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Optimizing Cross Border Truck Safety

Cross Border Regional Truck Transportation Conference

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Overview

- **Examining the truck crash picture**
- **Focus on the more significant crash types**
- **Discuss LCV safety and policy**



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Tractor Semitrailers all Roads

Crash Type	Nonfatal %	Fatal %	Total %
Head on /side swipe	4.8	24.4	5.2
Hit object on road	6.1	7.5	6.1
Ran off road	10.2	7.7	10.2
Turn across	16.5	9.6	16.4
Rear end / side swipe	40.5	21.8	40.3
Totals	82.1	71.0	78.2

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At Issue – Key Findings

- Large truck rear-end collisions are common
- The occurrence of truck striking rear-end collisions is significantly greater than the occurrence of truck struck rear-end collisions
- Truck striking rear end collisions imply truck at fault

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Comparison Fatal Truck Crashes Maine (state vs. turnpike) 1999 - 2001

Condition	State Wide	Turnpike
Total fatal crashes	78	11
Apparent truck fault	24%	64%

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Fatal Truck Crash (turnpike) Primary Factors

- Rear end sideswipe and rear end avoidance crashes account for 45% of turnpike fatal truck crashes
- Truck driver fault is strongly represented
- Rear end sideswipe crashes are associated with congestion / differential speed
- Driver attention appears to be the primary human factor in rear end sideswipe and avoidance crashes
- The average driver age for at fault rear end sideswipe 46yrs

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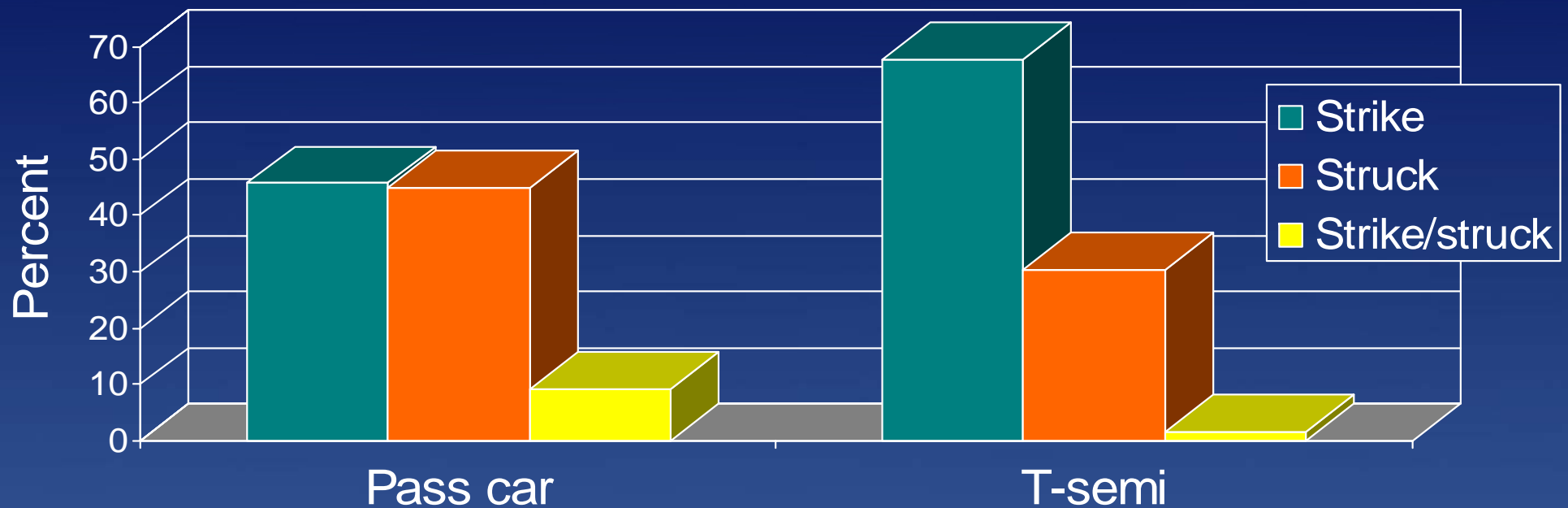
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Comparing strike or struck role for pass cars and trucks (semi)

NASS/GES Data (2001)

