# DECODING QUEENSLAND'S TWO-DECADE CRASH STORY

BUSN5003 - Data Storytelling - Group 6

# CRASH NARRATIVE ARC

1

**Setting**

**Setting the Scene**

Introduction to crash dataset (2001–2021), dot map, severity colors

2

**Rising Action**

**Crash Spine: Risk Geography**

Heatmap of Bruce & Pacific Hwy corridor, Brisbane–Gold Coast crash clusters

3

**Rising Action**

**Crash Peaks by the Hour**

Morning & evening peaks (7–9 AM, 3–5 PM), with rising crash volume

4

**Rising Action**

**Alcohol & Speed Crashes**

Focus on AM vs PM speed/alcohol crash consistency

5

**Aha Moment**

**Young Adults Most Affected**

17–24 age group bears highest severe casualty burden

6

**Conclusion**

**Where Crashes Happen Most**

T-Junctions, Crossroads, Roundabouts — intersection analysis

7

**Business Insights**

**Recommendations for Safer Roads**

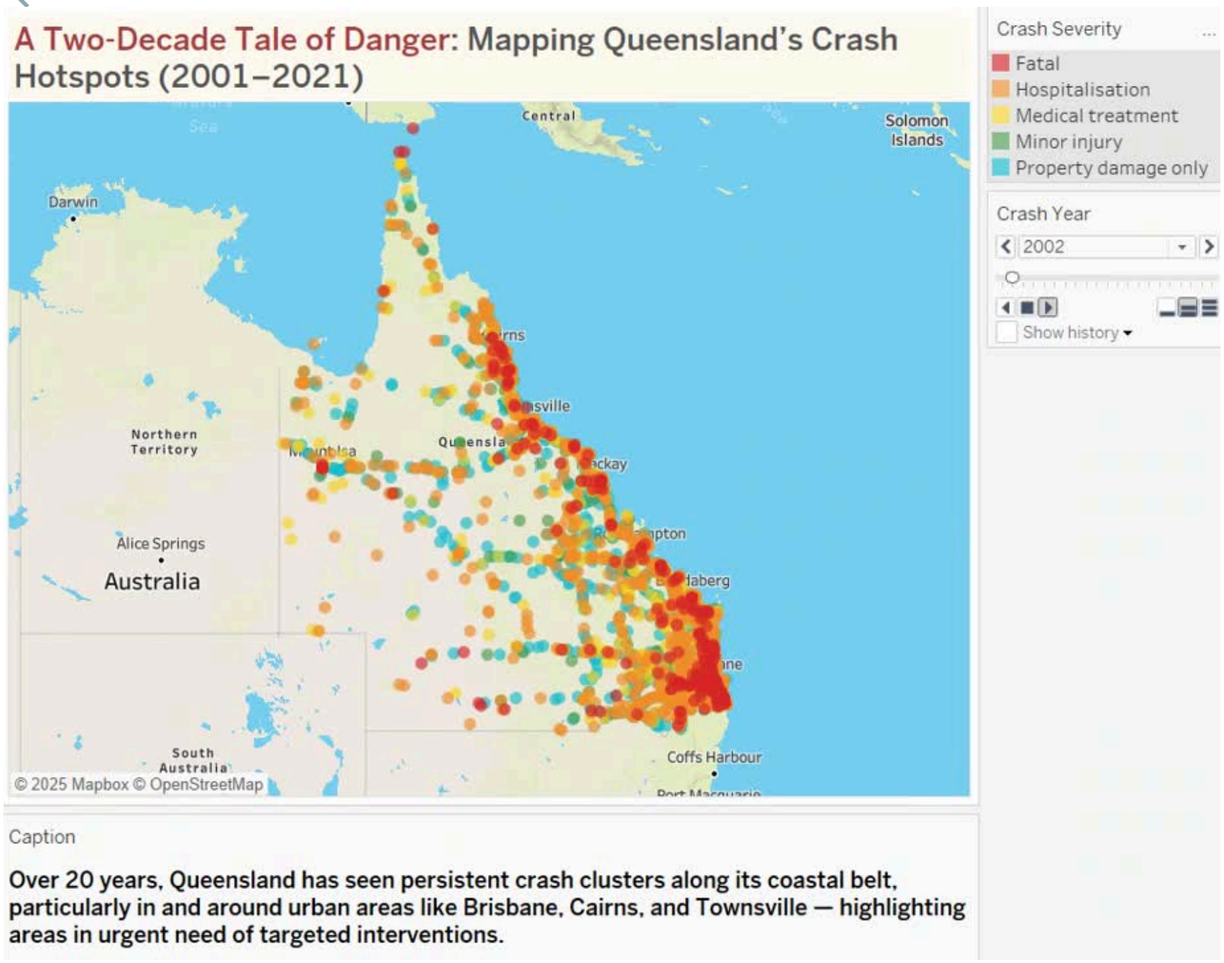
Business suggestions: targeted campaigns, enforcement, intersection redesign

