



Transportation  
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# **On the right track?**

## **An examination of rail safety**

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Chair, Transportation Safety Board of Canada

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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



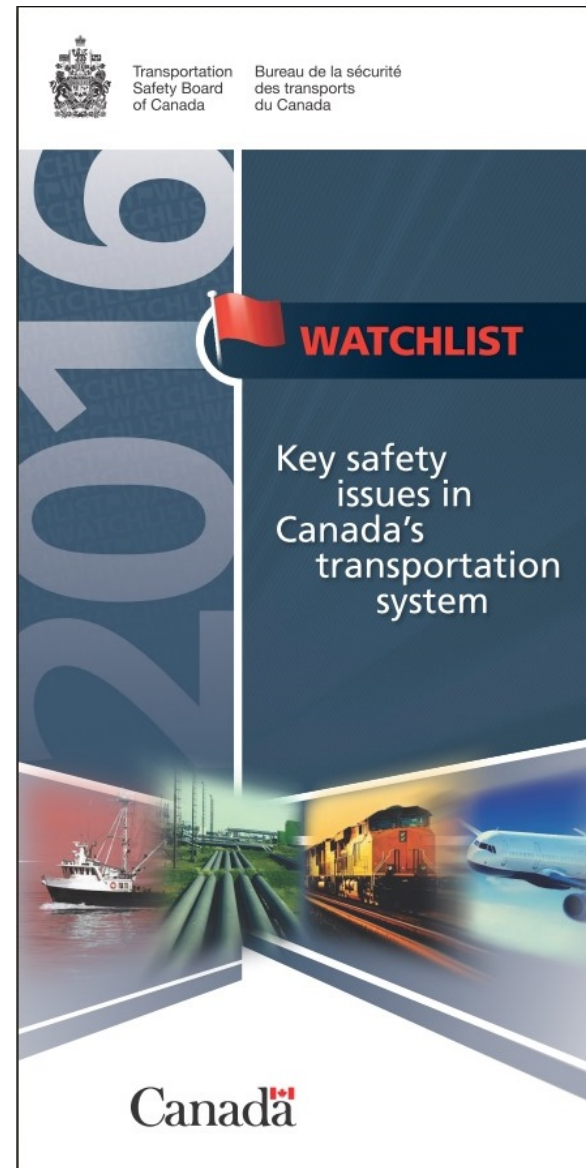
Slow progress addressing TSB recommendations



Fatigue management systems for train crews



On-board voice and video recorders



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## 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.*



