

IBM Data Science

Capstone Project

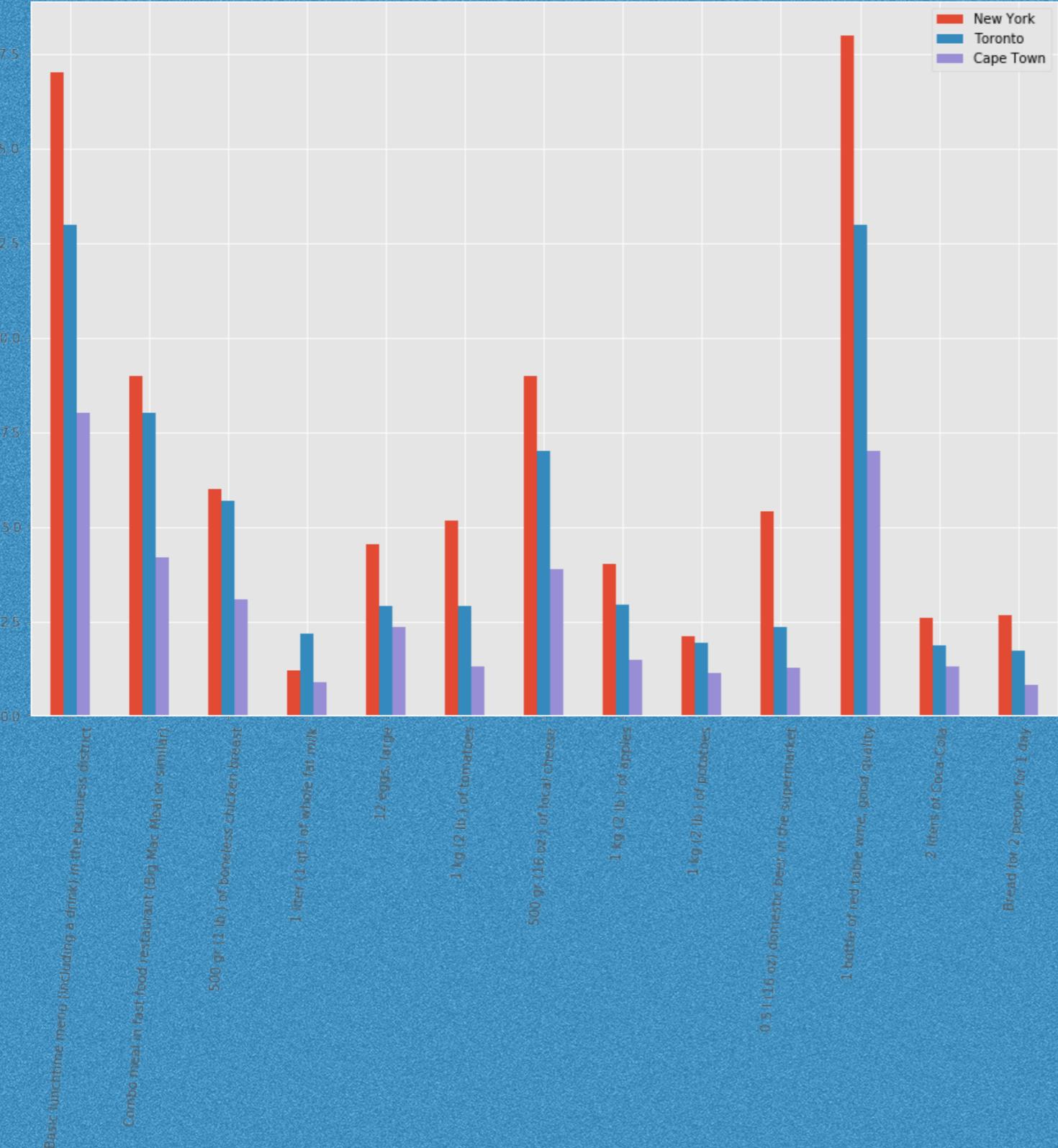


Viability for pyrolysis plant in the city of Cape Town

Cost of living comparison

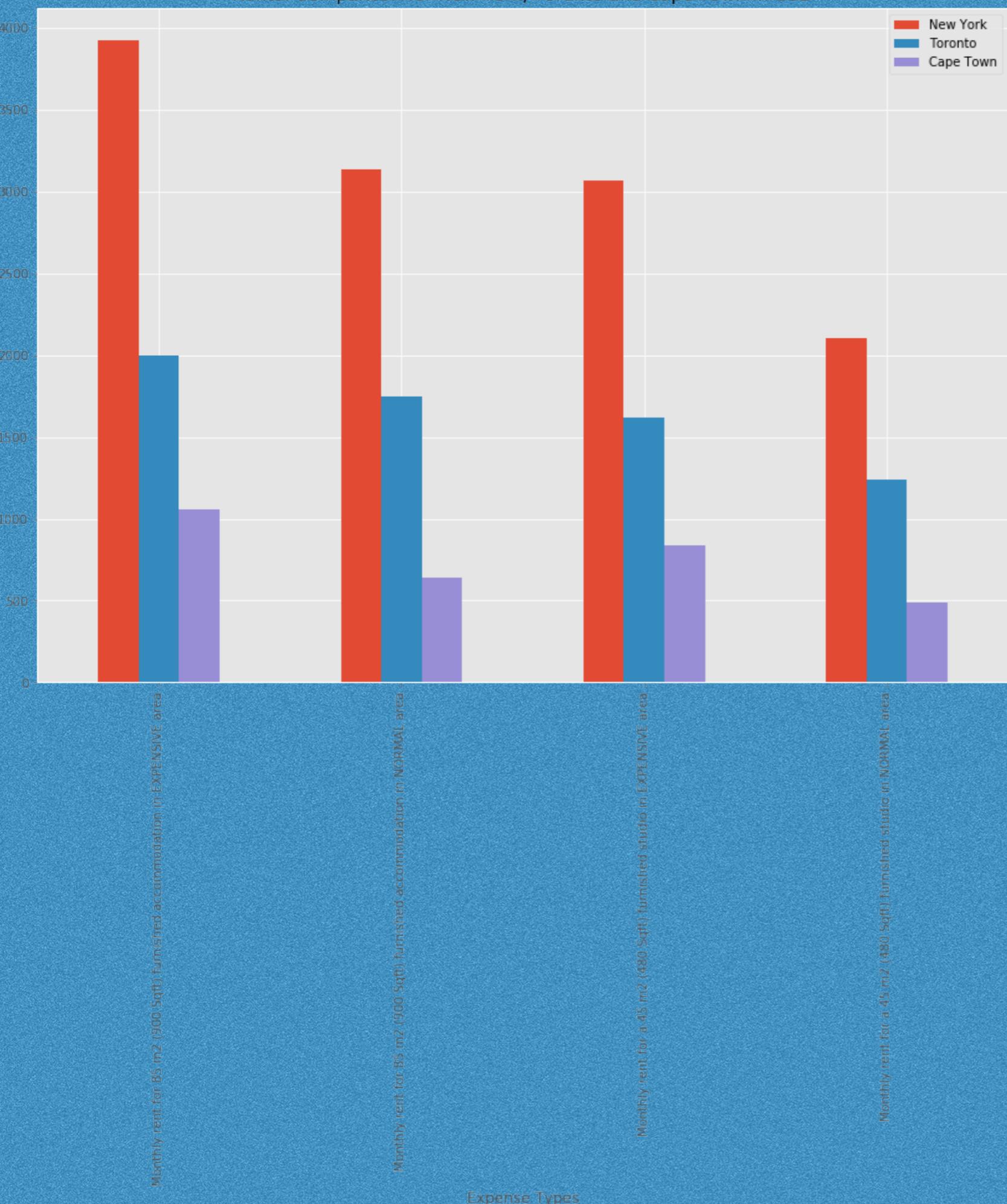