# INSIGHTS OVERVIEW

- **Roads Lit by Red Dots:** Uncovering Queensland’s Crash Hotspots
- **Queensland’s Crash Spine:** Identifying the backbone of risk
- **Crash Severity by Hour:** Volume Peaks vs. Severity Peaks
- **Morning vs Evening Peak:** Alcohol and Speed Crashes in Focus
- **Young Adults** Shoulder the Heaviest Casualty Burden
- **Intersection Insights:** Identifying High-Risk Crash Locations
- **Signal the Danger:** Crash Surge in Uncontrolled zone

# SETTING THE SCENE: UNDERSTANDING QUEENSLAND'S CRASH DATA

# ROADS LIT BY RED DOTS : UNCOVERING QUEENSLAND'S CRASH HOTSPOTS

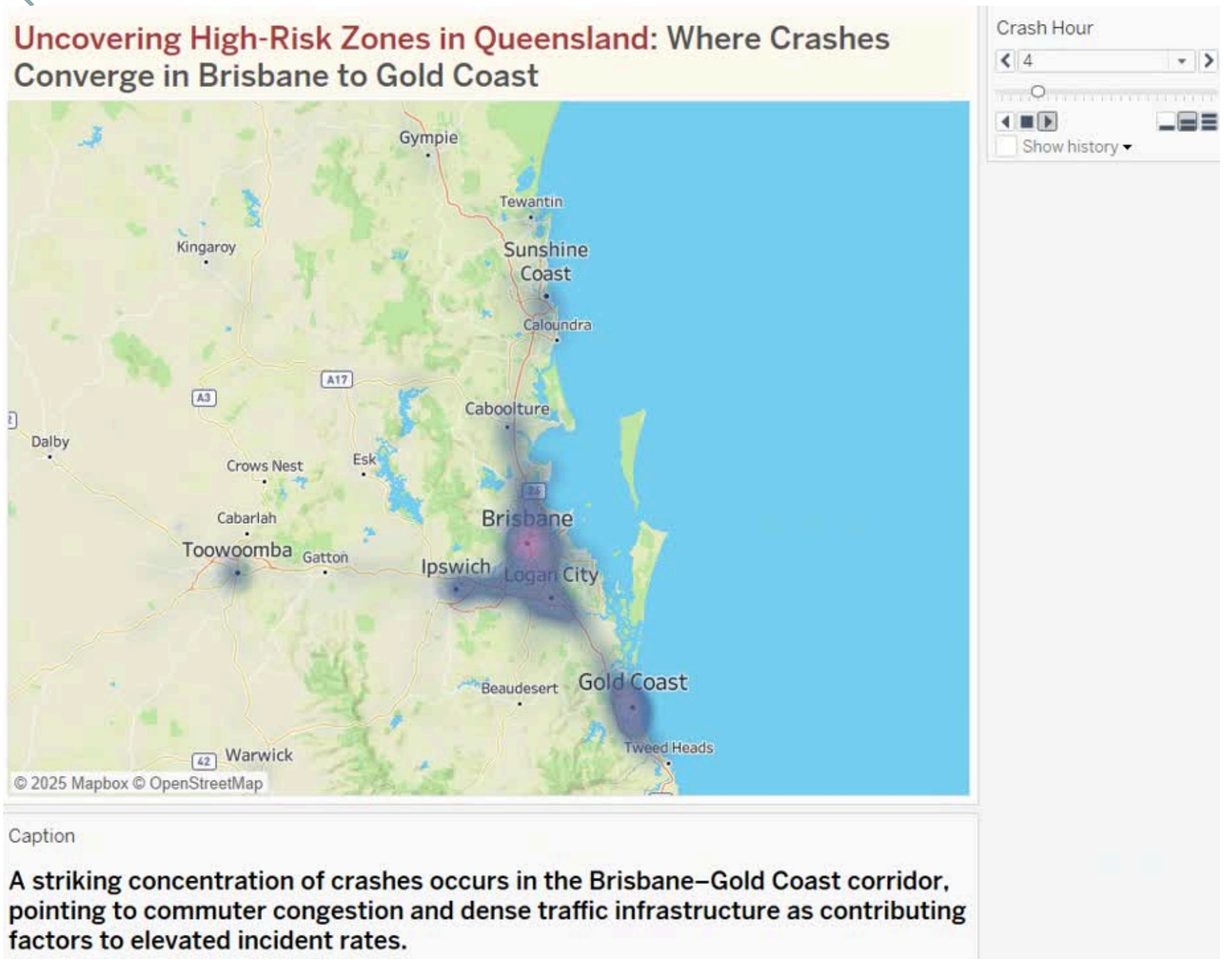



*This statewide dot map highlights the **frequency and severity of crashes across QLD.** Red and orange concentrations reveal fatal and hospital-level incidents, primarily clustered around urban coastal regions. **(2001 - 2021)***

***Crash intensity** correlates with urban density, indicating infrastructural stress points where vehicle flow and pedestrian interactions intersect dangerously.*

*This "**setting**" defines our story's starting point, knowing where the threat concentrates sets the stage for deeper temporal and behavioural investigation.*

