My title*

My subtitle if needed

Robert Ford

long??

First sentence. Second sentence. Third sentence. Fourth sentence.

```
data <- read_csv(here::here("outputs/data/cleaned_dataset.csv"))
```

```
Rows: 1044569 Columns: 6
-- Column specification --------------------------------------------------------
Delimiter: ","
chr  (4): Day, vehicle, Location, Incident
dbl  (1): Delay
dttm (1): Date

i Use `spec()` to retrieve the full column specification for this data.
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

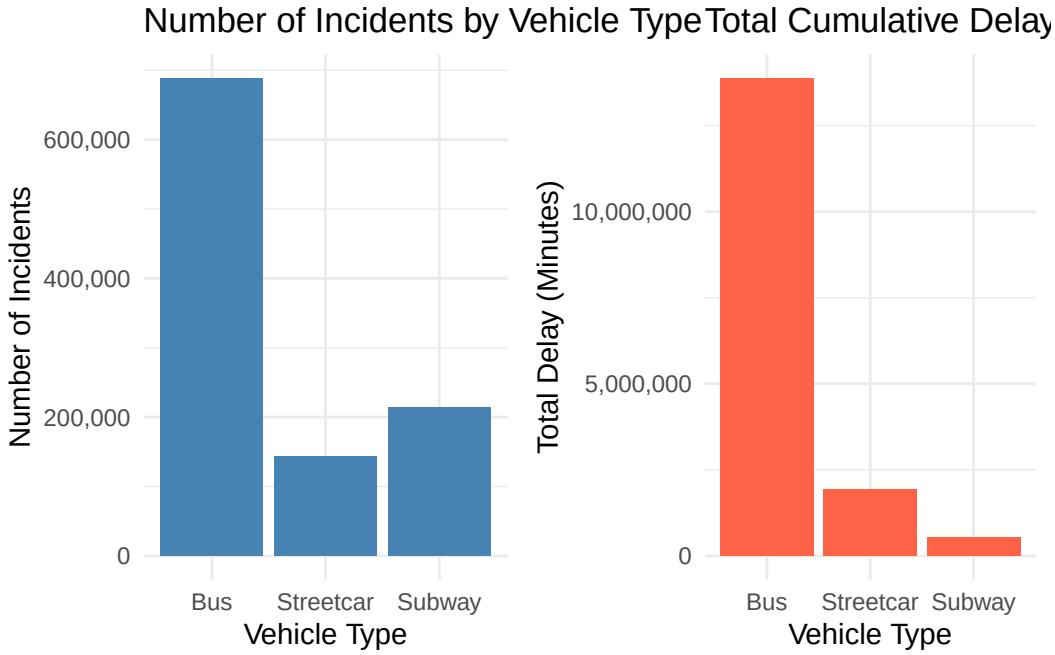
1 Introduction

2 Data

```
plot1 <- ggplot(data, aes(x = vehicle)) +
  geom_bar(fill = "steelblue") +
  scale_y_continuous(labels = comma) +
  labs(title = "Number of Incidents by Vehicle Type", x = "Vehicle Type", y = "Number of Inci
  theme_minimal()
```

*Code and data are available at: https://github.com/Ford-Robert/STA304_City-Of-Toronto-Data.git

```r
cumulative_delay <- data %>%
  group_by(vehicle) %>%
  summarise(total_delay = sum(Delay, na.rm = TRUE))


plot2 <- ggplot(cumulative_delay, aes(x = vehicle, y = total_delay)) +
  geom_bar(stat = "identity", fill = "tomato") +
  scale_y_continuous(labels = comma) +
  labs(title = "Total Cumulative Delay Time by Vehicle", x = "Vehicle Type", y = "Total Delay
  theme_minimal()

grid.arrange(plot1, plot2, ncol = 2)
```




```r
average_delay <- data %>%
  group_by(vehicle) %>%
  summarise(avg_delay = mean(Delay, na.rm = TRUE))

