Executive Summary

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Considerations

- Driver inattention is a key accident factor; middle-aged and young drivers are high-risk due to behaviors.
- Peak evening hours and weekends see accident spikes
- Poor lighting, road design, high speed increase accident severity, especially in urban areas

Question

How can the Victorian Government effectively identify causes and implement measures to reduce accidents and enhance road safety?

Strategy

- **Strategic Partnerships for Road Safety**
- **Educational Interventions to Mitigate Risk**
- **Infrastructure and Traffic Management Innovations**

Demographics Analysis

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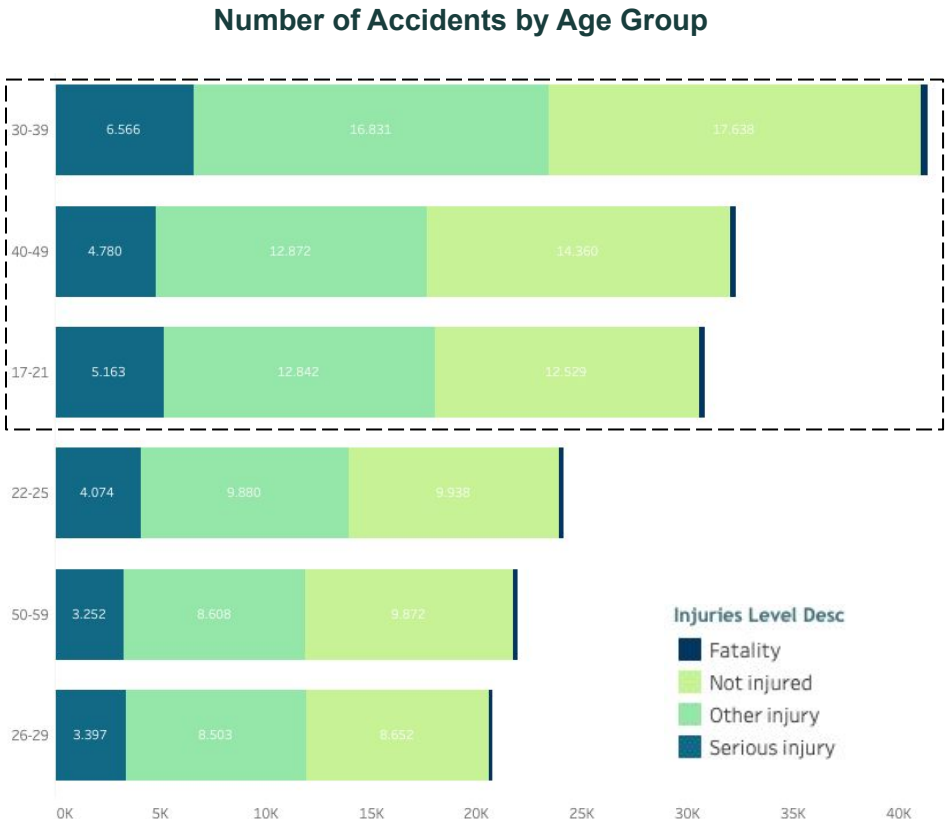

Middle-aged groups (30-49) show the highest involvement in road accidents, potentially due to work-related travel and longer commute time

Young drivers those aged 17-21 have higher accident numbers, it may indicate inexperience or risky driving behavior (speeding, no seat belts, or alcohol using)

VIC governments could target the these age groups for intervention to mitigate the risk factors