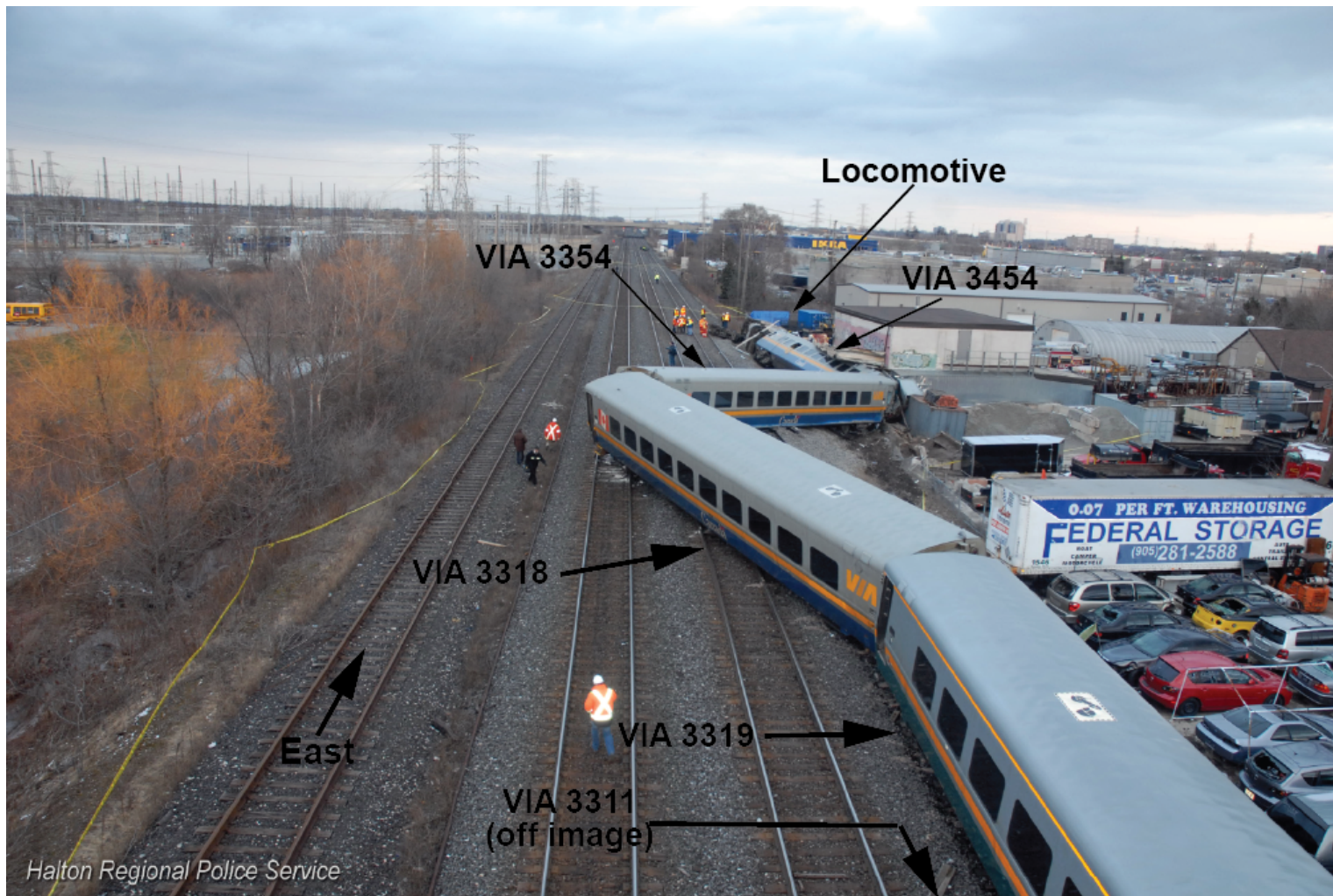
# Following signal indications

*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.*

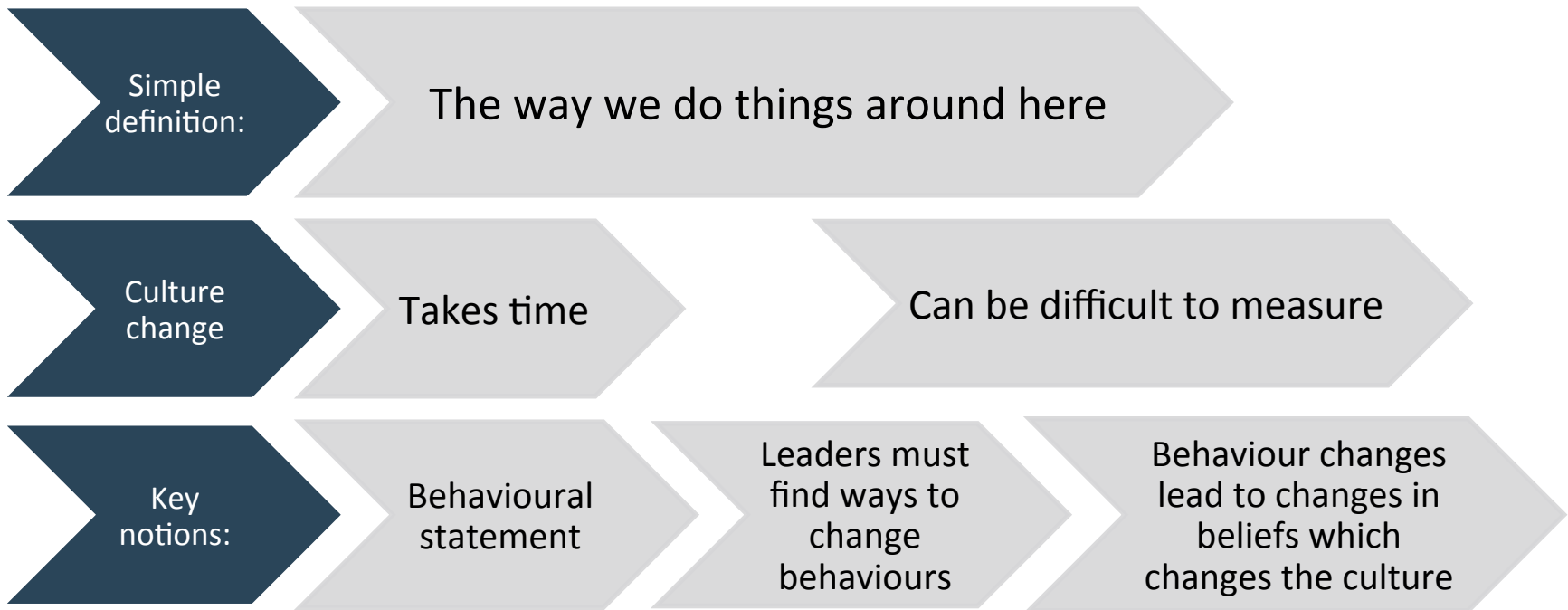


Source: TSB investigation report R16H0002



Source: TSB investigation report R16H0002