New York, Toronto, Cape Town

Food price Comparison for New York, Toronto and Cape Town in USD



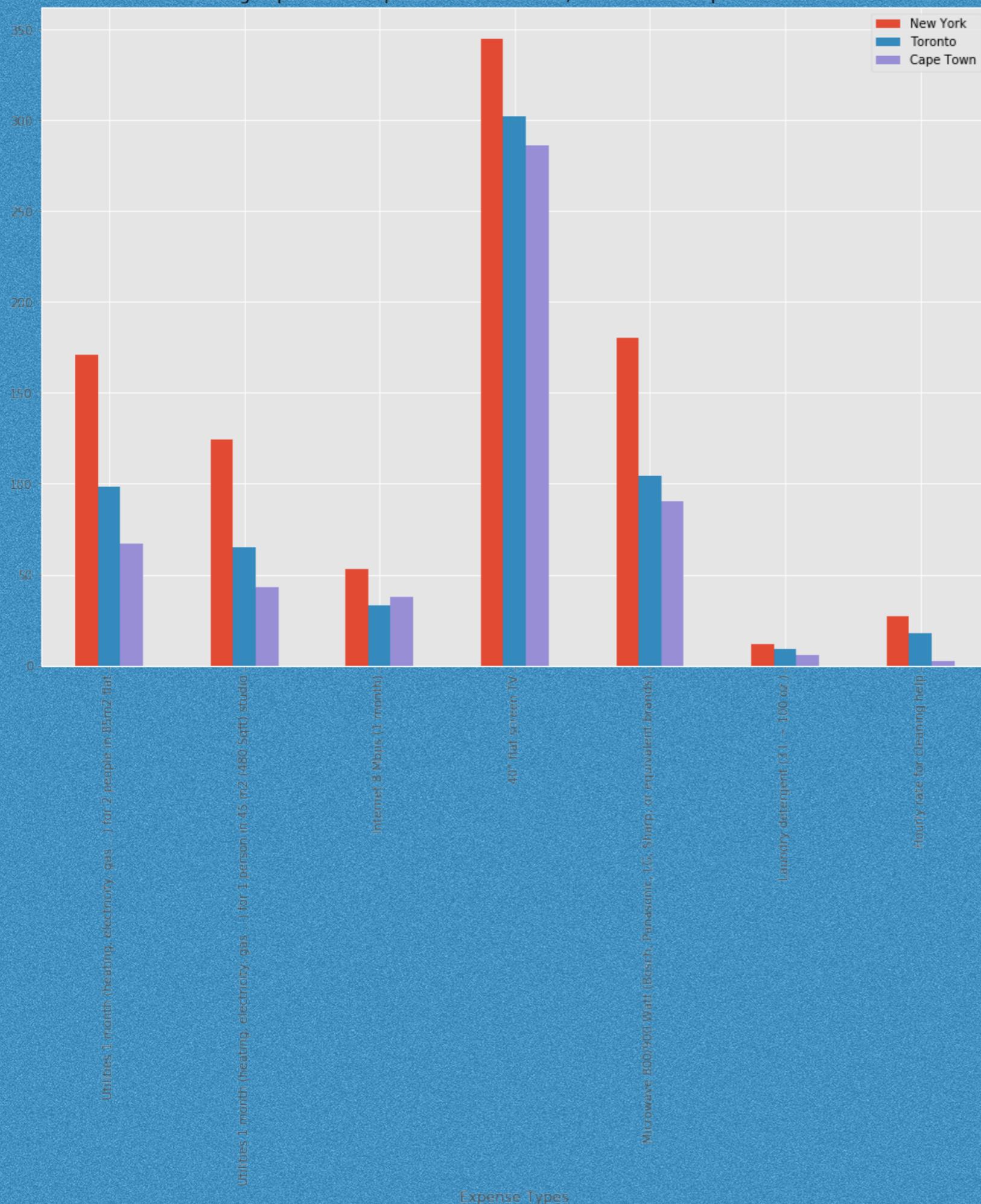
The bar chart shows the differences in prices for common food items in each city.