Demographics Analysis

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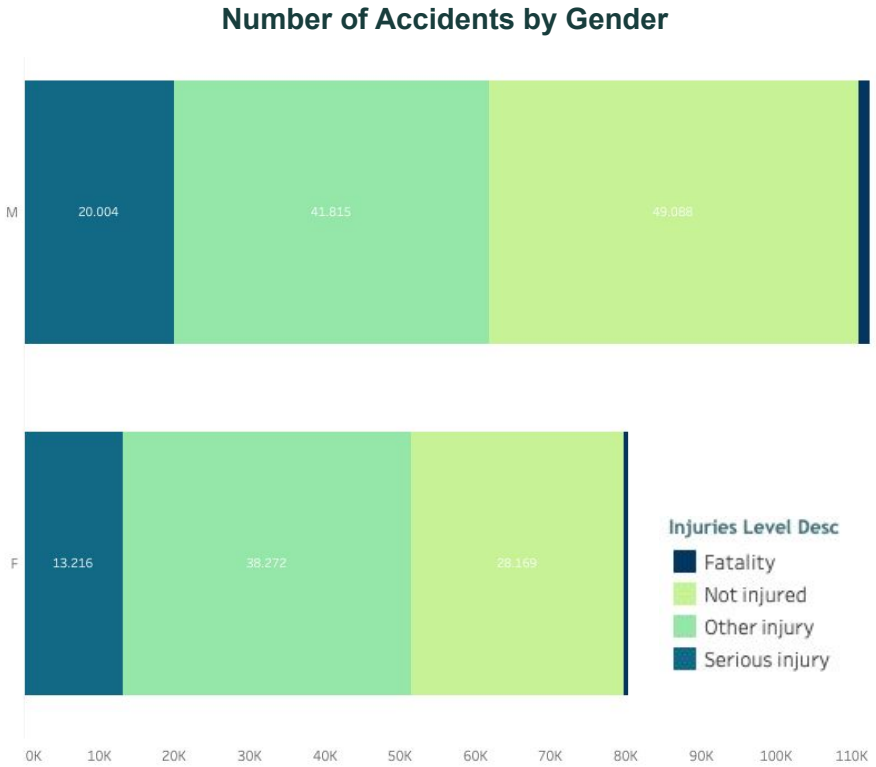

Males are disproportionately involved in severe accidents, with the data indicating higher fatality and serious injury rates

This points to potential behavioral risk factors that are more prevalent among male drivers, such as higher instances of speeding or aggressive driving

Identifying Trends: Timing and Impact (2000-2005)

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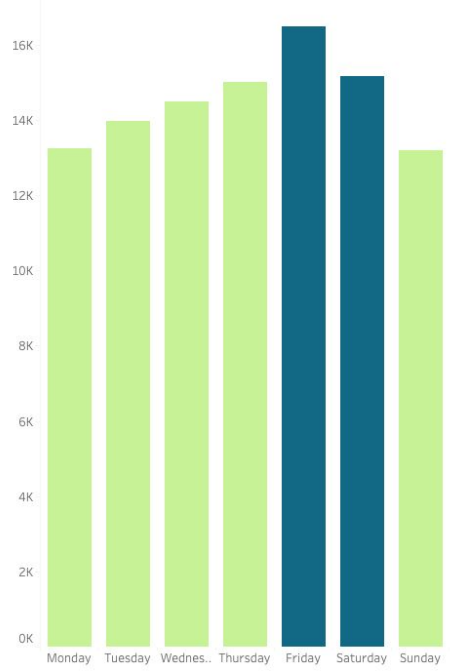
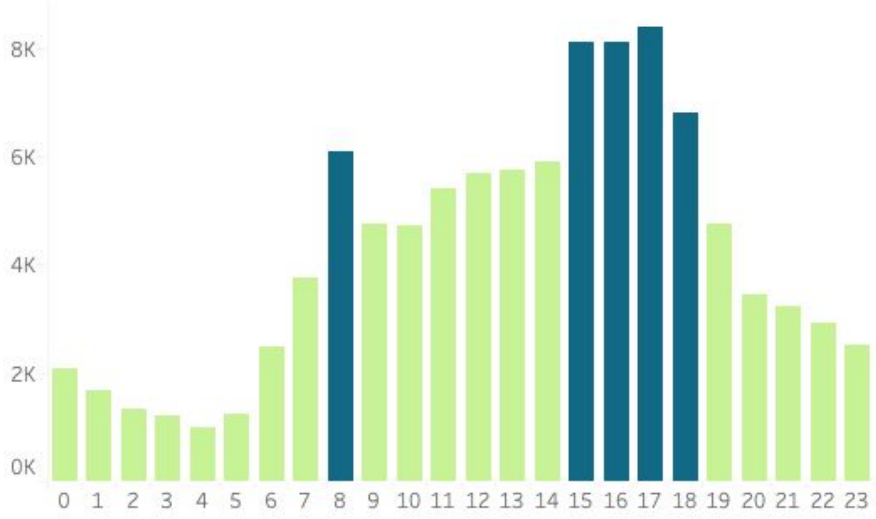
Accident Frequency by Day of Week



