



Public Parking Analysis for Hamilton City

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Introduction and background:

Our team has been given the opportunity to work with the City of Hamilton's public parking data which includes 4000 public parking spaces in the downtown core. Parking is undergoing a significant transformation through "traditional parking locations" being repurposed for developments for the public realm such as cycling and pedestrian facilities, greenspace, and restaurant patios. The City of Hamilton would like to use the data collected, analyzed, and transformed to create solutions that benefit the users who struggle with finding public parking.

The project will address the current shortage of public parking caused by these transformations in certain wards and which wards have the highest user rate of public parking. We will identify certain trends by collecting Hamilton ward data and analyzing variables such as neighborhood demographics. The team hopes to also identify the current gaps in the research that could be narrowed with more data sets such as on-street parking.

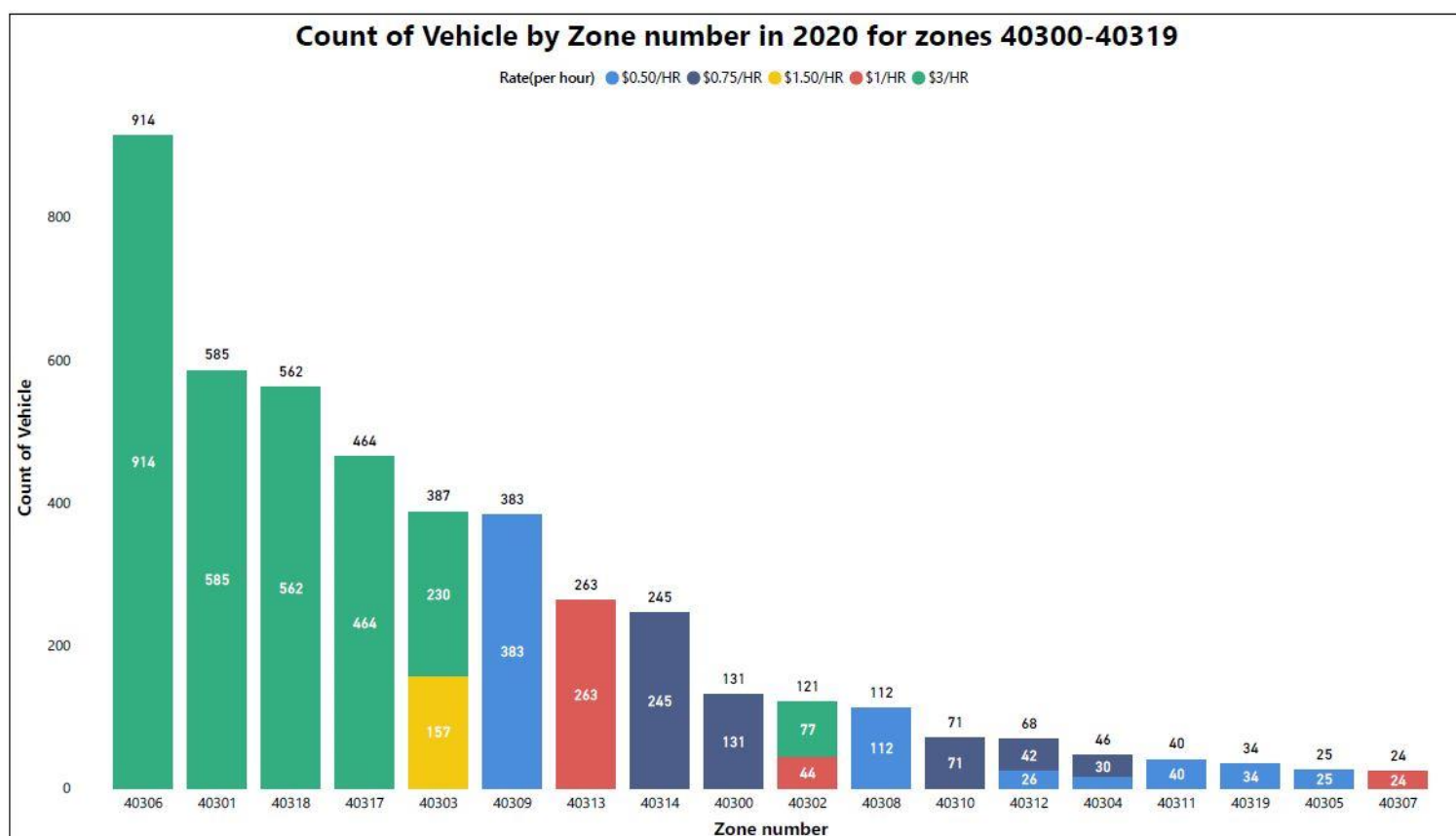
Parking lot Addresses based on zone numbers for analysis

Below is the list of the of the zone numbers and their addresses which are the key factors in the analysis of parking zones in different areas. Then the city might make an assumption of which things to focus more on to enhance the facilities according to the area.