Rental Comparison for New York, Toronto and Cape Town in USD

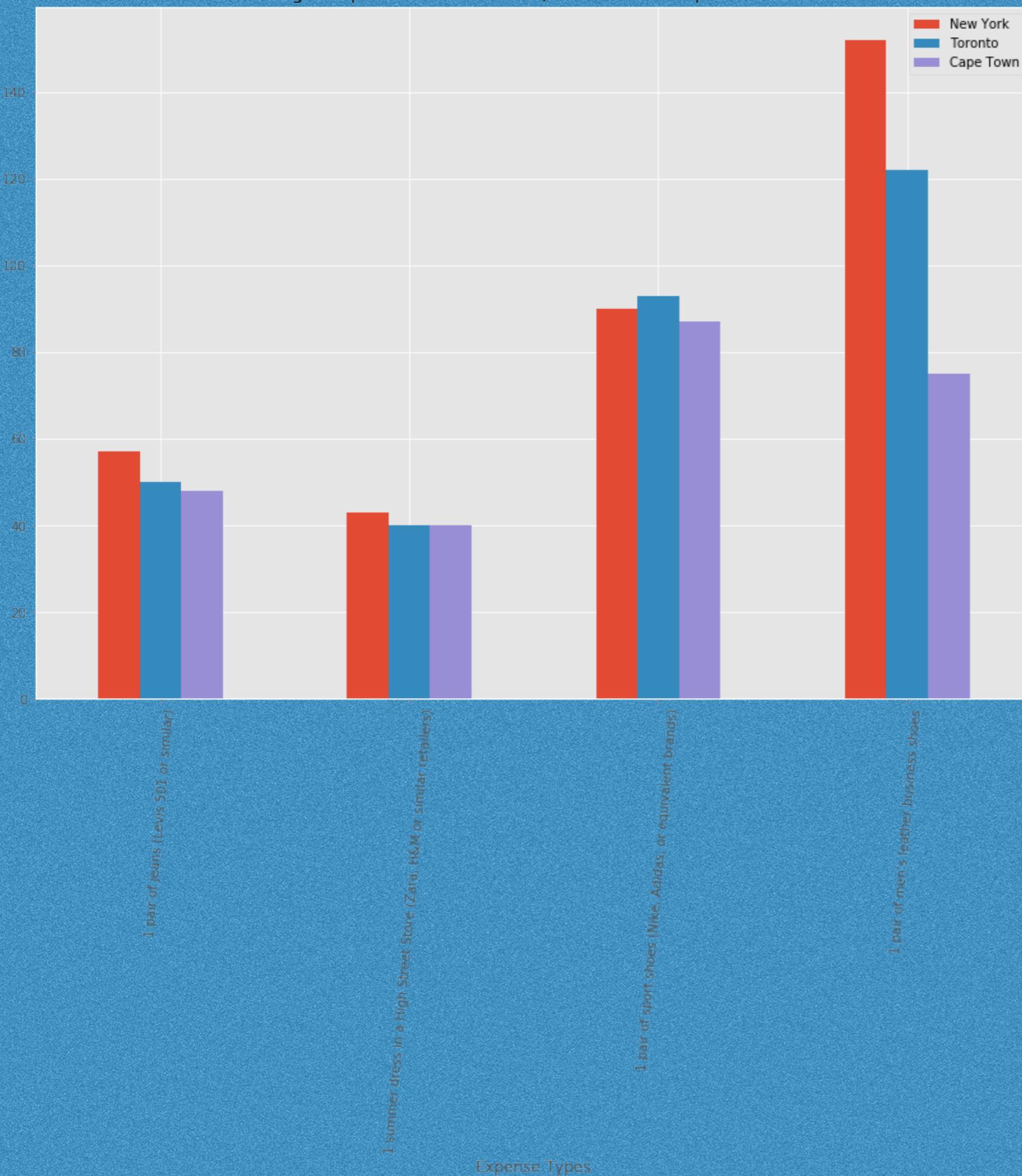


The price to rent
different types