Elevated accident rates on **Fridays and Saturdays** could be linked to recreational and social activities, including alcohol consumption

Accident Frequency by Hour of the Day



The highest frequency of accidents occurs at **8am** from **3pm to 6pm**, correlating with rush hour traffic and the transition from daylight to dusk

Exploring Geography: Urban Congestion

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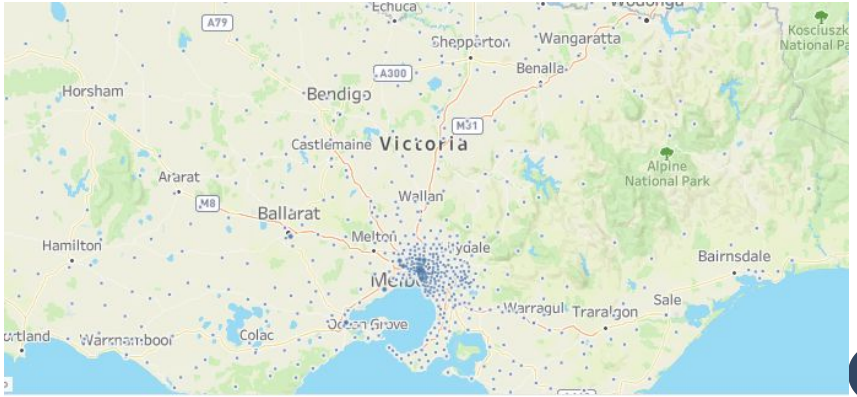
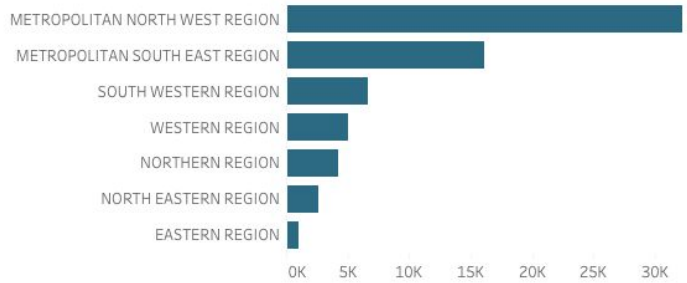
Cashes Map



Top Regions with Highest number of Accidents



Most of accidents concentrated in metropolitan regions, particularly in the **North West** and **South East**

Due to the growing populations and higher traffic volumes in Urban areas

Dissecting the Accidents: Where and How

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Number of Accidents by Road Geometry vs Injuries Severity

	Not at intersection	Cross intersection	T intersection	Multiple intersection	Y intersection	Dead end
Fatality	1.398	246	297	17	10	1
Serious injury	17.044	6.785	6.976	488	132	11
Other injury	33.337	19.446	18.235	1.378	339	21
Not injured	27.373	20.410	18.563	1.380	310	12

Average Speed Limit in Accident by Road Geometry vs Injuries Severity

	Not at intersection	Cross intersection	T intersection	Multiple intersection	Y intersection	Dead end
Fatality	92.4	82.0	77.4	76.2	183.1	50.0
Serious injury	87.0	73.5	73.2	77.2	74.3	55.9
Other injury	83.0	70.3	70.7	77.8	75.4	57.6
Not injured	80.7	71.7	69.9	80.2	72.8	59.5

- Higher incidences of serious injuries and fatalities in **non-intersection** areas, due to **higher speeds** and **less controlled driving environments**
- **Cross and T-intersections** are also notable for fatal and serious injury accidents.

