On Time, All Aboard: Analyzing WeGo Public Transit Adherence and Performance

Good Wheel Hunting

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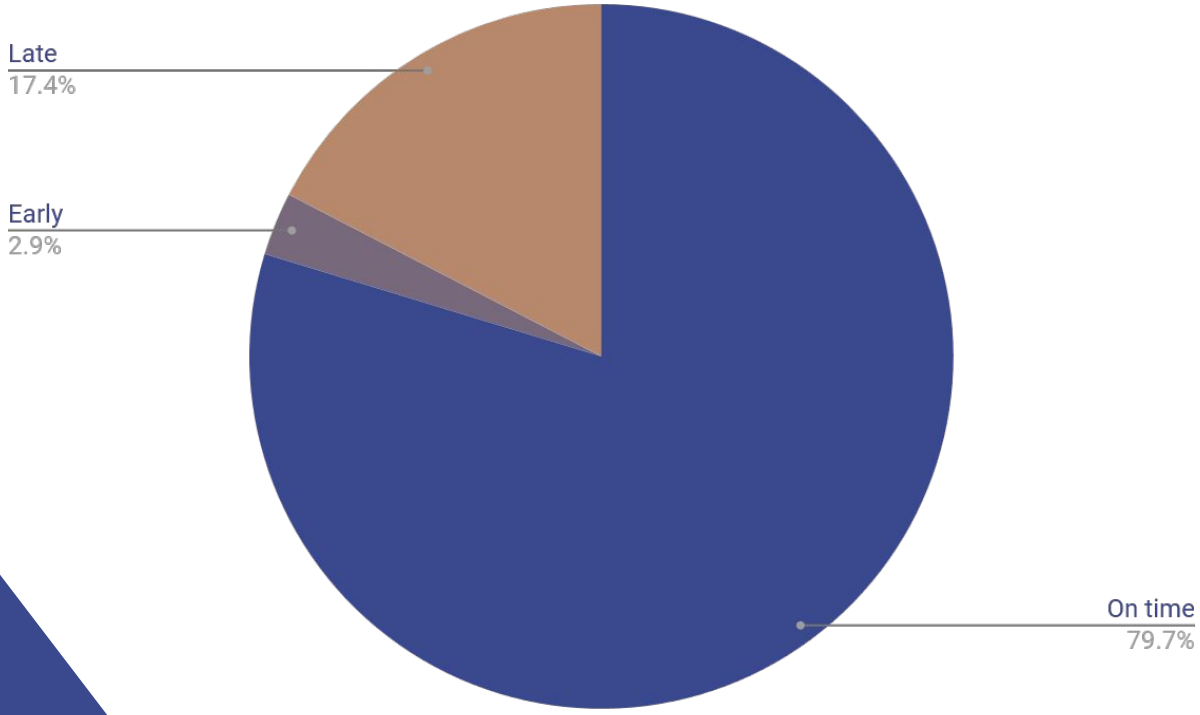
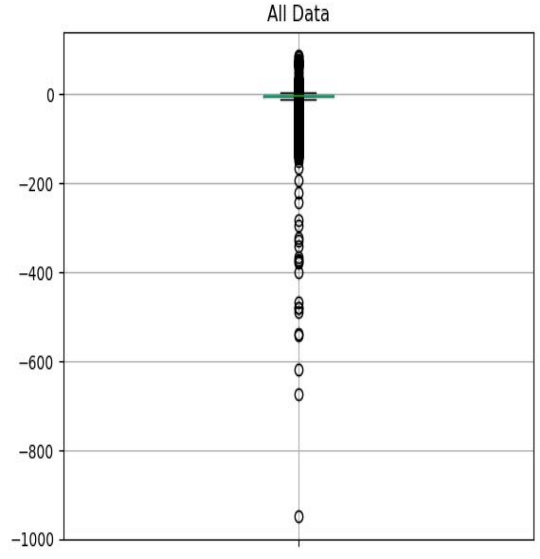
The Rhythms of Transit