of apartment in
each city

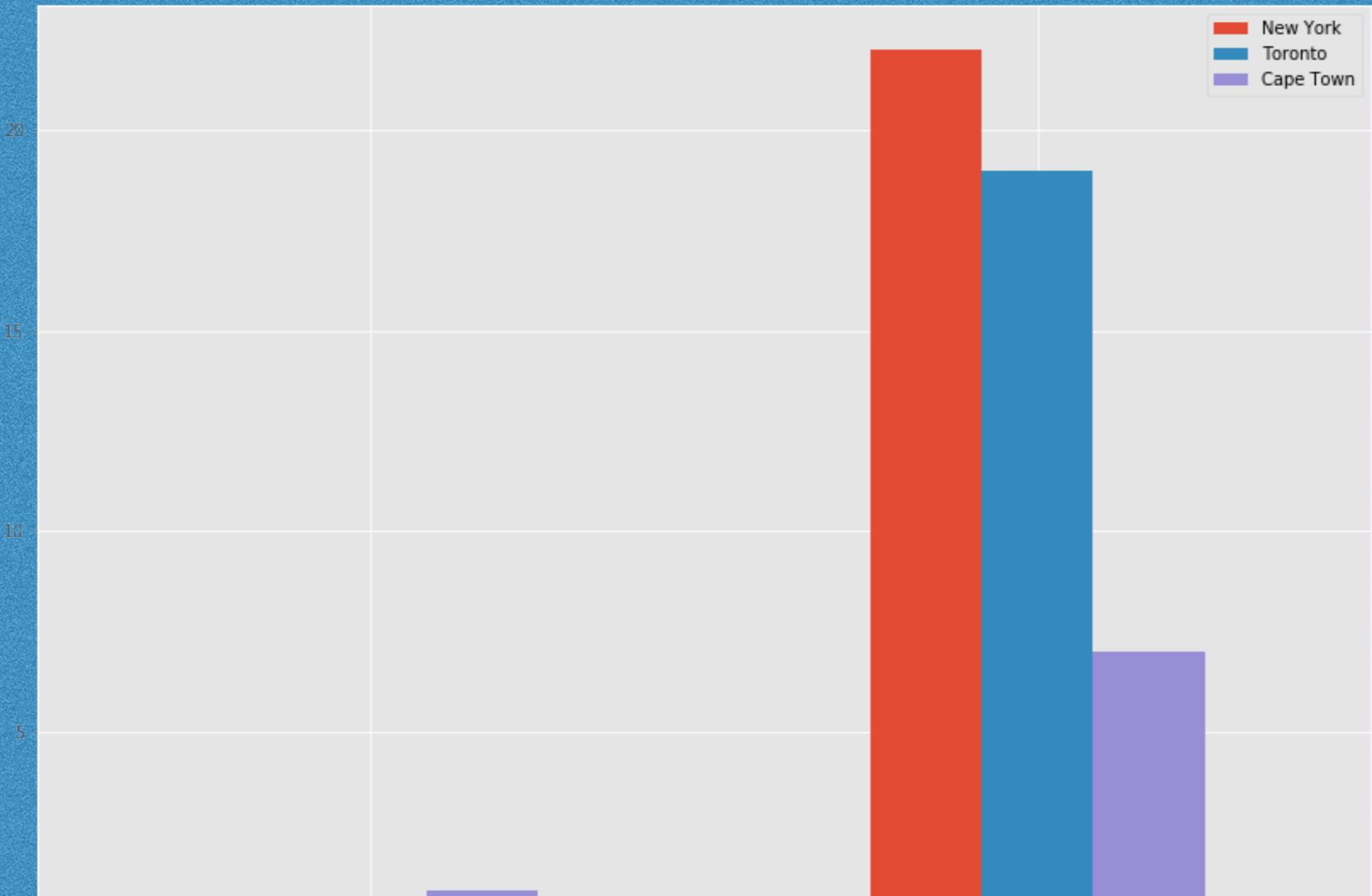
Housing expenses Comparison for New York, Toronto and Cape Town in USD