Road Geometry vs Injuries Severity

Absolute

	Not at Intersection	Cross Intersection	T-Intersection	Multiple Intersection	Y-Intersection	Dead end	Total
Fatality	1,398	246	297	17	10	1	1,969
Serious Injury	17,044	6,785	6,976	488	132	11	31,436
Other Injury	33,337	19,446	18,235	1,378	339	21	72,756
Not Injured	27,373	20,410	18,563	1,380	310	12	68,048
Total	79,152	46,887	44,071	3,263	791	45	174,209

Road Geometry vs Injuries Severity

Percentage Breakdown

	Not at Intersection	Cross Intersection	T-Intersection	Multiple Intersection	Y-Intersection	Dead end
Fatality	1.77%	0.52%	0.67%	0.52%	1.26%	2.22%
Serious Injury	21.53%	14.47%	15.83%	14.96%	16.69%	24.44%
Other Injury	42.12%	41.47%	41.38%	42.23%	42.86%	46.67%
Not Injured	34.58%	43.53%	42.12%	42.29%	39.19%	26.67%

The Role of Light: Visibility Equals Safety

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Number of Accidents by Light condition and Injury severity

	Fatality	Serious injury	Other injury	Not injured
Day	951	18.990	48.403	46.564
Dark Street lights on	393	6.862	13.484	12.739
Dusk/Dawn	211	2.672	6.182	5.768
Dark No street lights	370	2.293	3.318	1.785
Dark Street lights off	16	186	275	242
Dark Street lights unknown	15	257	475	428

The highest numbers across all injury level are during daylight, due to higher traffic volumes as people are more active and on the roads during the day

When street lights are on during dark conditions, the numbers of fatalities and serious injuries are lower than in dark conditions without street lights. This suggests that street lighting is also a factor in preventing accidents or reducing their severity.

Vehicle Dynamics: The Role of Cars

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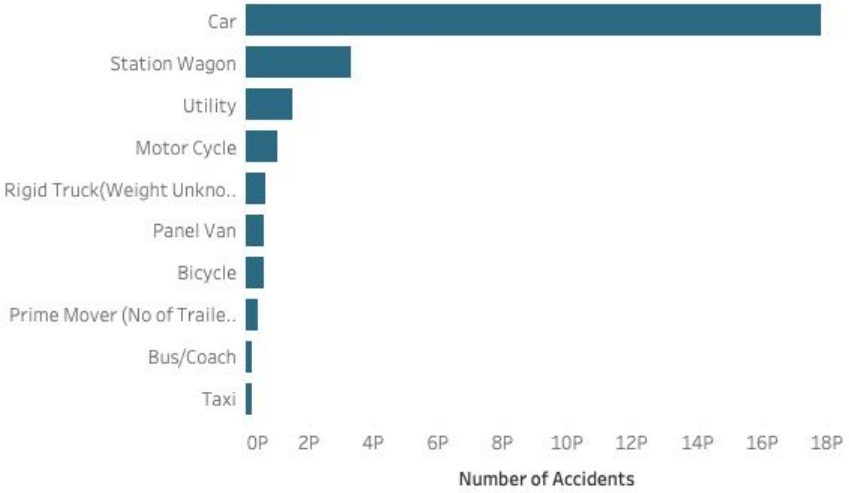
***Car* is most frequently vehicle associated with road accident**



Top 10 Vehicle Types involved in Accidents

Suggesting a valuable partnership avenue:

- With **car manufacturers** to enhance safety features
- With **insurance companies** to incentivize the adoption of such features through premium adjustments.