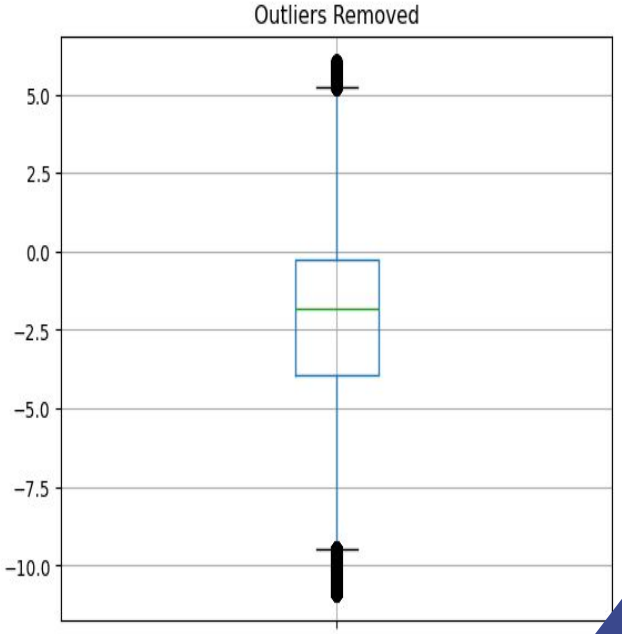
Overall Bus Stop Timeliness



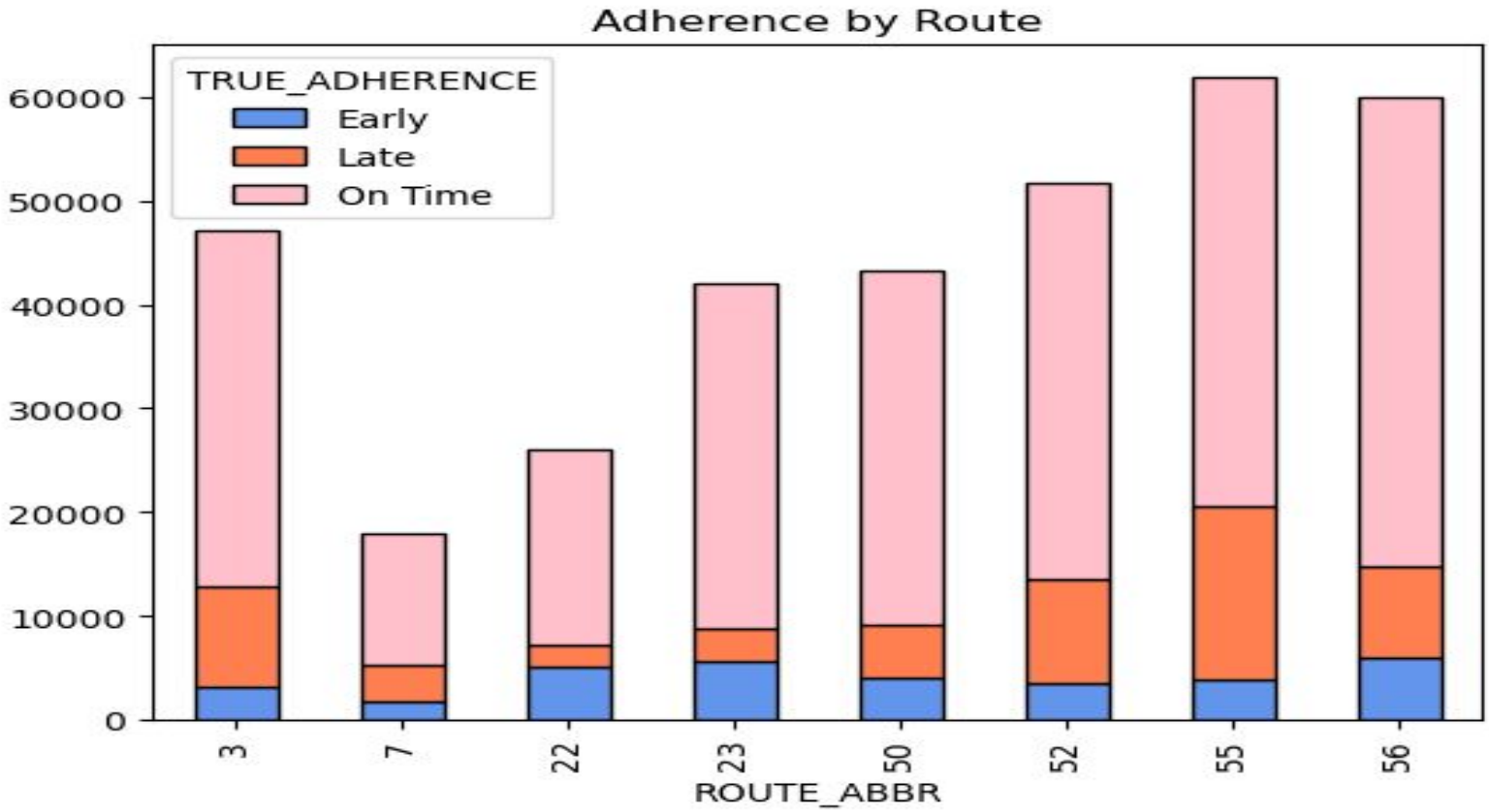