All Roads



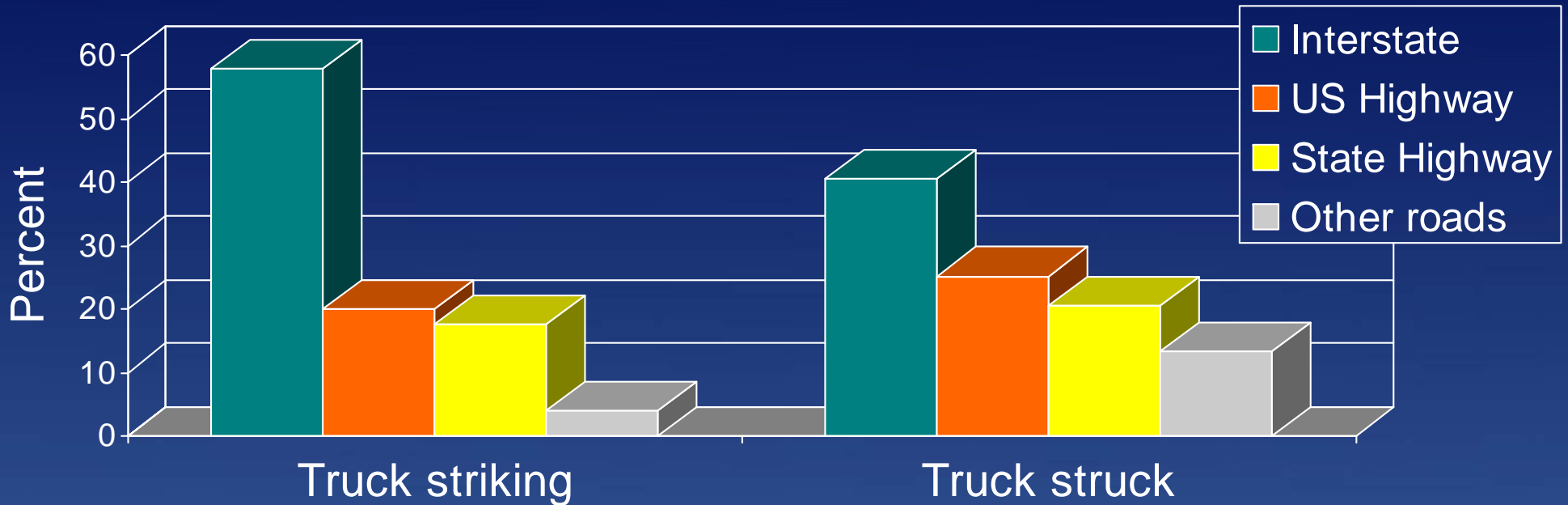
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Truck (all types) rear-end "fatal" crashes by road type (Blower)



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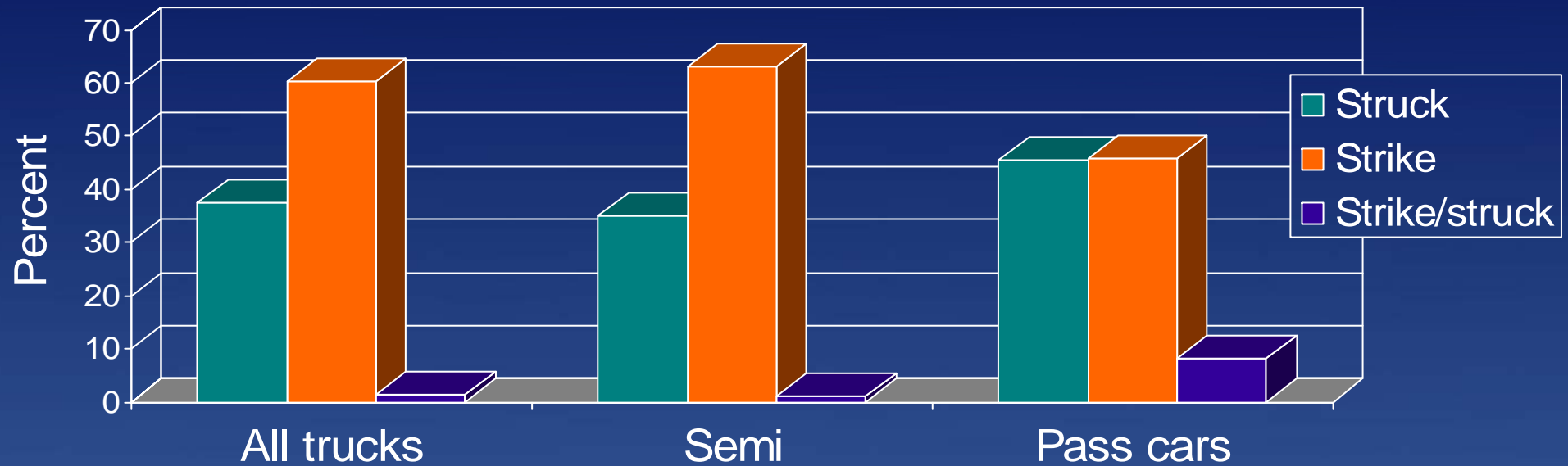
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NASS /GES Data (2001)