ggplot(average_delay, aes(x = vehicle, y = avg_delay)) +
  geom_bar(stat = "identity", fill = "skyblue") +
  labs(title = "Average Delay Time by Vehicle Type", x = "Vehicle Type", y = "Average Delay
  theme_minimal()
```

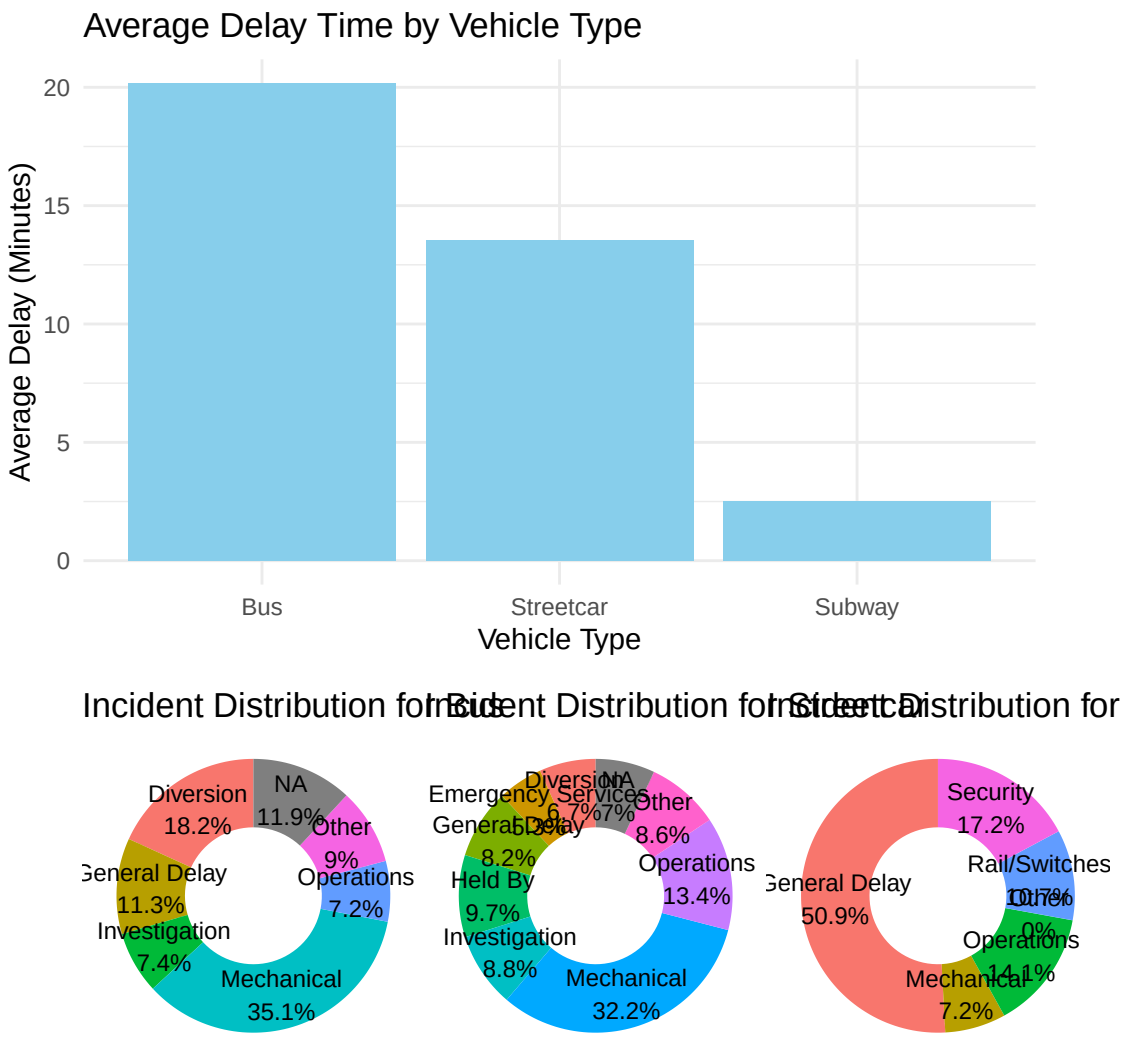


Figure 1: Delay Incidence by Month

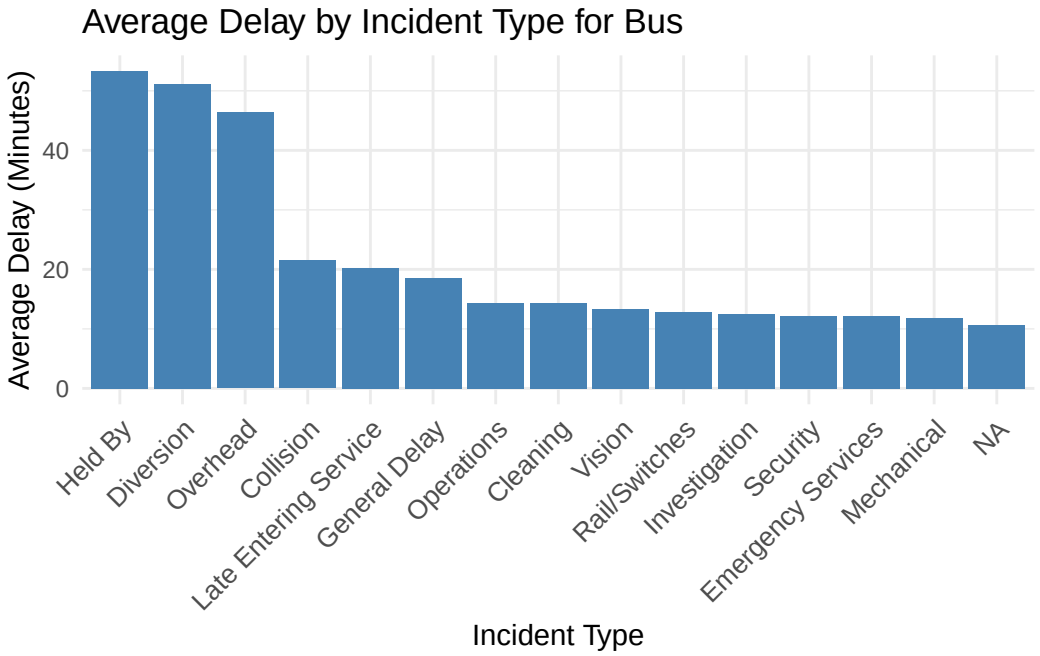


Figure 2: Delay Incidence by Month