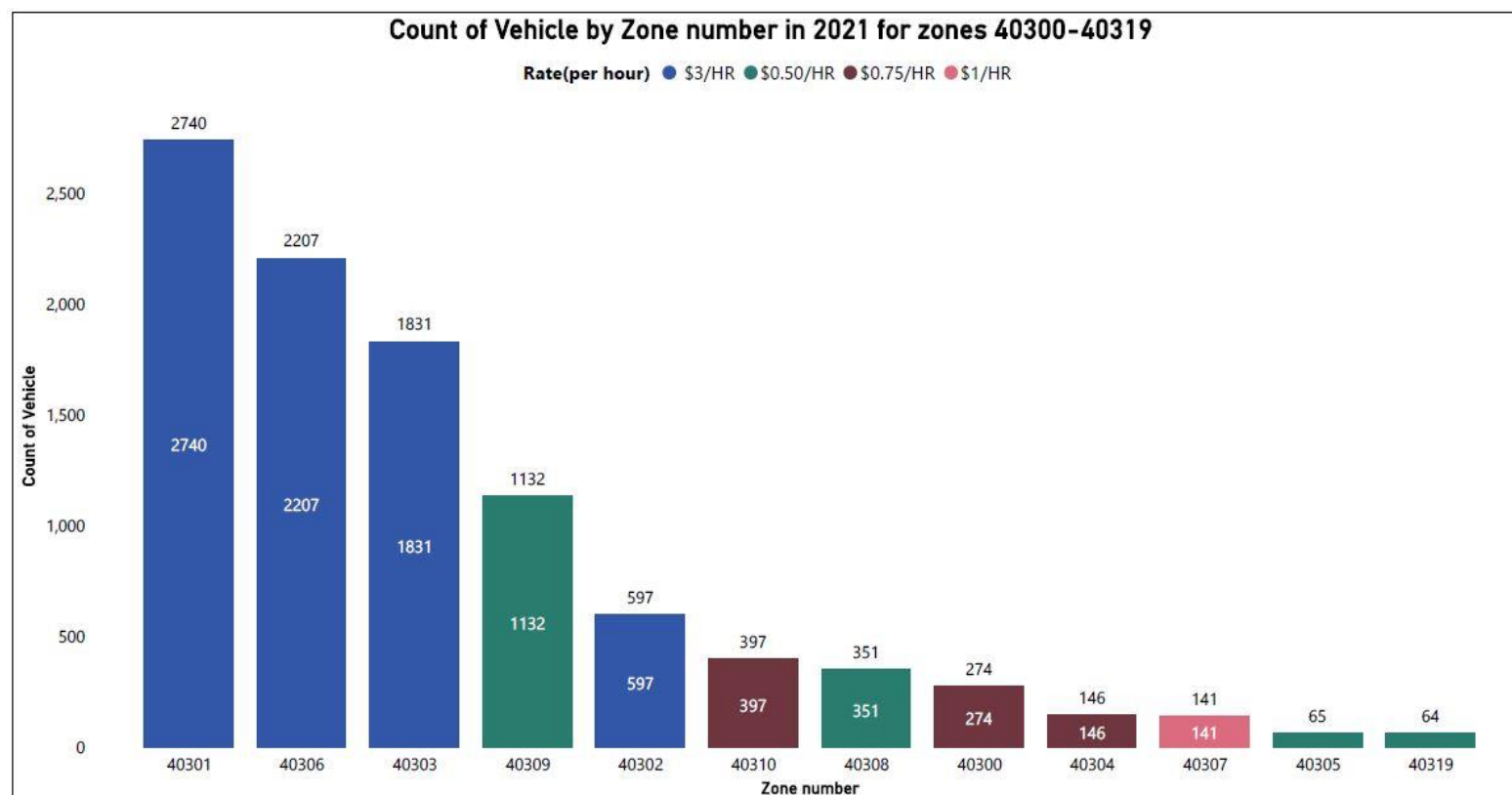
Zone Number	Lot Address	Zone Number	Lot Address
40300	70 Hope Ave.	40328	106 Bay St. N
40302	171 Main St. E	40329	12 York Blvd.
40303	293-297 King St. E	40330	207 Hughson St. N
40304	584 Upper Wellington St.	40331	11 East Ave. N
40305	1457 Main St. E	40332	253 King William St.
40306	96 James St. N	40333	263 King St. W
40307	53 Balmoral Ave. N	40334	75 Catherine St. S
40308	1358 Main St. E	40335	402 Barton St. E
40309	1203 Main St. E	40336	193-213 King St. W
40310	552 Upper James St.	40337	11 Ferguson Ave. N
40311	1375 Main St. E	40338	294 Victoria Ave. N
40312	451 King St. W	40339	36 Newlands Ave.
40313	255 East Ave. N	40340	45 King St. W
40314	15 Brucedale Ave. W	40341	115 Campbell Ave.
40315	1503 Main St. E	40342	116 Campbell Ave.
40316	8 East 21st St.	40343	11 Britannia Ave.
40317	22 Mulberry St.	40344	18 Britannia Ave.
40318	71 Main St. W	40345	8 Foundry St.
40319	268 Kenilworth Ave. N	40346	309 Grosvenor Ave. N
40320	346 Barton St. E	40347	203 Balmoral Ave. N
40321	540 Barton St. E	40348	299 Balmoral Ave. N
40322	14 Cheever St./11 William St.	40349	82 King St. W
40323	735 Barton St. E	40350	48-70 King St. W
40324	30 Emerald St. S	40351	93-111 King St. W
40325	1368 Barton St. E	40352	85 King St. W
40326	14 Vine St	40353	23 Hatt St.
40327	168 Sherman Ave. N		