# QUEENSLAND'S CRASH SPINE: IDENTIFYING THE BACKBONE OF RISK



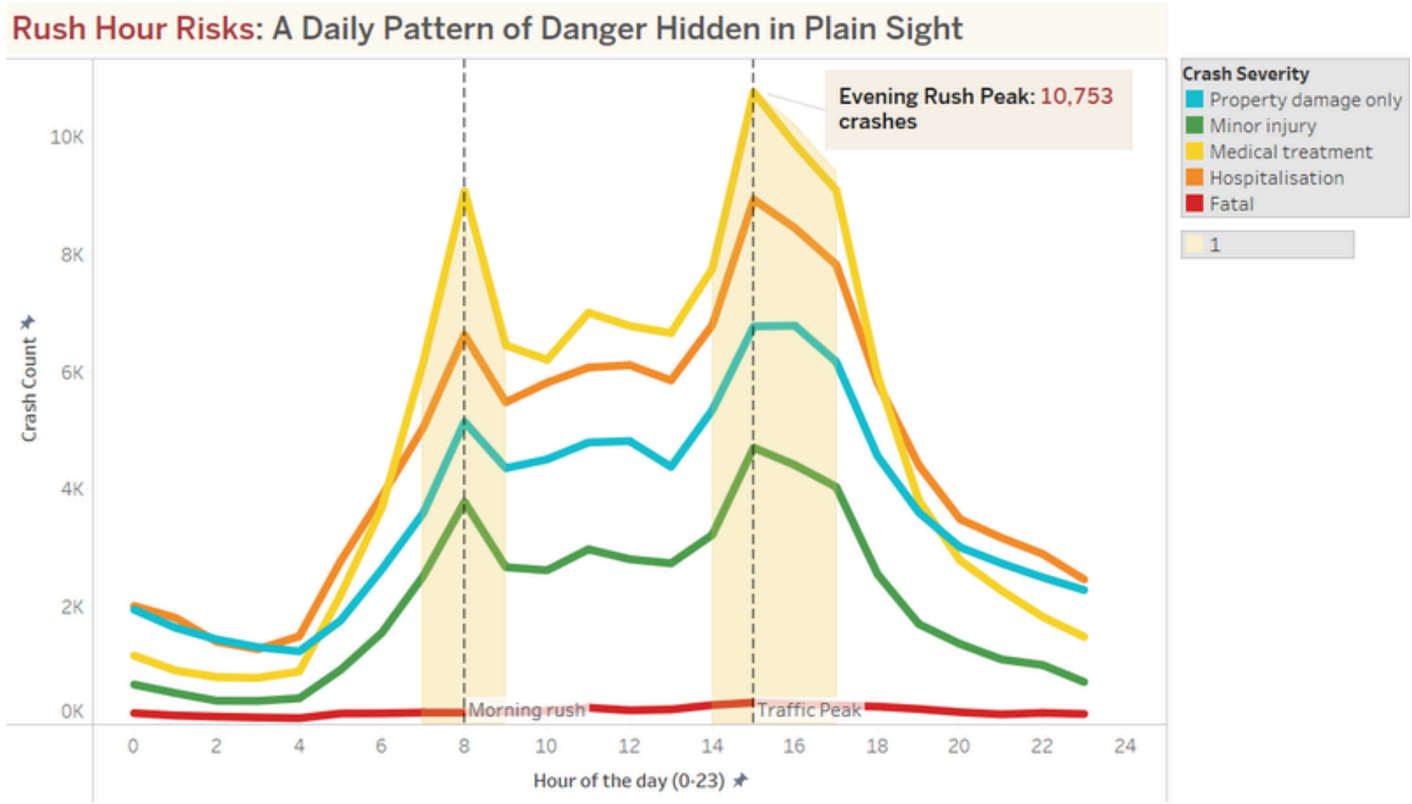

*The heatmap draws a clear **crash corridor between Brisbane and the Gold Coast**, forming the term Queensland's crash spine. Higher intensity in darker areas pinpoints chronic hotspots tied to urban sprawl and major highways.*

*This slide escalates the narrative tension by pinpointing the region **most vulnerable** to road trauma.*

***Infrastructure upgrades** should be prioritised along this spine, which represents Queensland's most pressing structural crash risk zone.*