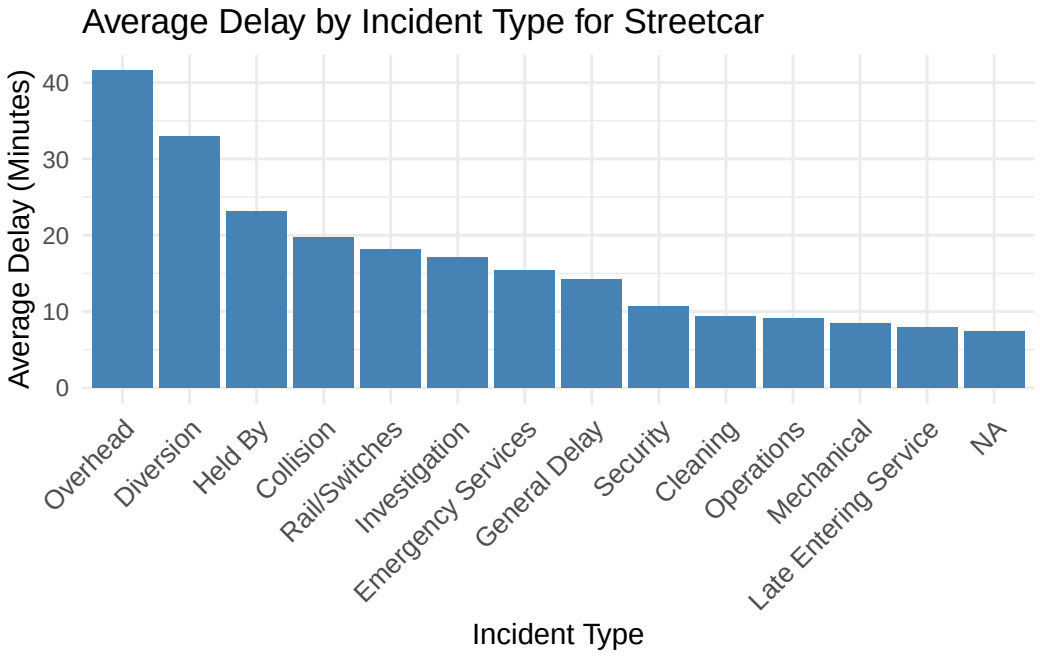


Figure 3: Delay Incidence by Month

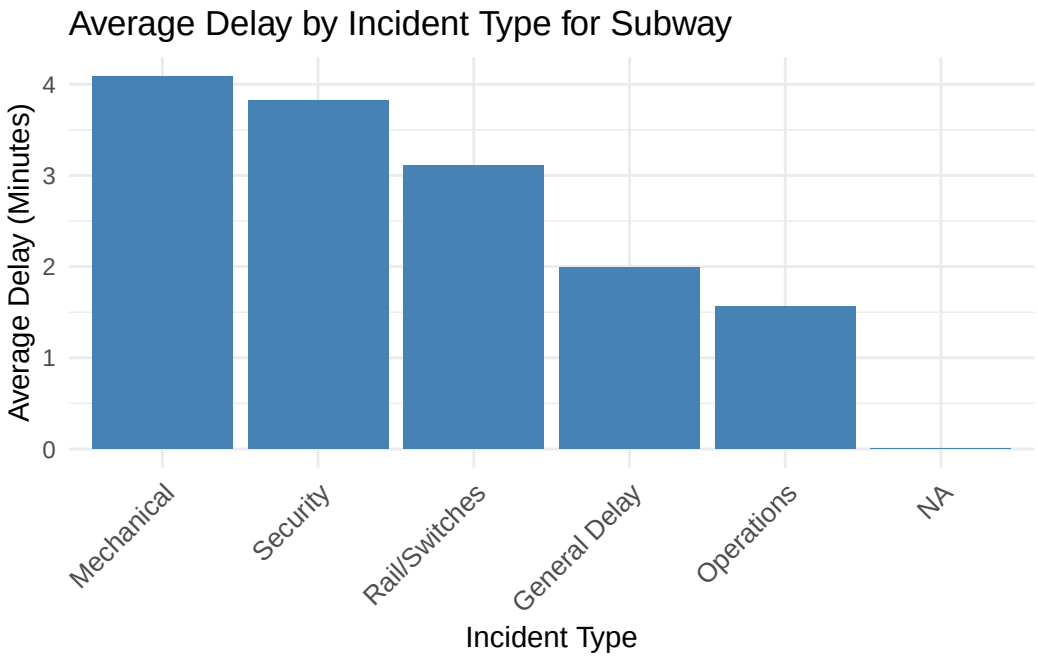


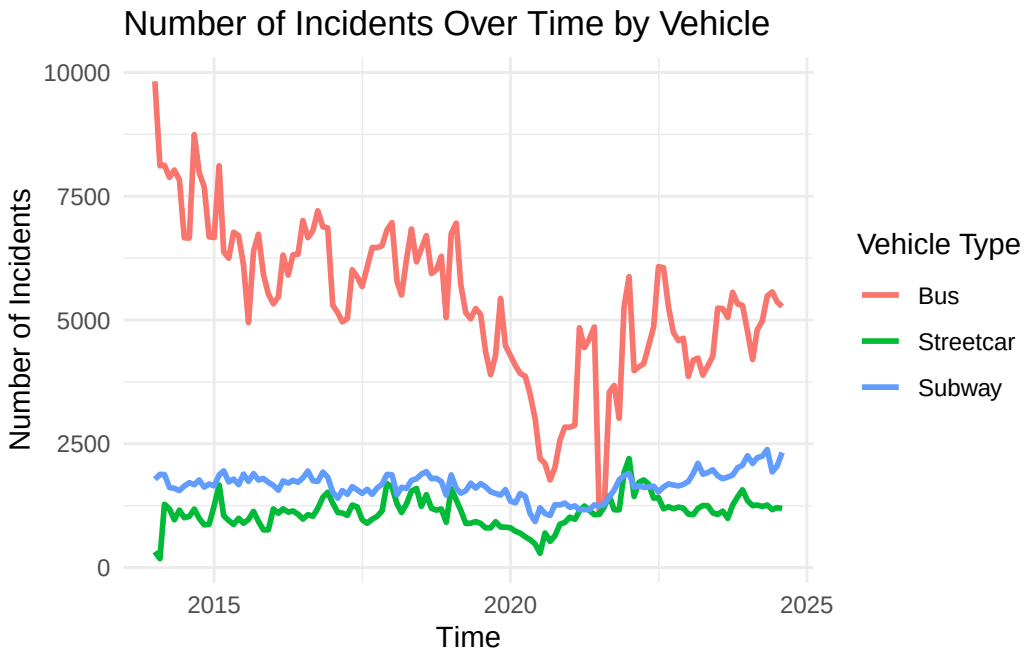
Figure 4: Delay Incidence by Month

