

# High Priority Road Segments Analysis

## Overview:

This analysis focuses on identifying road segments that require attention based on a combination of high traffic volumes and speeding incident rates. The analysis includes calculating the average traffic volume, speeding incident rate, and a priority score for each road segment. The top 10% of road segments, as ranked by the priority score, are classified as "high priority" and are recommended for infrastructure updates.

## Key Metrics:

1. **Average Traffic Volume:** The mean number of vehicles passing through a road segment over the analysis period.
2. **Speeding Incidents:** The total count of speeding incidents recorded for a road segment.
3. **Speeding Rate:** The proportion of traffic records that involved speeding, calculated as the ratio of speeding incidents to total records.
4. **Priority Score:** A combined metric derived by multiplying the average volume by the speeding rate, highlighting road segments with both high traffic and high speeding rates.

## High-Priority Road Segments:

The following road segments are identified as having the highest priority based on their high traffic volume and speeding incident rates:

1. **Spencer Street:**
  - **Priority Score:** 816.89
  - **Average Volume:** 844.54
  - **Speeding Rate:** 96.7%
2. **King Street:**
  - **Priority Score:** 730.40
  - **Average Volume:** 834.74
  - **Speeding Rate:** 87.5%
3. **Flemington Road:**
  - **Priority Score:** 594.39
  - **Average Volume:** 594.39
  - **Speeding Rate:** 100%
4. **Rathdowne Street:**
  - **Priority Score:** 343.48

- **Average Volume:** 515.21
- **Speeding Rate:** 66.7%

5. **Epsom Road:**

- **Priority Score:** 330.29
- **Average Volume:** 331.27
- **Speeding Rate:** 99.7%

## Recommended Infrastructure Updates:

1. **Spencer Street:**

- **Speed Enforcement:** Installation of speed cameras to monitor and reduce speeding incidents.
- **Traffic Calming:** Introduce speed bumps or rumble strips to reduce speeding behaviour.

2. **King Street:**

- **Enhanced Signage:** Additional signage to alert drivers about speed limits and pedestrian crossings.

3. **Flemington Road:**

- **Road Redesign:** Review road design to discourage speeding. Implement measures like chicanes or road narrowing.

4. **Rathdowne Street:**

- **Variable Speed Limits:** Implement variable speed limits based on traffic conditions to regulate speeds effectively.

5. **Epsom Road:**

- **Traffic Light Optimization:** Synchronize traffic lights to reduce stop-and-go driving, which can contribute to speeding between intersections.

The analysis reveals that high-traffic roads, combined with speeding issues, pose significant safety concerns. Implementing the recommended infrastructure changes can help mitigate these risks and improve overall road safety.