Note: trucks over 10,000 lb)

All Roads



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Other important findings

(Blower)

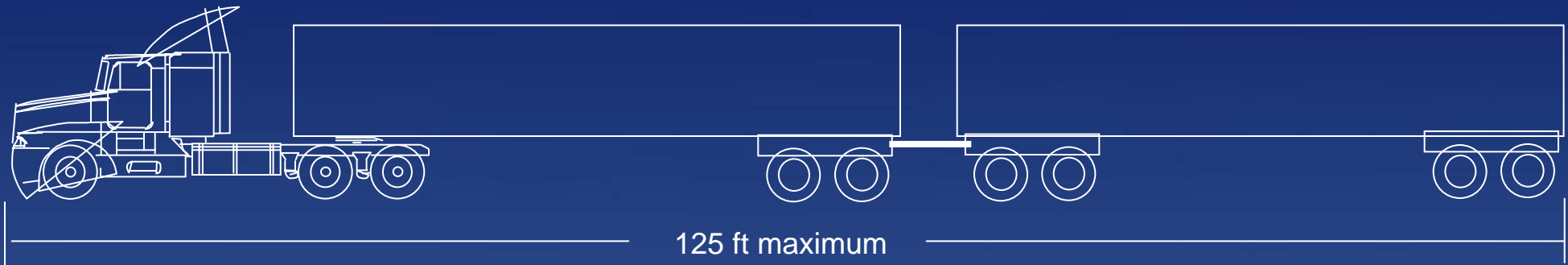
- **90% of fatal truck rear-end crashes occur on straight roads**
- **Only 3.1% of fatal truck striking rear-end crashes occur on snowy/icy roads**
- **75% of fatal truck rear-end crashes occur away from intersections**

LCV Safety

Alberta's LCV Experience



Rock Mountain Double



Turnpike Double

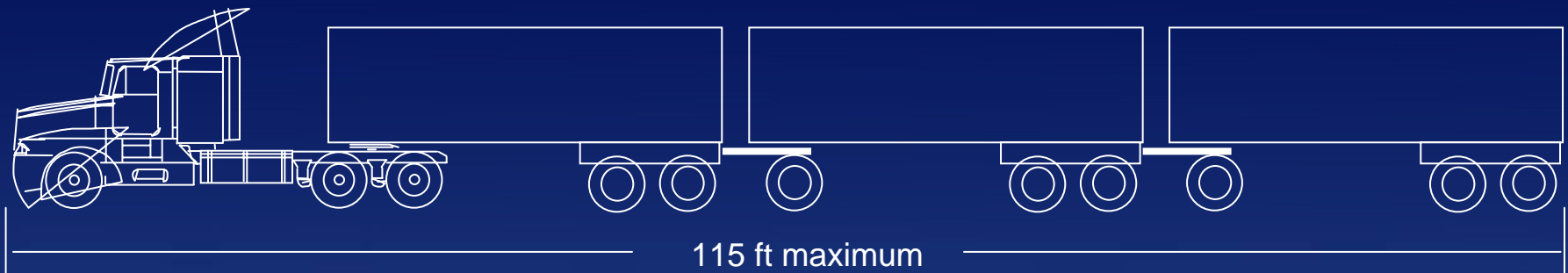
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Alberta's LCV Experience



