Why Are Fires So Expensive

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In this paper we will look at the data about fire incidents in Toronto. The finacial analysis will be the primary focus of the paper, to see if there are any trends and discover what makes fires so costly.

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Introduction

Fires are a tragic burden many unfortunate citizens of the City of Toronto have the burden of experiencing. Many forget the financial repercusions after a fire in their home, business, or place of work. Here we will look into if there are any ways to minimize the financial burden placed not only on the residents and owners of buildings and homes but the city of Toronto as well. We will consider Data all the way back from 2011 up to as recent as 2023.@citeR

Data

The data we used was retried from the the Open Data Toronto website titled "Fire Incidents Data".

Data Cleaning

When cleaning the data there were several factor taken into consideration, such as what data might be use and which columns on the original data set would need to be kept. Considering this paper is focusing of the financial damage caused to properties, the outliers, for example extremely expensive damage which was far above most of the dollar amount of all of the other data, the incidents we will be looking at will all be less than a million dollars in damage.

Data Used

As the original data set retrieved from the Open Data Toronto Website, was extremely large documenting tens of thousands of incidents and over 40 columns of Data. Of course as mentioned in the previous section,we looked at the estimated dollar loss of each incident with given the available data, as well as the amount of fire fighters would respond to each incident,and finally we look at what was first ignited.

Analysis & Graphs

Toronto Fire Response

Here we will; be looking at not only the number of Firefighters responding to the incidents but the amount of firetrucks that responded to each incident. After looking at the data and analyzing the graphs below we can see that there are no patterns nor any correlations between if the more firefighters show up to an incident if the financial loss would be more or less. The conclusion we can make with this is often the number of firefighters responding to an incident is based on the severity of the fire and has no direct correlation to the observed losses.

No. of Responding Firefighters vs Estimated loss($)

No. of Responding Firetrucks vs Estimated loss($)
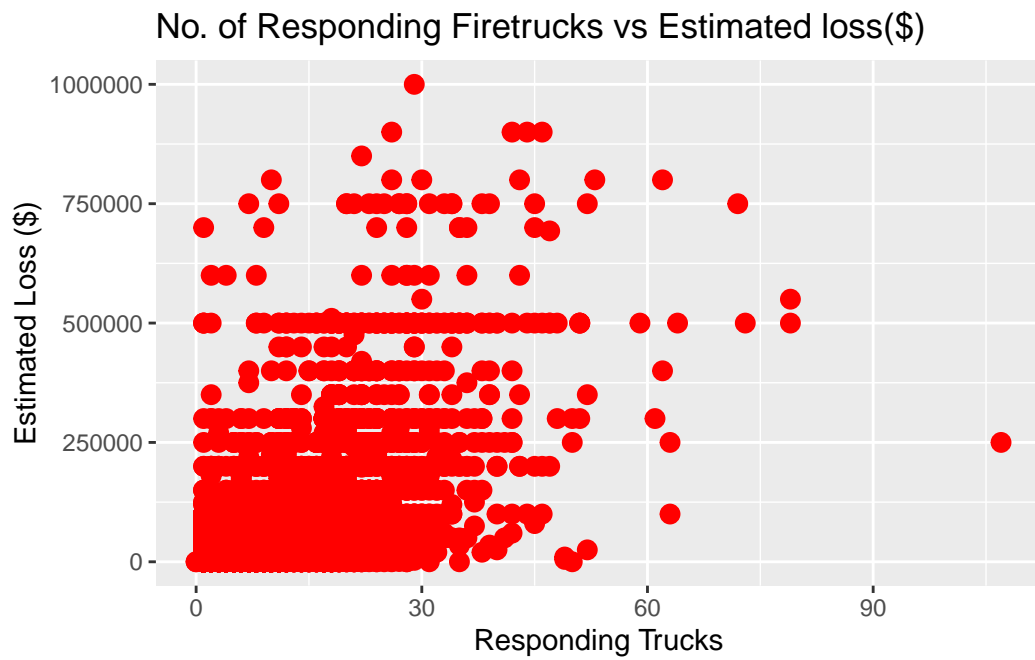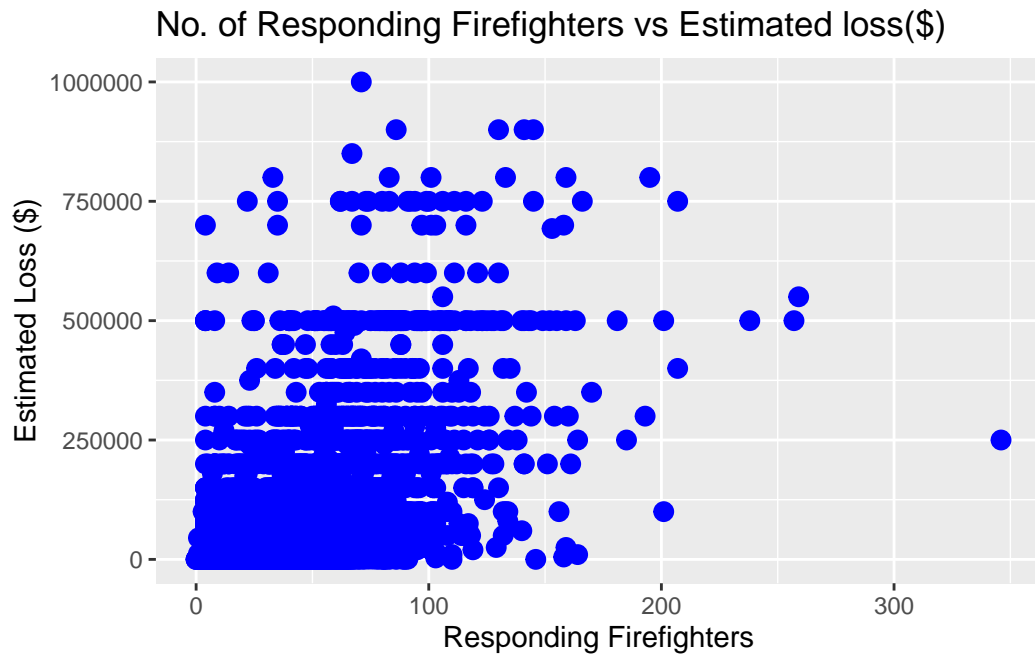
Fire Station

Next, we will be observing whether, any fire station had a significant number of fires, to see if there are any preventative measures to be taken in the neighborhoods in which these fire

stations exist. We cannot with certainty make any conclusions about the neighbourhoods in which these fire stations stand.