# THE RISING INSIGHTS:
# WHEN CRASHES PEAK
# SPEED AND ALCOHOL TAKE THE WHEEL

# CRASH SEVERITY BY HOUR: VOLUME PEAKS VS. SEVERITY PEAKS



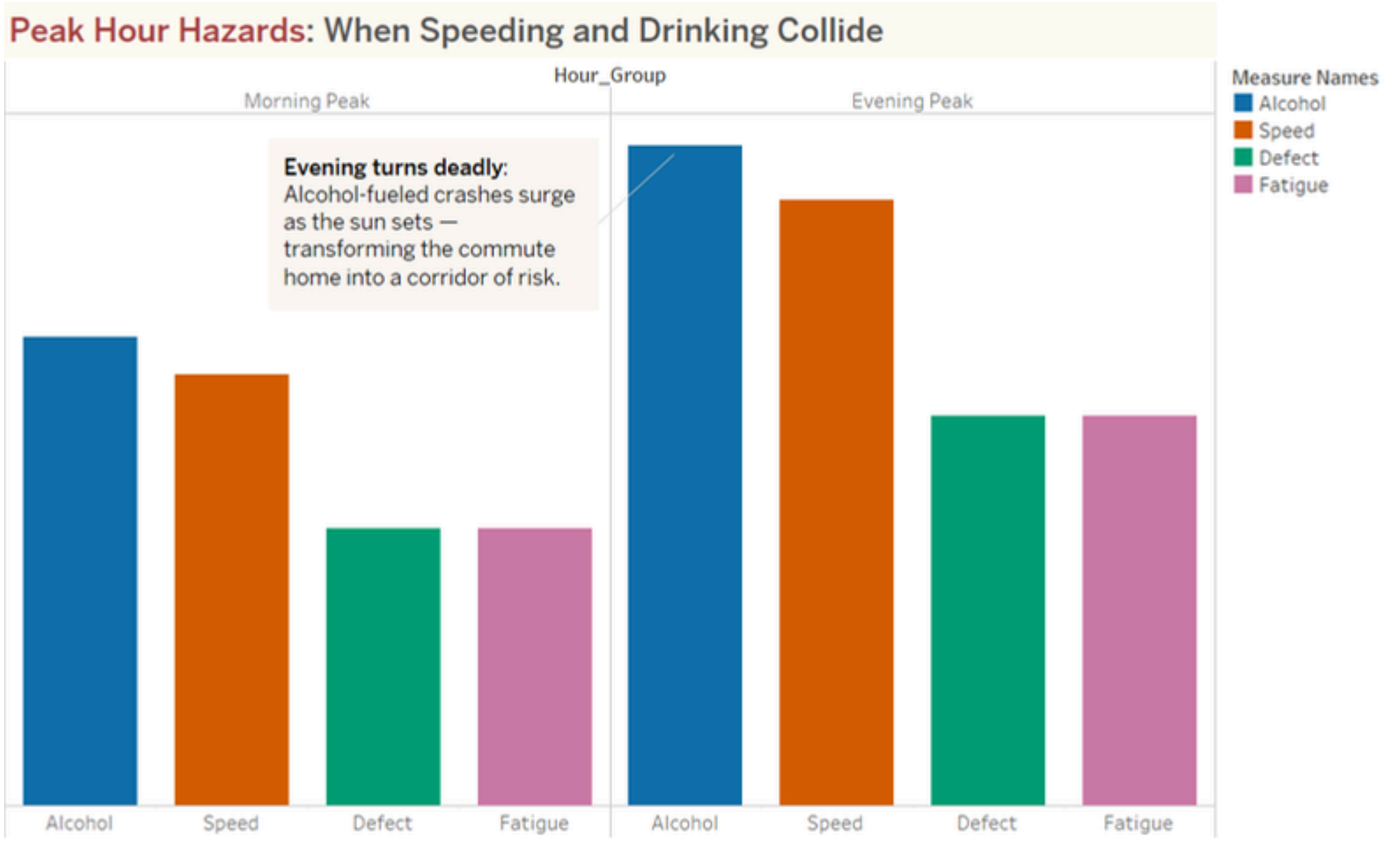

**Crash trends peak sharply during morning (8–9 AM) and evening (3–4 PM) rush hours — aligning closely with daily commute times and indicating high traffic volumes as a core risk amplifier.**

*Graphs reveal a **dual pattern**: while crash volumes peak during traditional commute hours (especially 8–9 AM, 5–6 PM), severity rises in less congested hours—early mornings and late nights.*

*This **contradicts common assumptions** that traffic density equals crash danger. In reality, speed, fatigue, and risky behaviour during quiet hours drive more severe outcomes.*

*Road safety measures must not only focus on rush hour, **vigilance is required** when roads appear safest.*

# MORNING VS EVENING PEAK: ALCOHOL AND SPEED CRASHES IN FOCUS




**Alcohol and speed remain dominant contributors to peak-hour crashes, especially in the evening — suggesting that risky behavior escalates post-work during return commutes.**