Clothing Comparison for New York, Toronto and Cape Town in USD

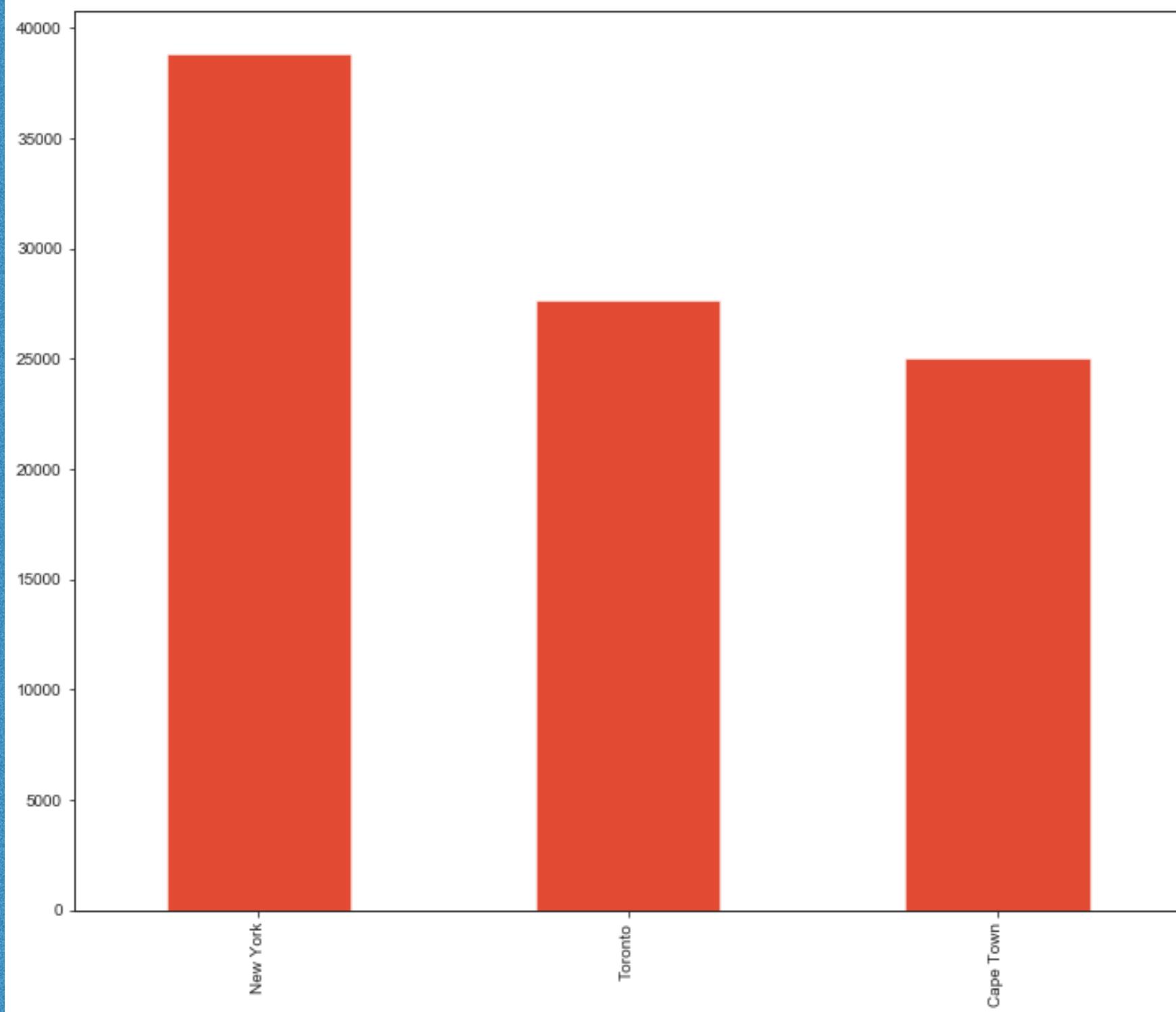


Transport Comparison for New York, Toronto and Cape Town in USD