Analysis of data for zone number 40300 – 40319 for 2020 and 2021

The analysis of three datasets are necessary to make any decision or help to solve the problem regarding the parking places. Moving further, we conduct the data analysis for those datasets. There is a huge difference in both years as of pandemic (Covid-19). Analysis from the dataset of 2020 and 2021 from all the zones for that area provide the critical information such as how different zone are being used in different municipal parking lots in different parking zone.



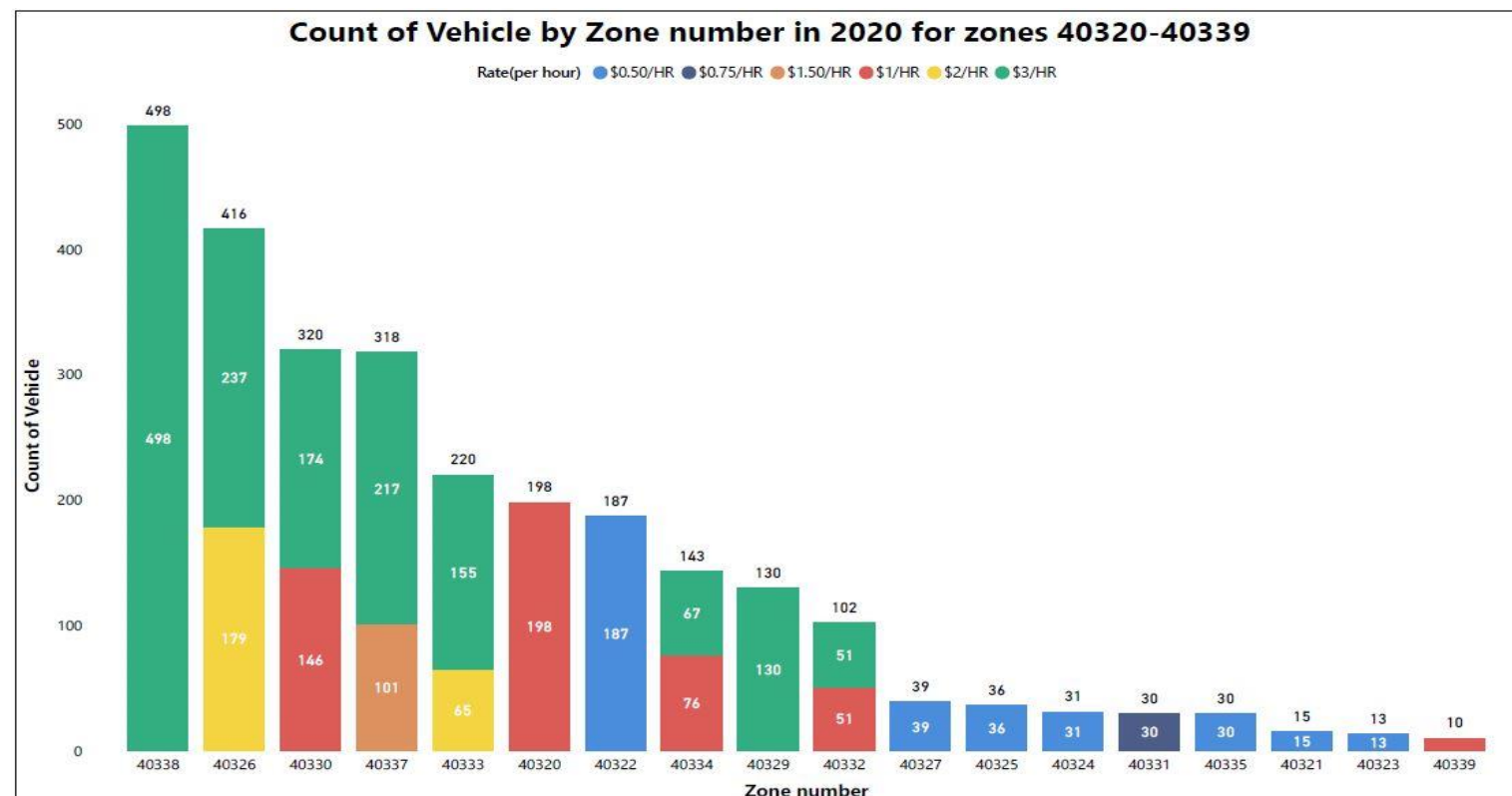
Above graph depicts that the highest number of vehicles were park in zone number 40306 which has the parking rate of \$3 per hour. It is also clearly seen that the busiest parking area had rate of three dollar for an hour in 2020. However, zone number 40307 (53 Balmoral Ave. N)has the least number of vehicles in its parking lot in that year and its parking rate was \$1/HR.