***Alcohol and speed*** *- related incidents hold nearly equal ground during both peak periods*

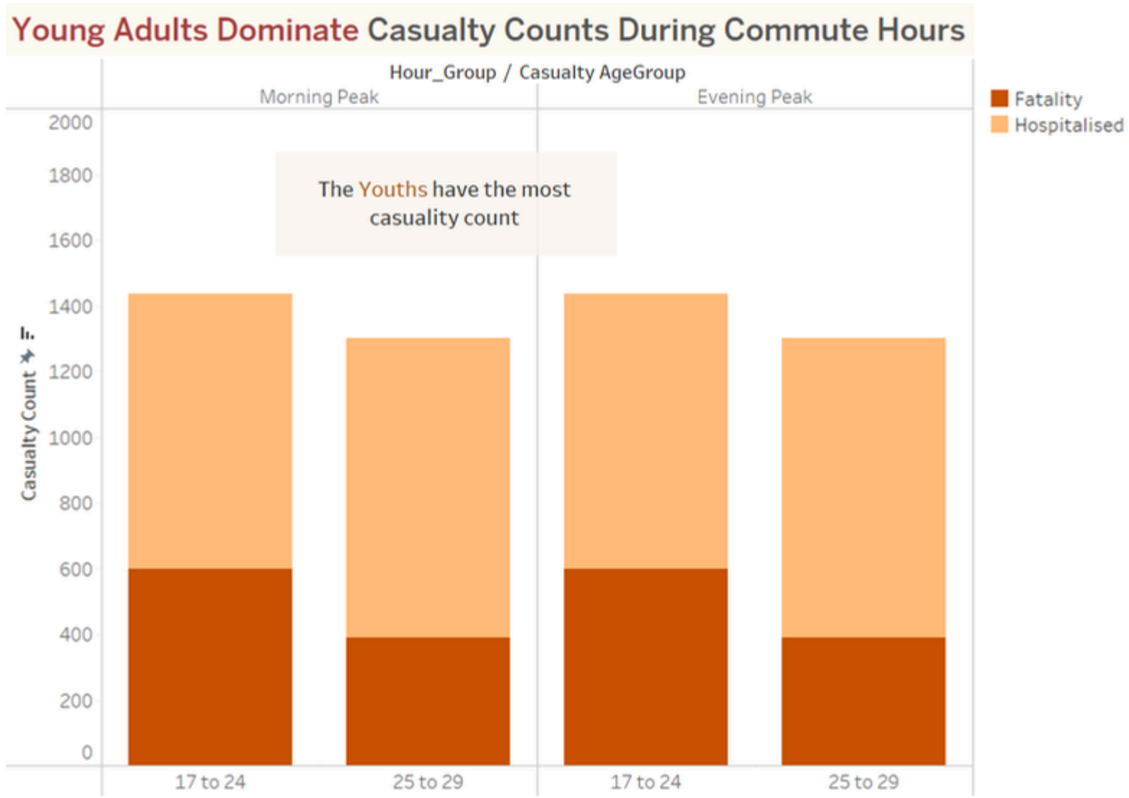
*Despite higher PM risk perception, the* ***morning peak*** *harbours equal threat.*

*Road safety measures must not only focus on rush hour,* ***vigilance is required*** *when roads appear safest.*

*Supports QPS enforcement expansion as per 2024 patrol results (QPS, 2024).*

# THE AHA MOMENT:
# YOUTH AT RISK
# COMMUTES TURN CRITICAL

# VULNERABLE COMMUTES: YOUNG ADULTS BEAR THE CRASH BURDEN




**The majority of severe casualties (fatal and hospitalised) during rush hours are young adults aged 17–29, reinforcing the need for targeted awareness, enforcement, and education programs for this age group.**

*Young adults aged **17–24 dominate** the severe crash category, more than any other age group, across both morning and evening peaks.*