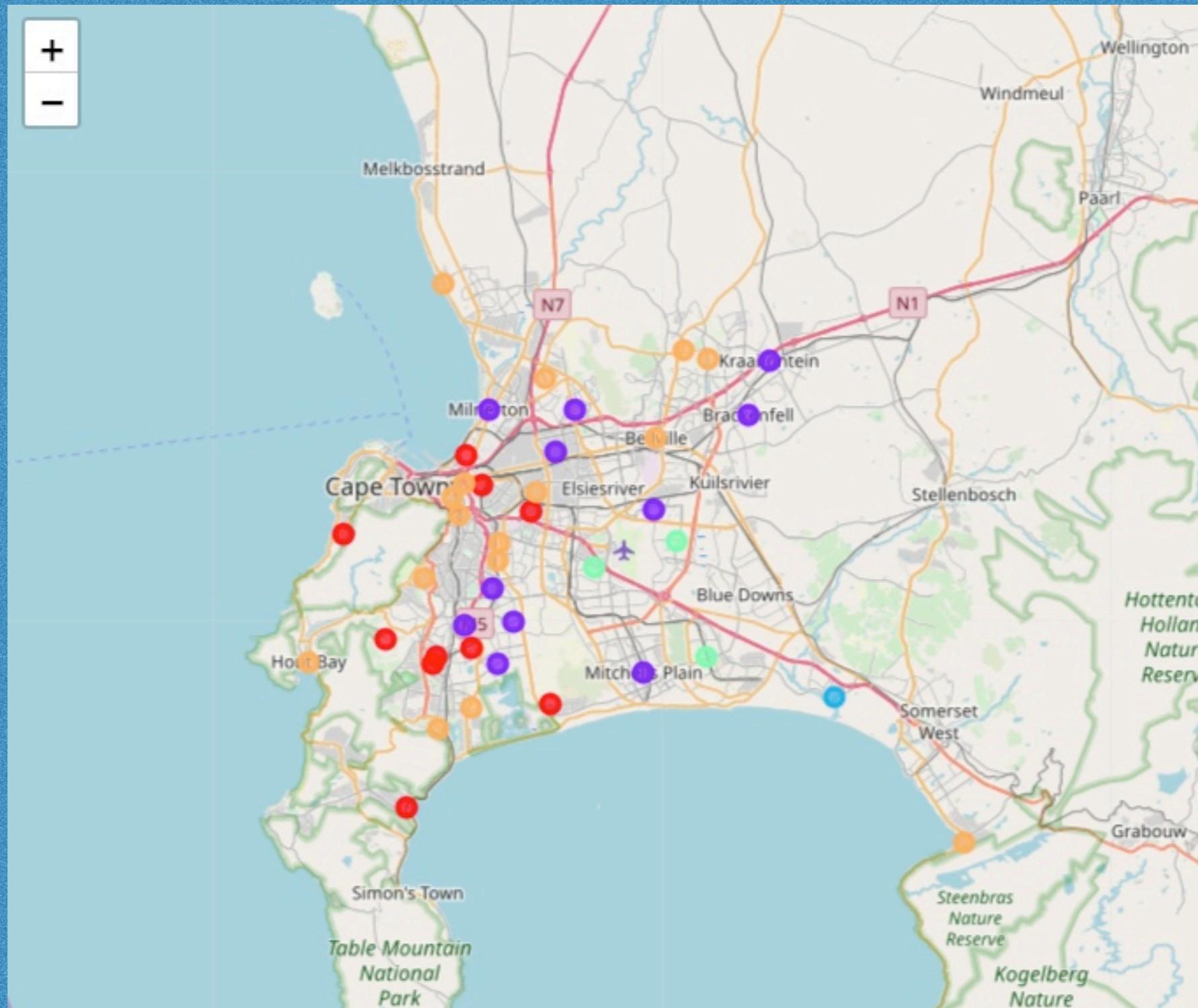
As can be seen from this slide, fuel in Cape Town is little bit more expensive than that of the other two cities