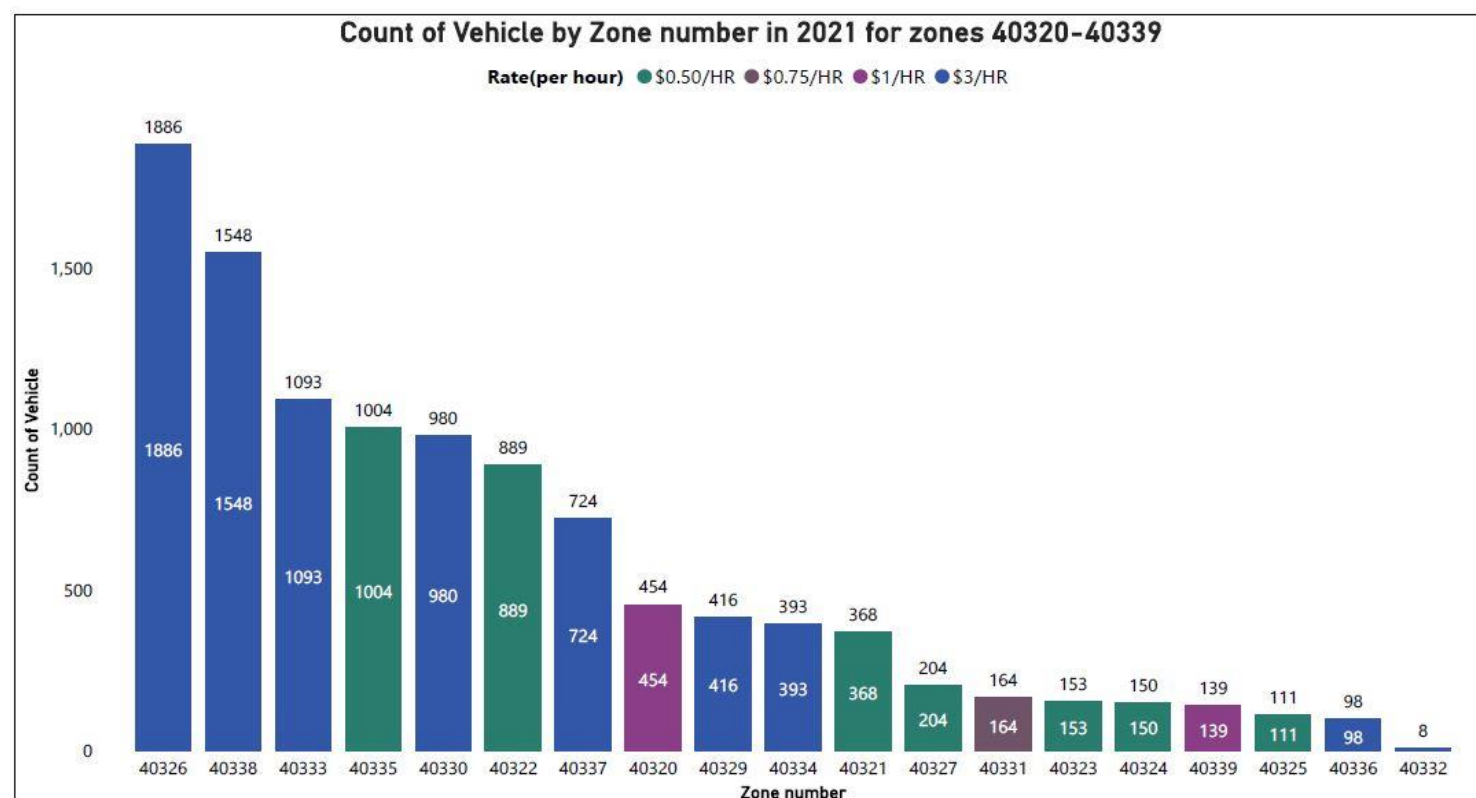
In 2021, there was a slight change of the busiest zone as compared to the busiest zone in the previous year. Also, there is an increase of the number of vehicles in the year 2021 for almost all the zones. Therefore, more municipal parking were being used in that time. The busiest zone in 2021 is 40301(140 King Williams St) which depicts the 2740 vehicles and it had the hourly parking rate of only \$3.

Analysis of data for zone number 40320 - 40339 for 2020 and 2021

For the second dataset we are going to analyze the municipal parking in the zone from 40320 (346 Barton street E) to 40339 (36 Newlands Ave E). We had the data for those parking lots of the year 2020 and 2021. In these zones the cost for different parking are: \$0.50/HR, \$0.75/HR, \$1/HR, \$1.50/HR, \$2/HR and, \$3/HR. There were also price increasing during the year in some parking lots by the City.