***Behavioural risks** - overconfidence, distraction, peer influence - outweigh time-of-day factors.*

***Risk is age-driven, not time-dependent.***

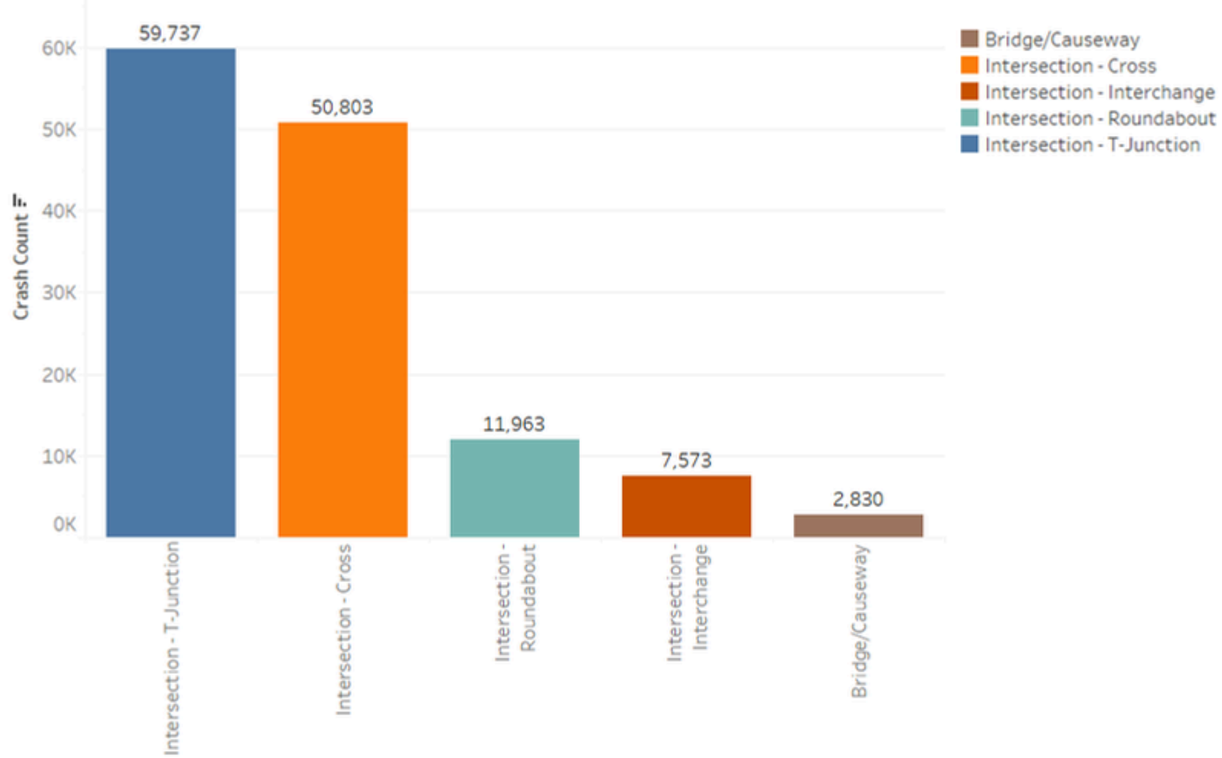
***Targeted safety campaigns** (e.g. Safe Drive QLD) must prioritise youth behaviour at all commute windows.*

*Young drivers are twice as likely to engage in high-risk behaviour under pressure (OECD, 2021).*

# SOLUTION:
# CRASH CLUSTERS AT CROSSROADS
# REDESIGN REQUIRED

# INTERSECTION INSIGHTS: IDENTIFYING HIGH-RISK CRASH LOCATIONS

**Redesigning Intersections:** Crash Clusters Point to Key Road Features




**Among all crash types, intersections consistently emerge as the riskiest roadway features — making them ideal candidates for immediate safety upgrades and policy focus.**

***T-junctions*** *and* ***4-way crossroads*** *report the* ***highest crash*** *volumes, despite being designed for control.*