Overall Comparison

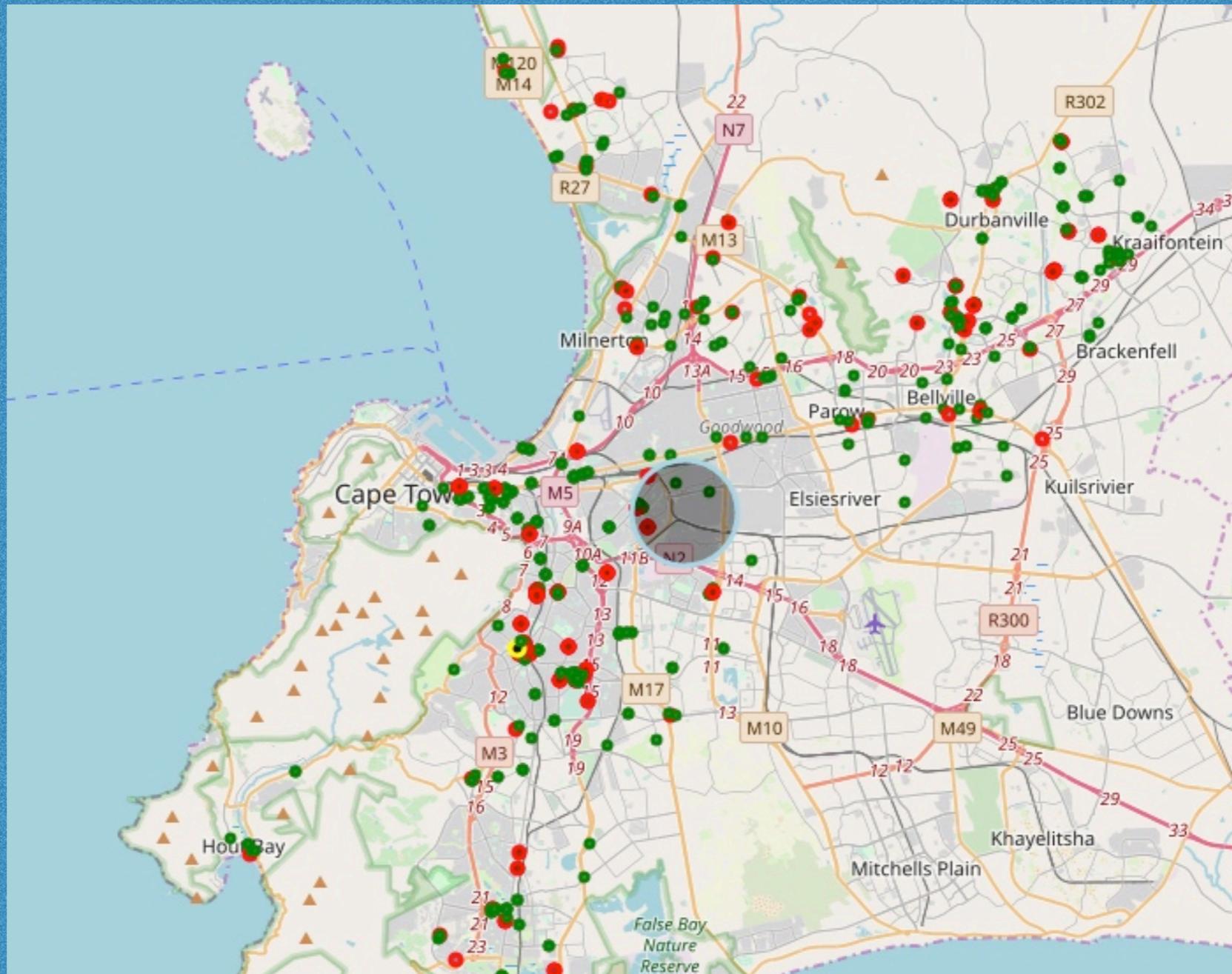


Cost of living overall seems to be about 10% cheaper in Cape Town vs Toronto, and 25% cheaper than New York