Common Scenarios: Rear-End Collisions and Fixed Objects

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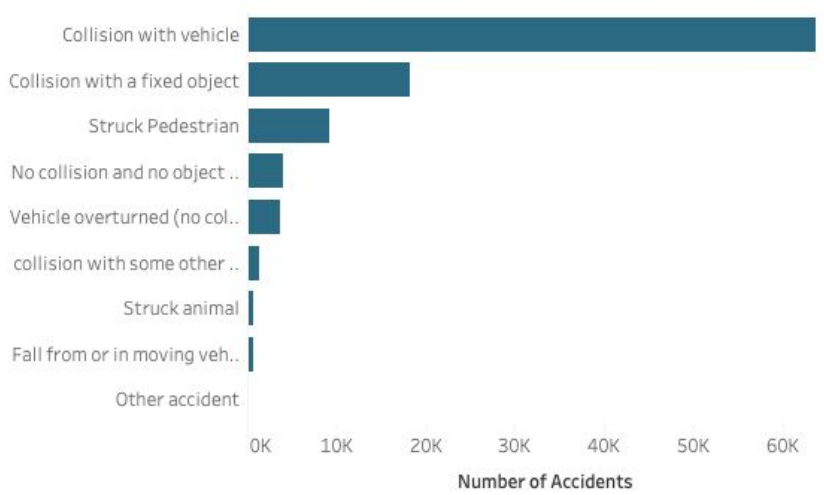
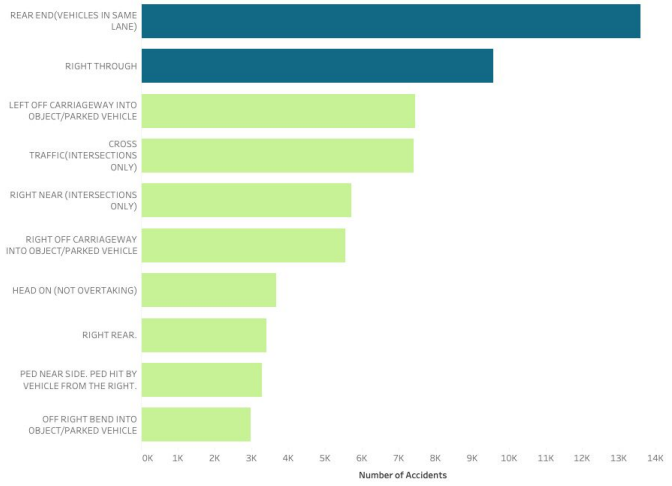
***Collision with Vehicle* is the most common type of accident**