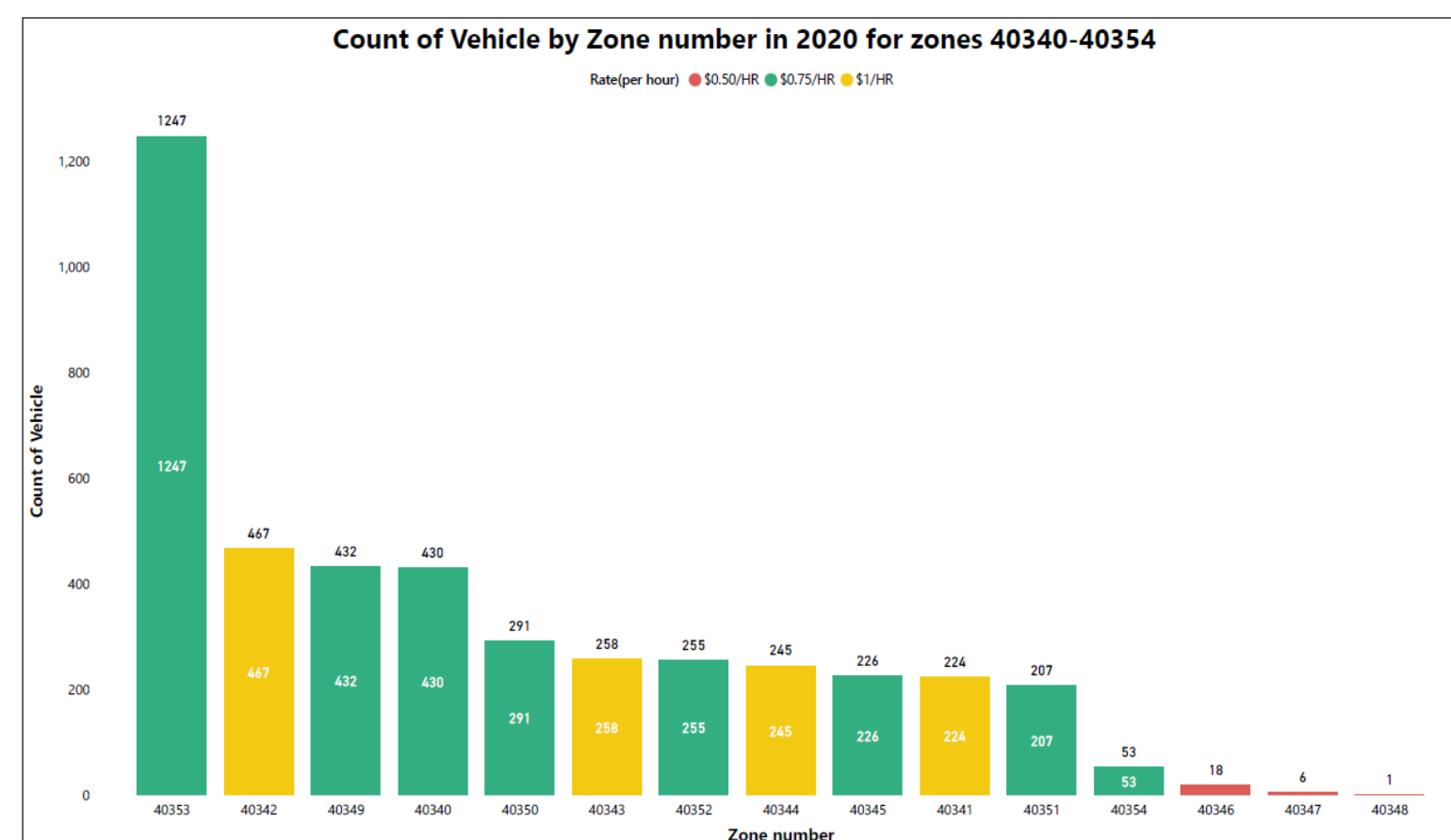
Above graph represents that in 2020, the busiest parking lot was 294 Victoria Avenue N which had the parked vehicle of 498 and the cost for parkin was remained 3/HR for the whole year. On the other hand, zone of 36 Newlands Ave had the least number of vehicle parked during the year. Zone numbers 40327, 40324, 4035 have approximately similar number of parked vehicles during the year and cost was \$0.50/HR for those lots.