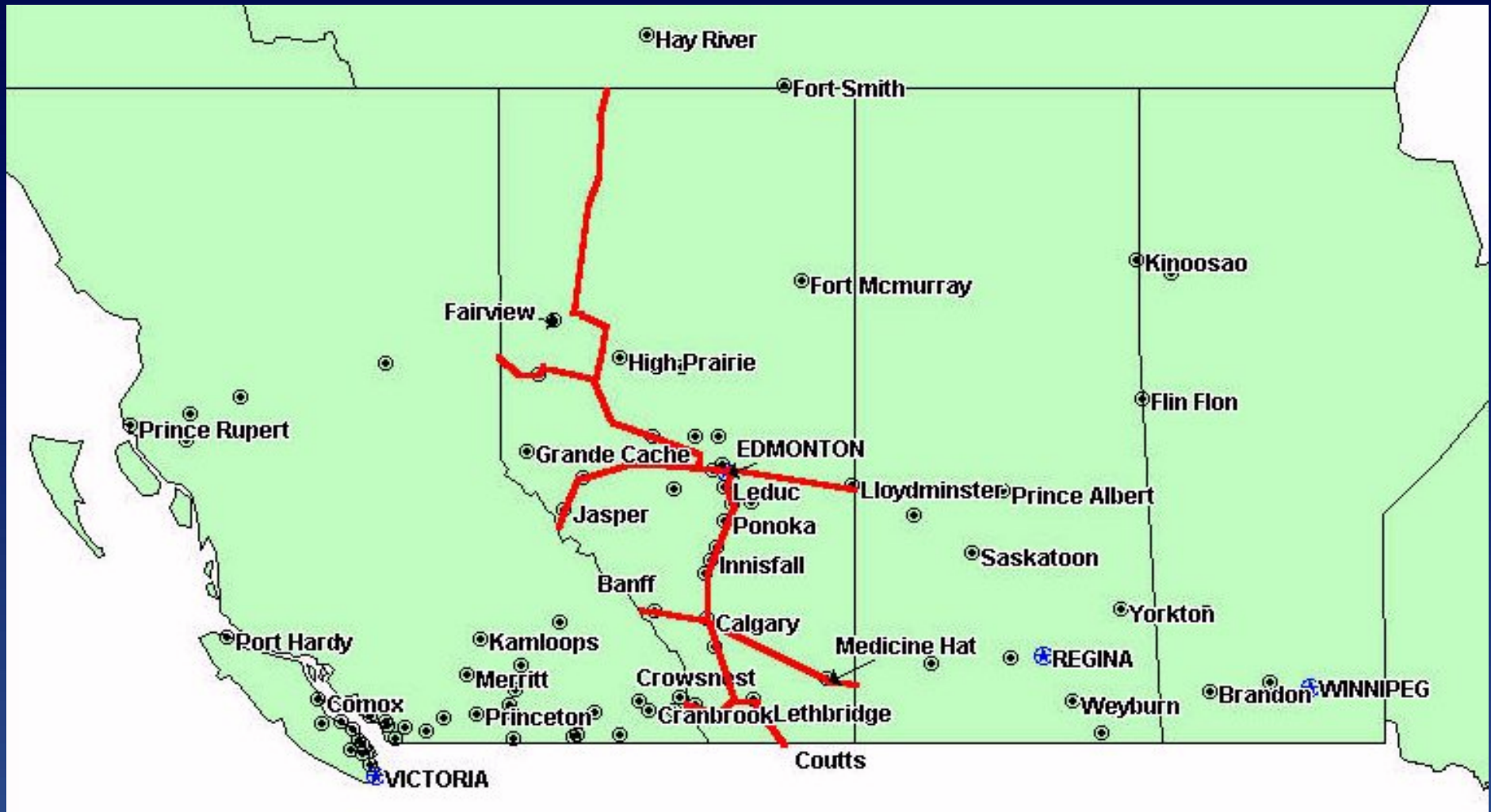
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Exposure Measurements

(Distance Traveled by Vehicle Type)

- **14 highway segments selected**
 - 9 two lane segments
 - 5 four lane segments
- **Annual Average Daily Traffic (AADT) counts were conducted for all vehicles**
- **A separate vehicle classification count was conducted to determine the mix of truck configurations (7 day 24 hour sample)**