```
data_inc_num <- data %>%
  group_by(month = floor_date(Date, "month"), vehicle) %>%
  summarise(incident_count = n())
```

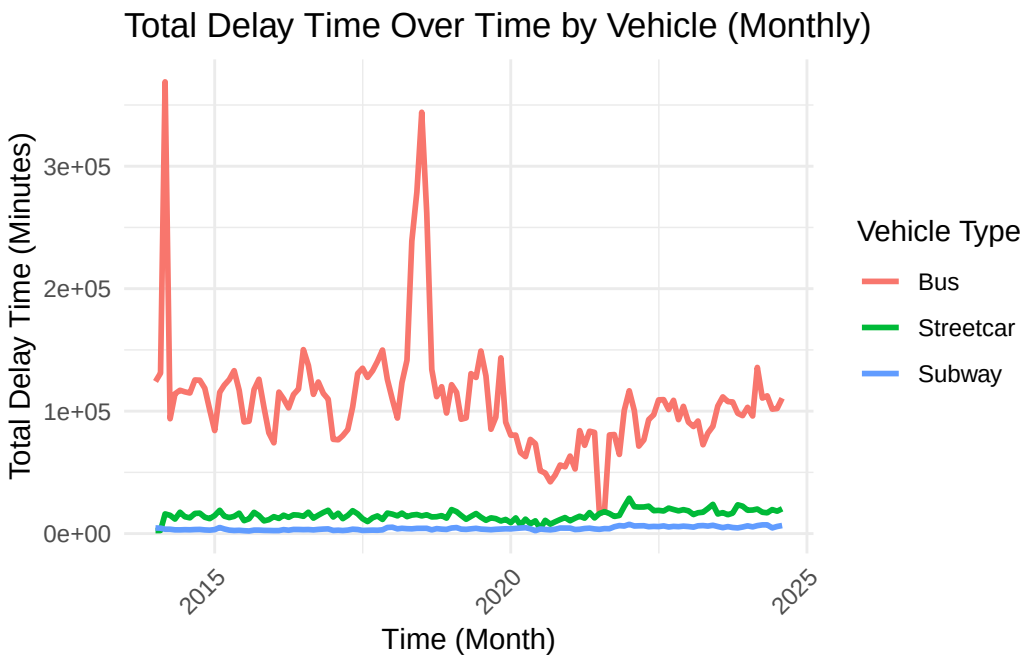
```
`summarise()` has grouped output by 'month'. You can override using the
`.groups` argument.
```