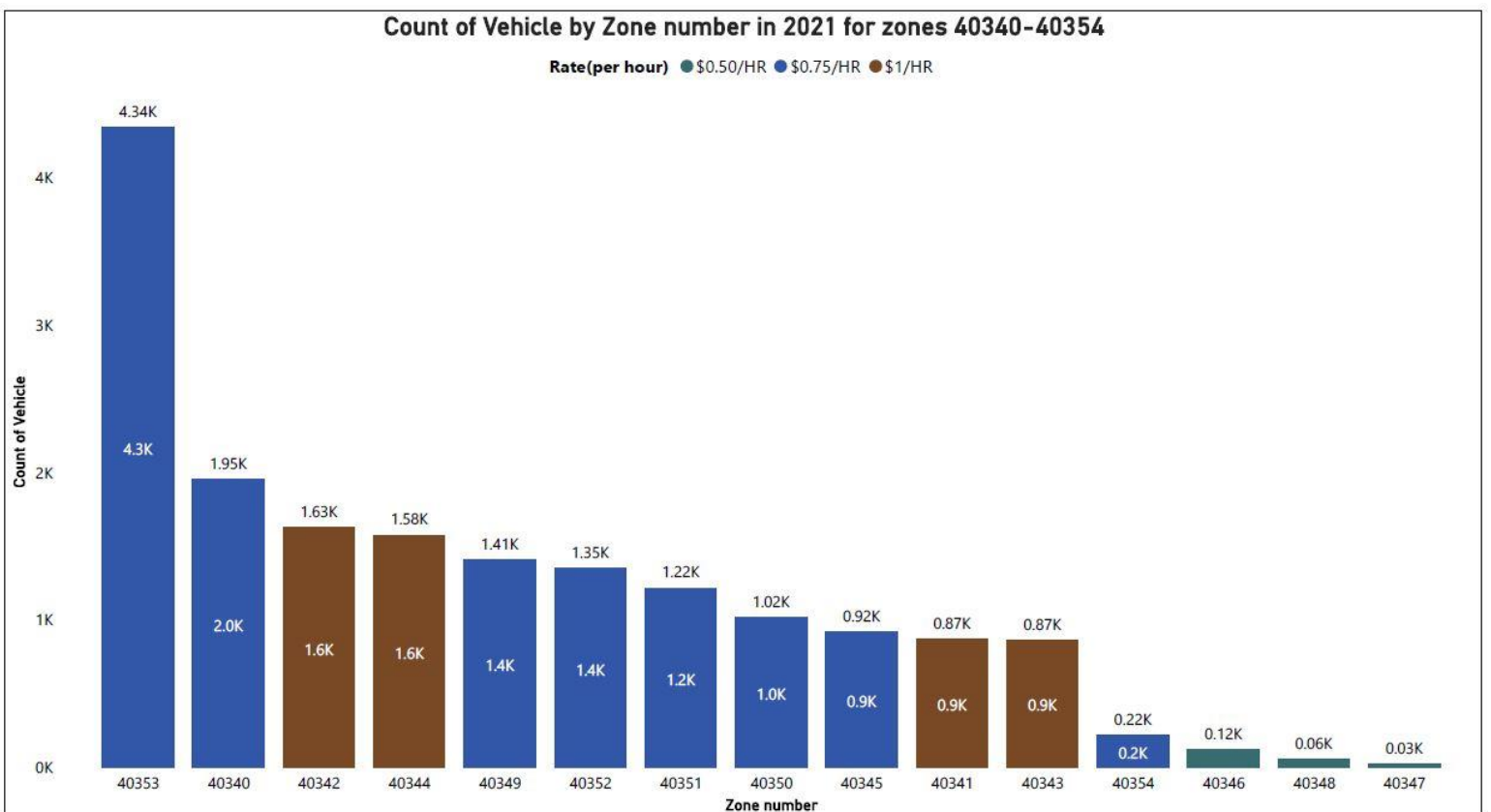
For the next year (2021) which was the pandemic year, the number of vehicle has increased in almost all of the parking zones from 40320 to 40339. Most of the parking rates were raised to \$3 per hour in this area. The highest vehicle were parked at the 14 Vine street. The number of vehicle parked over there was 1886 which was only 416 before the pandemic. The 253 King William street parking had only 8 vehicles which could impact negative to the City.

Analysis of data for zone number 40340 – 40354 for 2020 and 2021

The third datasets were about the number of vehicles parked in publicly available parking between the zone numbers 40340 and 40354 in year 2020 and 2021. Compared to the other parking rates this area are considerably cheap. The rates for this lots are \$0.50/HR, \$0.75/HR and, \$1/HR. About 60% of parking lots had the hourly rate of \$0.75.