The map of Cape Town showing all the clusters of neighbourhoods

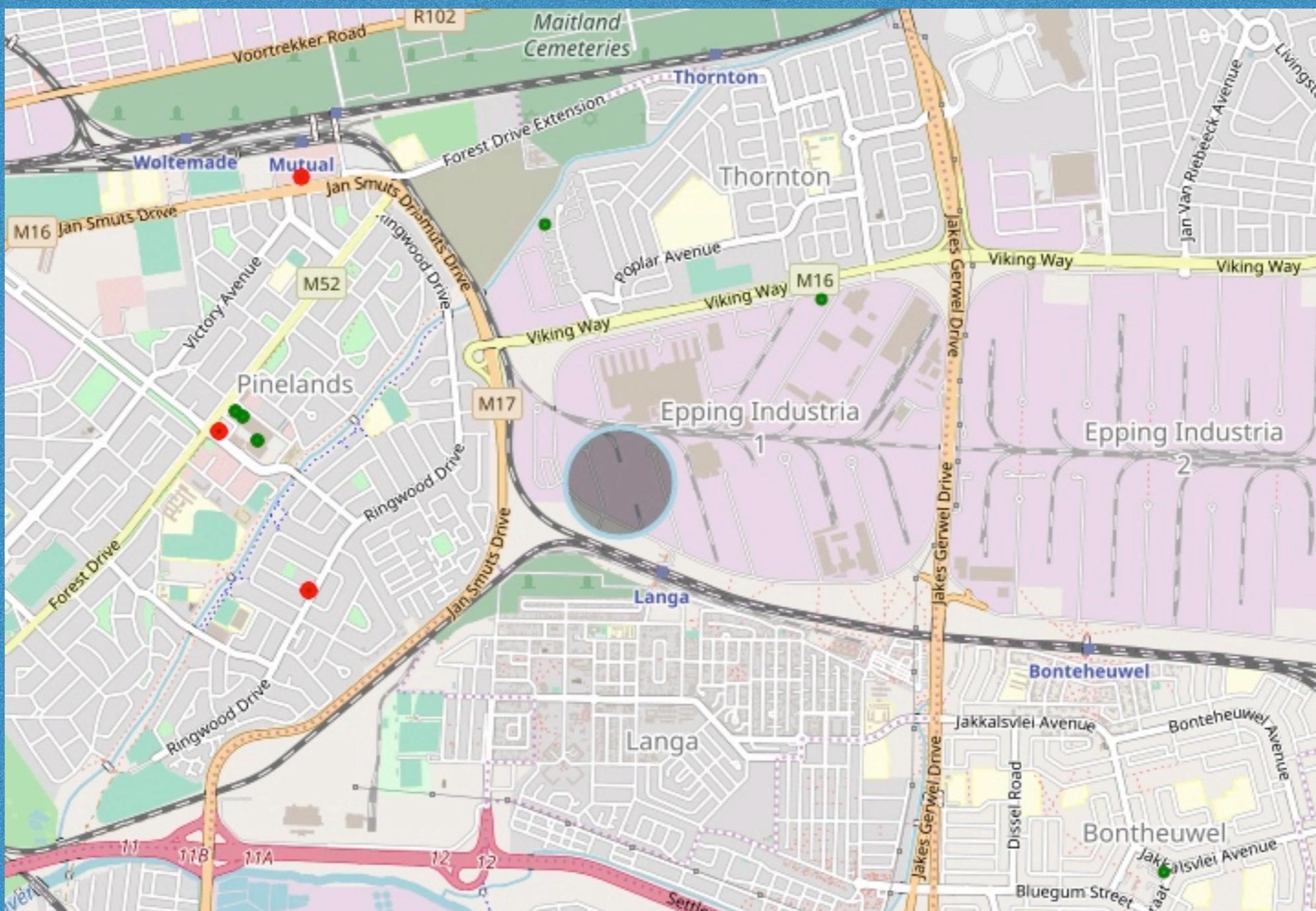


The below map show the location of where the plant can be located for maximum efficiency.



The green dots are all store venues and the red dots are malls, these can be targeted to contract for direct plastic collection. The yellow dot is a recycling facility, that can be sub contracted to supply more plastic for the plant.

Location of plant



We see the area is called Epping Industria 1, if we do a google search on Epping Industry we get the wikipedia page https://en.wikipedia.org/wiki/Epping,_Cape_Town, we see that Epping is indeed an industrial area in Cape Town.

Conclusion

The company has chosen well in deciding to use Cape Town to setup an pyrolysis plant for plastic to fuel, as South-Africa is a developing country and most people won't be able to move away from fossil fuel powered vehicles. Labour costs will also be cheaper than for other countries, but there is the risk of labour unions going on strike and halting operations a couple of times a year.

On the data end, I will be testing this model against some other cities as well, to see if all of the end results are close to industrial areas, for only then will I know if that the model is truly refined.