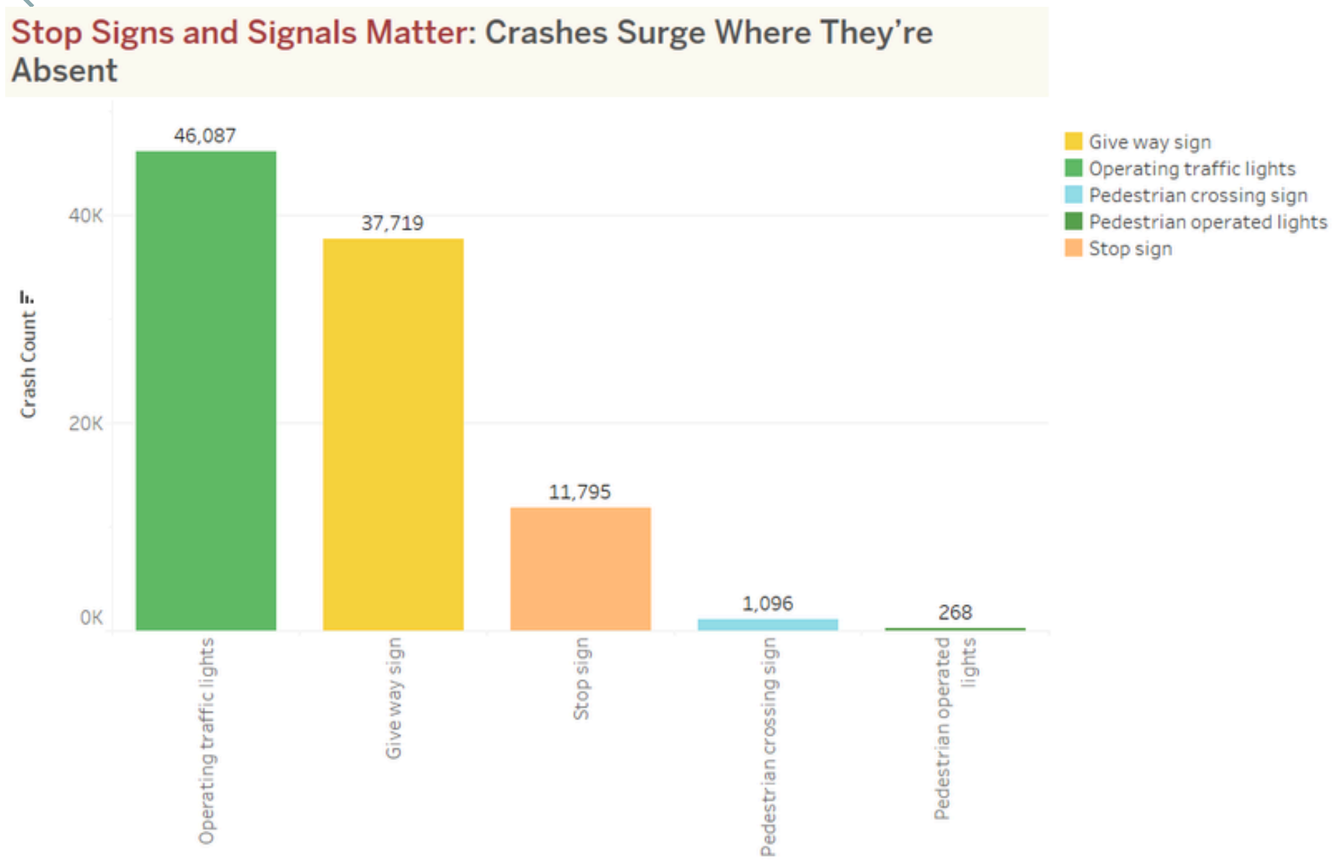
*Misjudged turns, poor visibility, and speed amplify risks even in "engineered" zones.*

***Design intent ≠ Driver outcome.***

***Physical redesigns*** *(e.g. simplified geometry, sightline lifts) reduce crashes significantly.*

*Improved layouts* ***reduce intersection confusion*** *and crash rates by 12% (Austroads, 2023).*

# SIGNAL THE DANGER: CRASH SURGE IN UNCONTROLLED ZONE




**A significant number of crashes occur in areas without any traffic control — especially in multi- and single-vehicle incidents. This underscores the need for targeted interventions such as traffic signals or signage in high-risk zones.**

*Over 46,000 crashes occurred in areas with no signs or signals - more than any other category.*

*Even with signage, signalised intersections had 37,000+ crashes - proof that* ***signs alone aren't enough.***

***Behavioural alignment is as critical as infrastructure.***

*Focus on visibility, simplicity, and driver conditioning - not just rules.*

