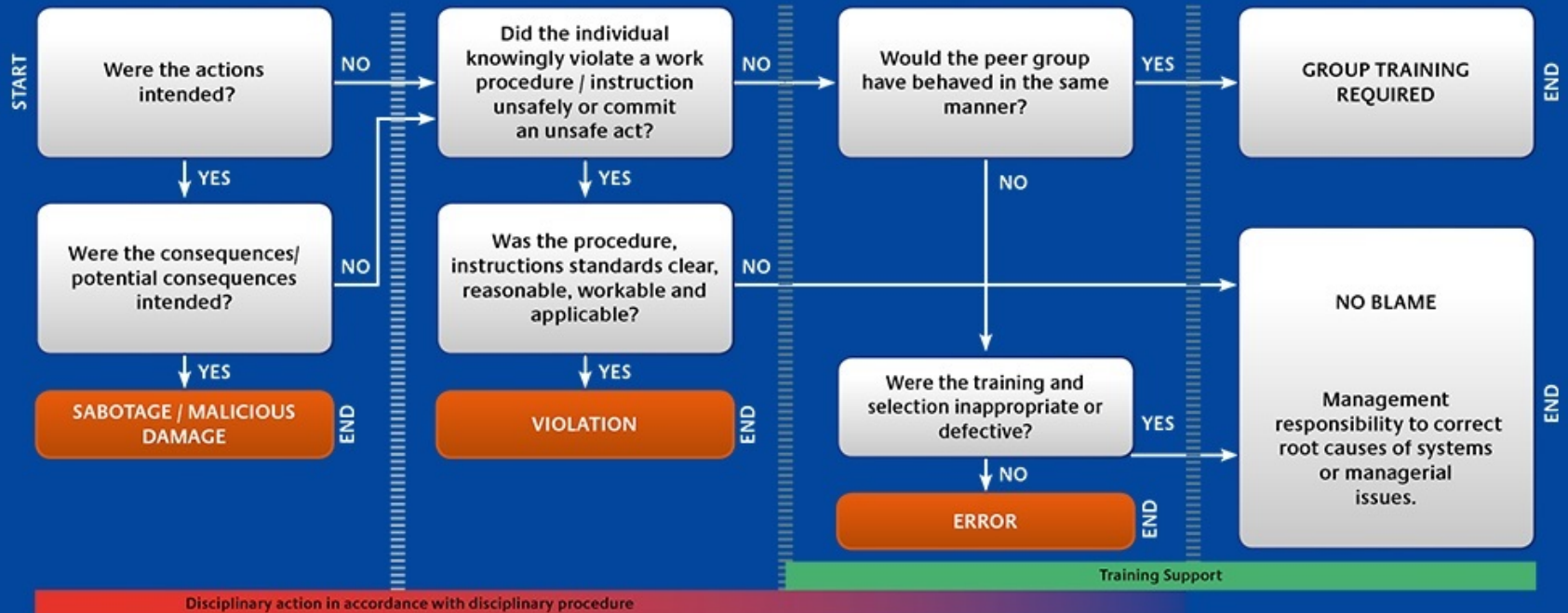


Elements of a robust safety culture

- Doing what you say you'll do
- Just culture
- Reporting culture
- Learning culture



JUST CULTURE DECISION TREE



Conclusions

- Improving the safety of our transportation network is beneficial to all.
- Ask yourself **why** things happened, and don't accept "rule-breaking" as an answer.
- What's driving **your** safety culture?
 - what assumptions?
 - what values?
 - what beliefs?





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