Types of Accidents

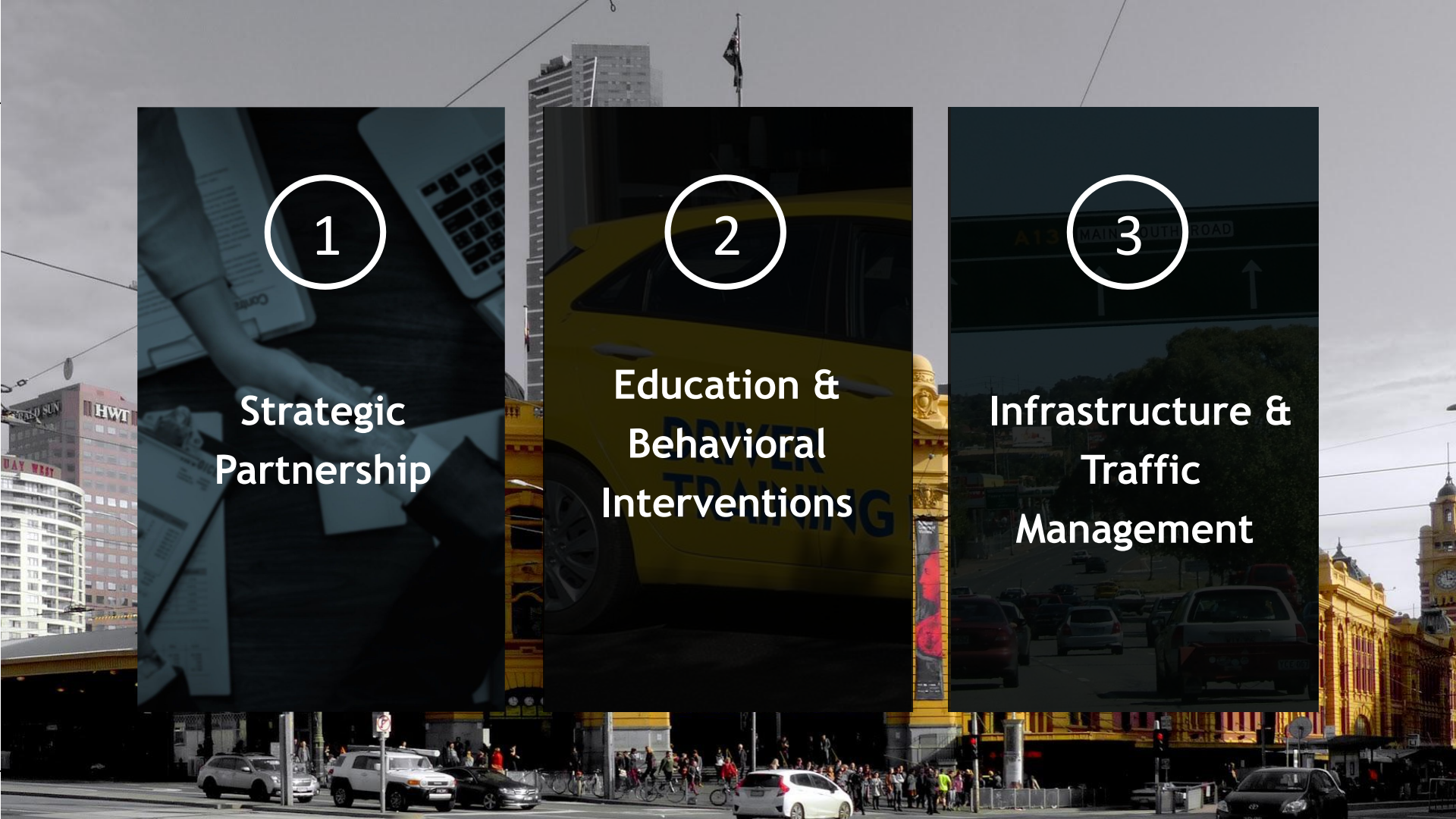
***Rear-end collisions* dominate as the most frequent type of accident**



DCA

Fixed object collisions point towards potential issues with **road design**, necessitating infrastructure audits.

A clear signal to focus on **driver attentiveness** by reviewing and enhancing driver training programs, public awareness campaigns around safe driving practices.


1
Strategic Partnership
2
Education & Behavioral Interventions
3
Infrastructure & Traffic Management

Enhancing Safety Through Strategic Partnerships

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Potential Partners		Objectives
1	Public-Private Partnerships	**Secure funding** For infrastructure enhancements and implement state-of-the-art traffic management systems in high-risk areas
2	Automotive Industry	**Advanced safety features** Integrate ASF as standard in all vehicles
3	Insurance Sector	**Incentives** Offer incentives for safer driving through premium discounts and promote the adoption of vehicles with advanced safety features
4	Technology Firms	**Leverage technology** Develop morden traffic systems, utilize DA for real-time traffic management, predictive safety measures

Educational Interventions to Mitigate Risk

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Actions	Objectives
1 Launch Targeted Safety Campaigns	**Raise Awareness** Focusing on helping male and young drivers, to reduce accident rates
2 Reform driver education programs	**Enhance the curriculum** Emphasize the perils of distracted driving and the importance of defensive driving, and the effective use of ADAS

Infrastructure and Traffic Management Innovations

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Actions		Objectives
1	Conduct Road Safety Audits	**Investigation** Identify and rectify infrastructural weaknesses in regions with high accident occurrences
2	Enhance Street Lighting Infrastructure	**Improve visibility during dusk and nighttime** Decrease the likelihood of accidents in low-light conditions
3	Review and Adjust Speed Limits	**Safety speed regulations** Ensure strict enforcement to deter speeding
4	Implement Congestion Reduction Measures	**Alleviate peak traffic pressure** Reduce accident rates through dynamic traffic control solutions