*In 3 out of 5 intersection crashes,* ***non-compliance or poor visibility*** *were primary factors (DITRDC, 2023).*

# RECOMMENDATIONS:
# INSIGHT TO ACTION
# ROAD SAFETY PRIORITIES FOR QLD

# BUSINESS INSIGHTS

## 01 - REDESIGN HIGH-RISK INTERSECTIONS

**Insight:** Signalised intersections remain crash-prone.
**Action:** Scale intersection upgrades under Safer Roads Sooner.
**Impact:** Logan & Ipswich redesigns (2022–23) → 11% crash reduction. (TMR, 2023)

## 02 - PEAK-HOUR ENFORCEMENT EXPANSION

**Insight:** Speed & alcohol-related crashes are equally high in both peaks.
**Action:** Strengthen mobile patrols during morning commutes.
**Impact:** QPS 2024 report → 6% drop in morning alcohol crashes. (QPS, 2024)

## 03 - YOUTH DRIVER BEHAVIOURAL CAMPAIGNS

**Insight:** 17–24 y/o drivers face the highest severe crash burden.
**Action:** Boost Safe Drive Queensland & enhance GDL testing.
**Impact:** BITRE 2024 → 7% drop in young driver crashes in SEQ. (BITRE, 2024)

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# THANK YOU

ANY QUESTIONS FOR US ?