Frequency of Response per Firestation
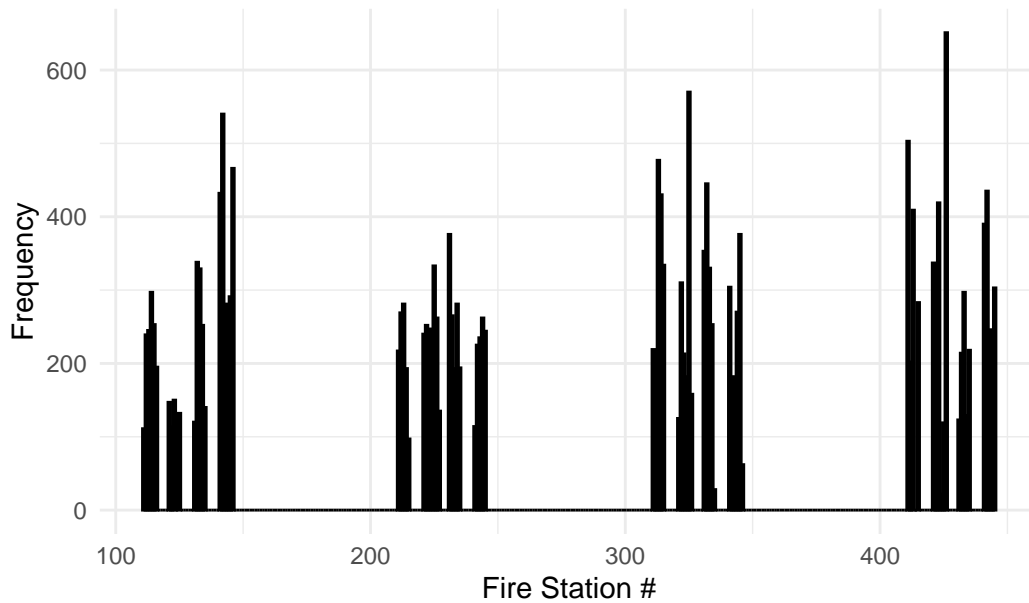
What Started the Fire?

Lastly, we look at if the material that was first ignited had any correaltion on the total value of the damage. Unfortunately we could not find any related data the would confirm this hypothesis.

Material First Ignited vs Estimated loss($)
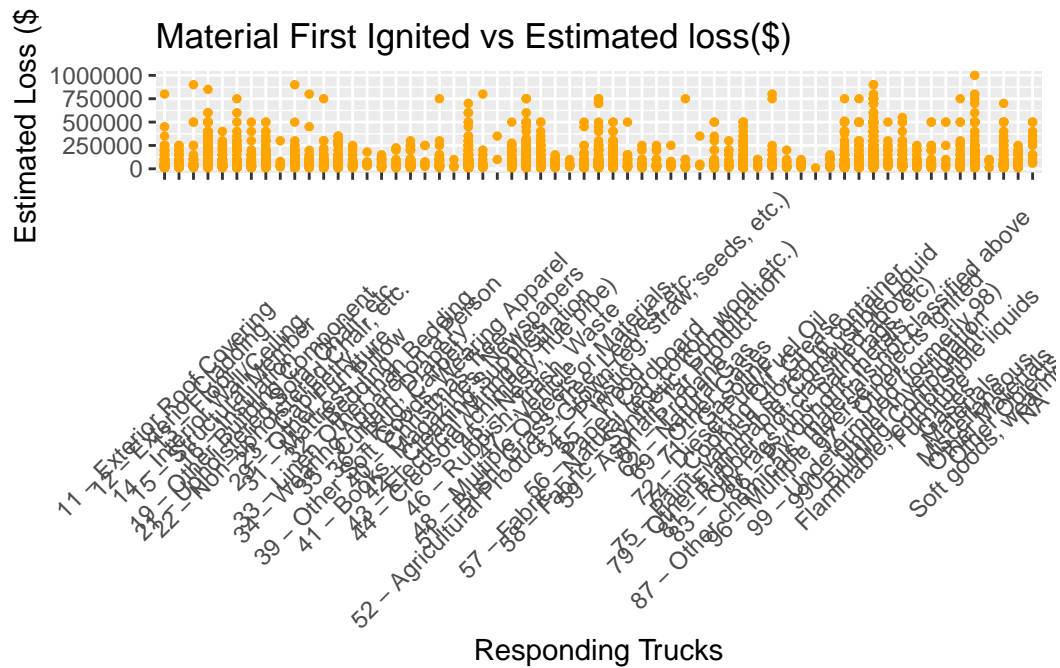
Conclusion

Our data analysis of Toronto fires found no significant correlations or valuable results when examining factors such as estimated financial loss, the number of responding firefighters, and the material first ignited. This suggests the need for more comprehensive data collection and refined analytical approaches to gain meaningful insights into the city's fire-related impacts.