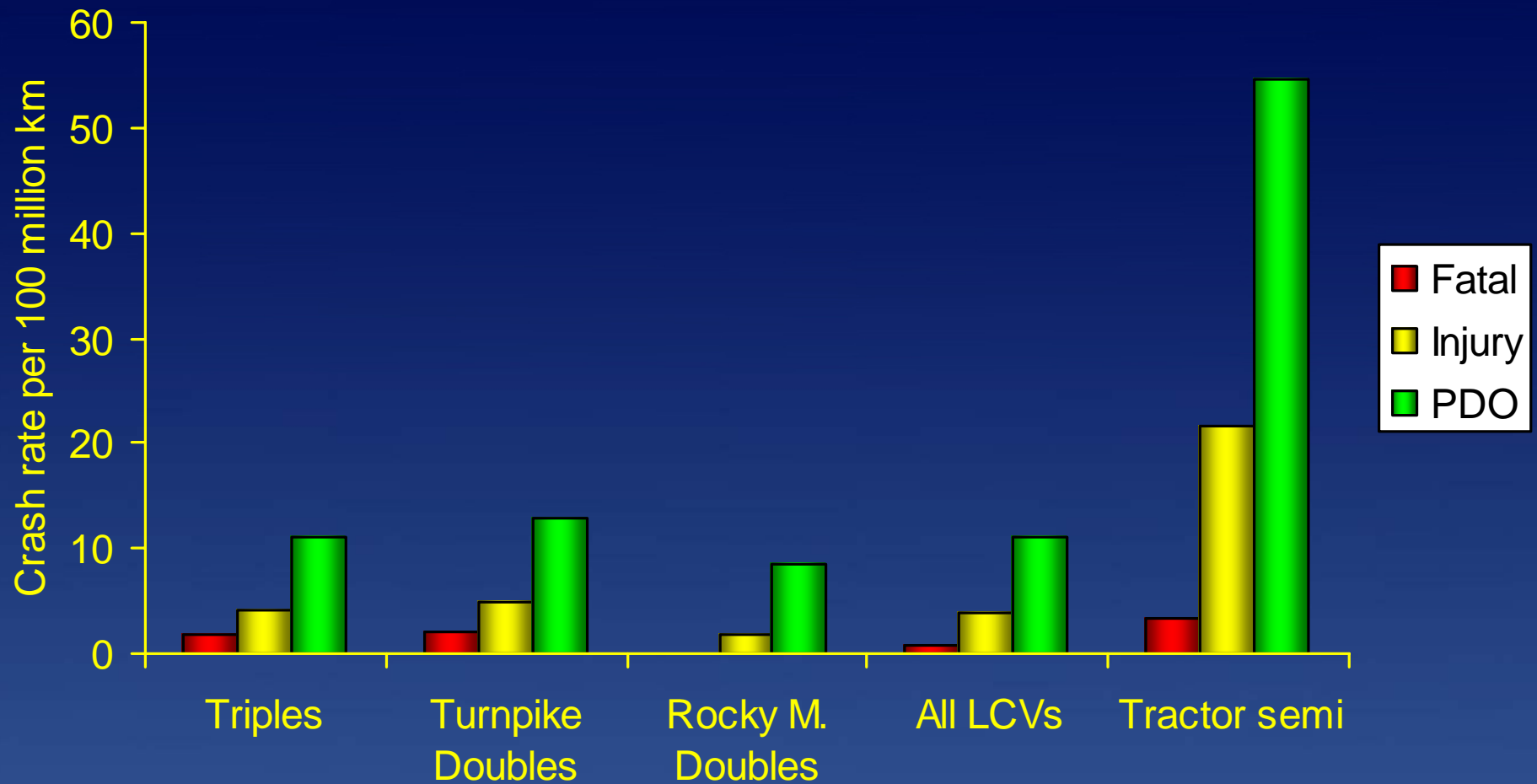
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Crash Rates



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Best Practice LCV Benefits

Factors	Benefit
Truck km reduction	44%
Cost saving to shipper	29%
Reduction in fuel and green house gases	32%
Reduction in road consumption	40%
Exposure crash reduction	44%
Policy affected crash rate reduction	500%

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Alberta LCV Safety Benefits

- **Based on a “Special Permit System”**
- **Vehicle operations are controlled to minimize risk**
- **Restrictions related to time of day, weather, driver qualifications, safety practice and routing**



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Factors Influencing Transport Risk

- Population density
- Traffic volumes/condition (e.g. vacation traffic)
- Road class
- Weather and road condition
- Road curviness (vertical & horizontal)
- Overtaking opportunities
- Commodity risk
- Operational factors
- Alternative transport mode options
- Driver and company experience

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Special Permit Management

- **Meaningful enforcement is essential**
- **Highway safety and weight violation information must be linked to the enforcement program**
- **Regular incident reporting by carriers important to ensure maximum benefit**
- **The system should foster pride – it should be seen as a privilege and not a right**
- **Acceptance into the program should have a minimum performance threshold**

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Concluding comments

- **Truck striking rear-end/sideswipe crashes are the dominant truck at fault crash type**
- **Substantial safety benefits (factor of 5) can be achieved through risk based policy**



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