```
# Create the line graph
ggplot(data_inc_num, aes(x = month, y = incident_count, color = vehicle, group = vehicle)) +
  geom_line(size = 1) +
  labs(title = "Number of Incidents Over Time by Vehicle", x = "Time", y = "Number of Incide
  theme_minimal()
```

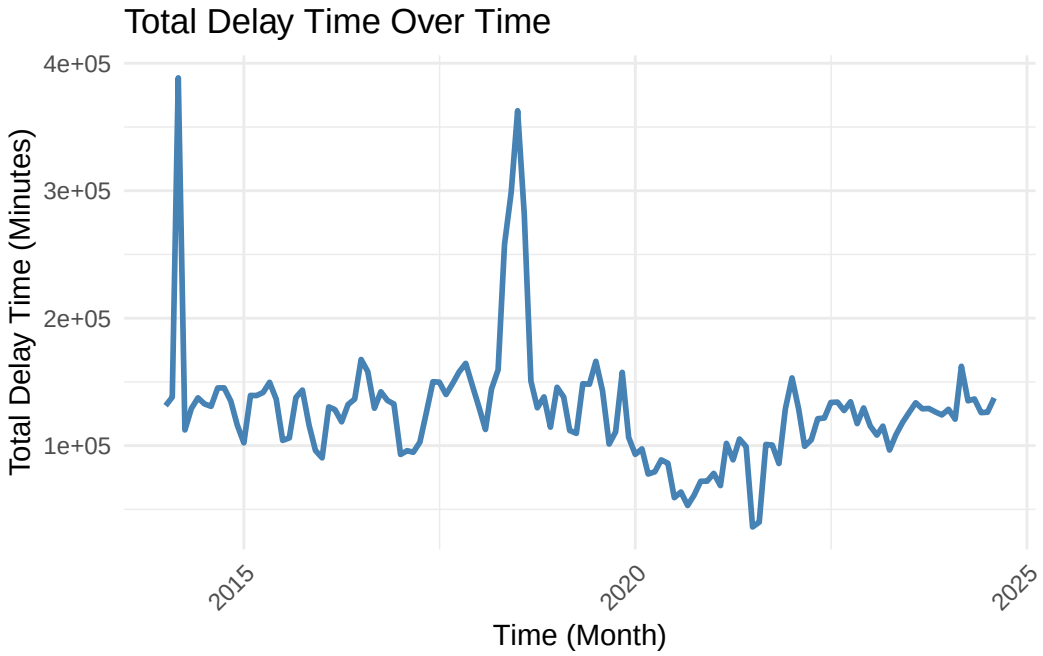
```
Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
i Please use `linewidth` instead.
```




```r
data_monthly_delay <- data %>%
  group_by(month = floor_date(Date, "month"), vehicle) %>%
  summarise(total_delay = sum(Delay, na.rm = TRUE), .groups = 'drop')

view(data_monthly_delay)

# Create the line graph for monthly total delay times
ggplot(data_monthly_delay, aes(x = month, y = total_delay, color = vehicle, group = vehicle))
  geom_line(size = 1) +
  labs(title = "Total Delay Time Over Time by Vehicle (Monthly)",
       x = "Time (Month)", y = "Total Delay Time (Minutes)", color = "Vehicle Type") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```




```r
data_total_delay <- data %>%
  group_by(month = floor_date(Date, "month")) %>%  # Group by month
  summarise(total_delay = sum(Delay, na.rm = TRUE), .groups = 'drop')

# Create the line chart
ggplot(data_total_delay, aes(x = month, y = total_delay)) +
  geom_line(size = 1, color = "steelblue") +  # Single line with color
  labs(title = "Total Delay Time Over Time",
       x = "Time (Month)", y = "Total Delay Time (Minutes)") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```



3 Discussion

3.1 First discussion point

3.2 Second discussion point

3.3 Third discussion point

3.4 Weaknesses and next steps

4 References