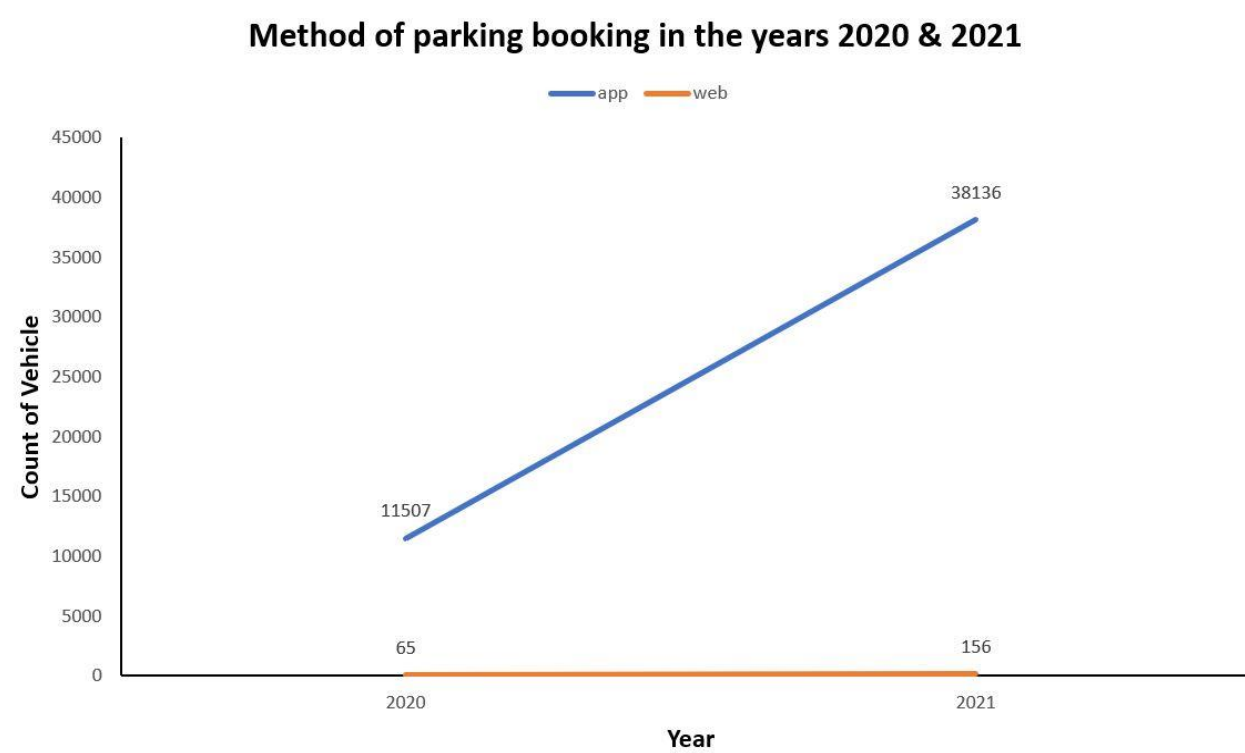
In 2020, the most used parking lot was 40353 (23 Hatt st). That parking lot was used by 1274 vehicles and the hourly cost was \$0.75 whereas other parking lots were usage was between 207 to 447 vehicles in zones 40342, 40349, 40340, 40350, 40343, 40344 and 40351. The least number of used parking lots were 40346, 40347 and 40348 and the number of vehicle parked there were 18, 6 and, 1 respectively. 299 Balmoral Ave lot is considered to be not useful as only 1 vehicle parked there.



The number of the vehicles in this area had a significant raise in the year of 2021. The 23 Hatt St. parking lot had the highest amount of vehicles as compared to others whereas zone 40347 had the least number of vehicle parked during this year. The hourly rate remained the almost same for the 2021 as well. However, the number of vehicles were highly impacted in a positive way this year.

Analysis of methods used for booking paring space in 2020 and 2021

Once data has been analyzed, we came to know for some important decisions and data. For analysis purpose we had data of different zone for year 2020 and 2021. Comparison of those key aspects of dataset depicts the parking details about for Hamilton region.



Hamilton city provides two methods for booking the parking zone: via App or via its website. Most of the riders have chosen to book the parking via application in both years 2020 and 2021. In 2020, 11507 people have booked the parking through application which and only 65 vehicles parking was booked via website. On the other hand, the number of parking space booked was for 38136 vehicles in next year while 156 parking slots were booked in 2021. Therefore, the most preferrable method by users is via application.

Conclusions and Recommendations:

- There is less usage of parking in 2020 as compared with 2021 because of the pandemic (lockdown)
- The 23 Hatt Street is the highly used by the individuals among all regions in Hamilton city because there are many public places nearby that parking lot such as Hamilton Public Library, Dundas Valley Dentistry, Bertram place retirement living centre.
- As it is clearly seen that in zone number 40353 has highest vehicle parked though it's rate is \$0.75/HR. Therefore, making affordable rates for other parking lots that are mostly used might improve the usage of parking lots.
- People highly prefer to book a parking space via an application, so enhancing the quality and making the app user-friendly will have a positive impact. e.g. by using AI (Artificial Intelligence) we can update the app such that it informs user whether space is available in particular parking lot or not in advance. It will save time for the people.

References:

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