# What is culture, and why is it so important?



# Over 100 years of history, pride ... and inertia





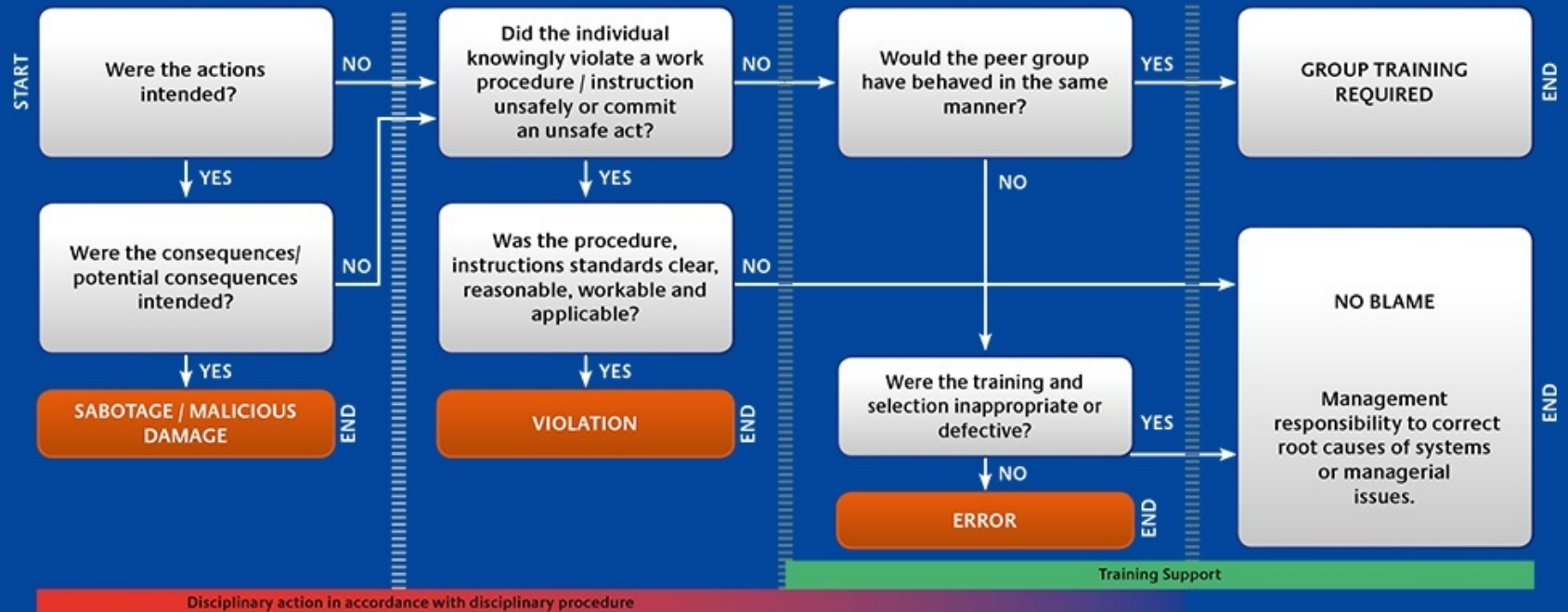


# Elements of a robust safety culture

- 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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