The Rhythms of Transit

Distribution of Adherence

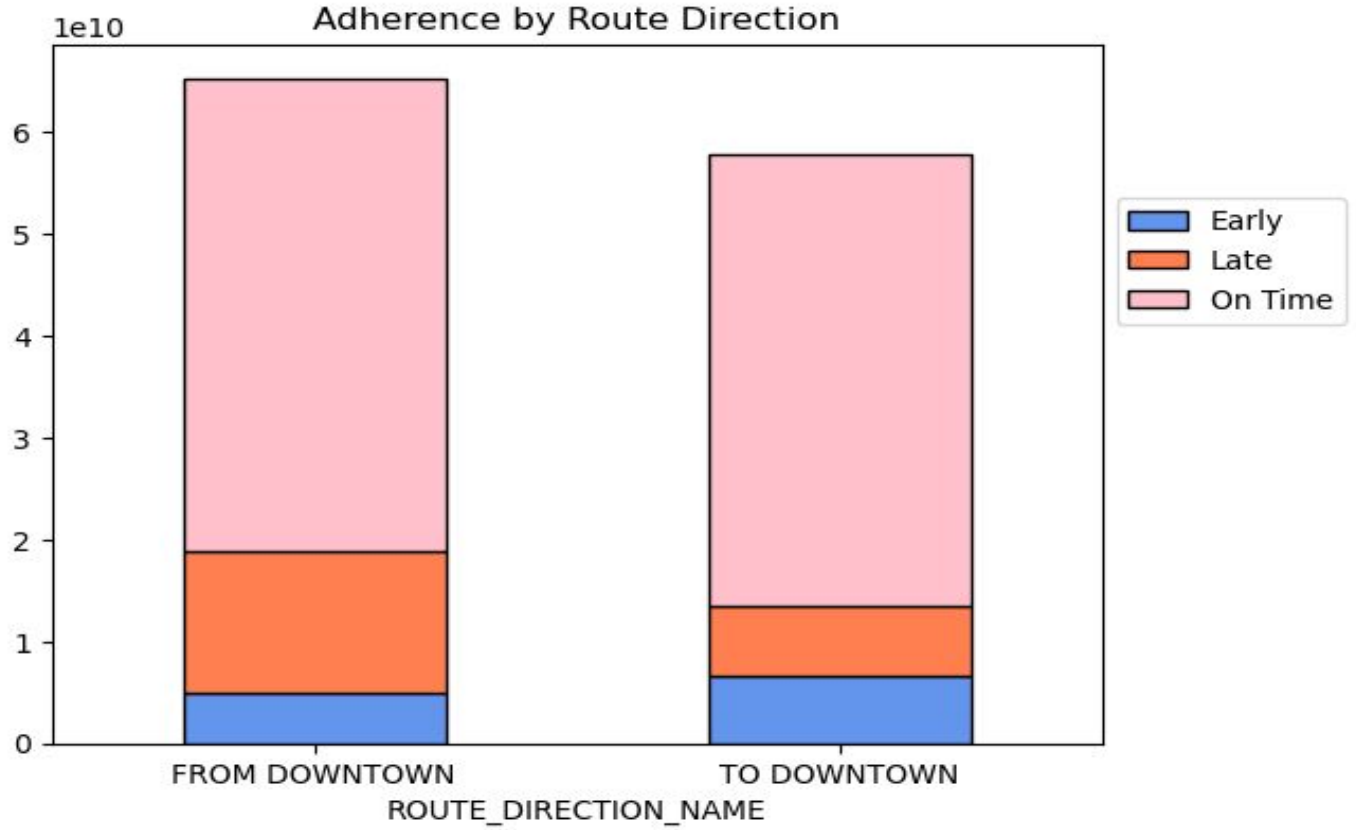




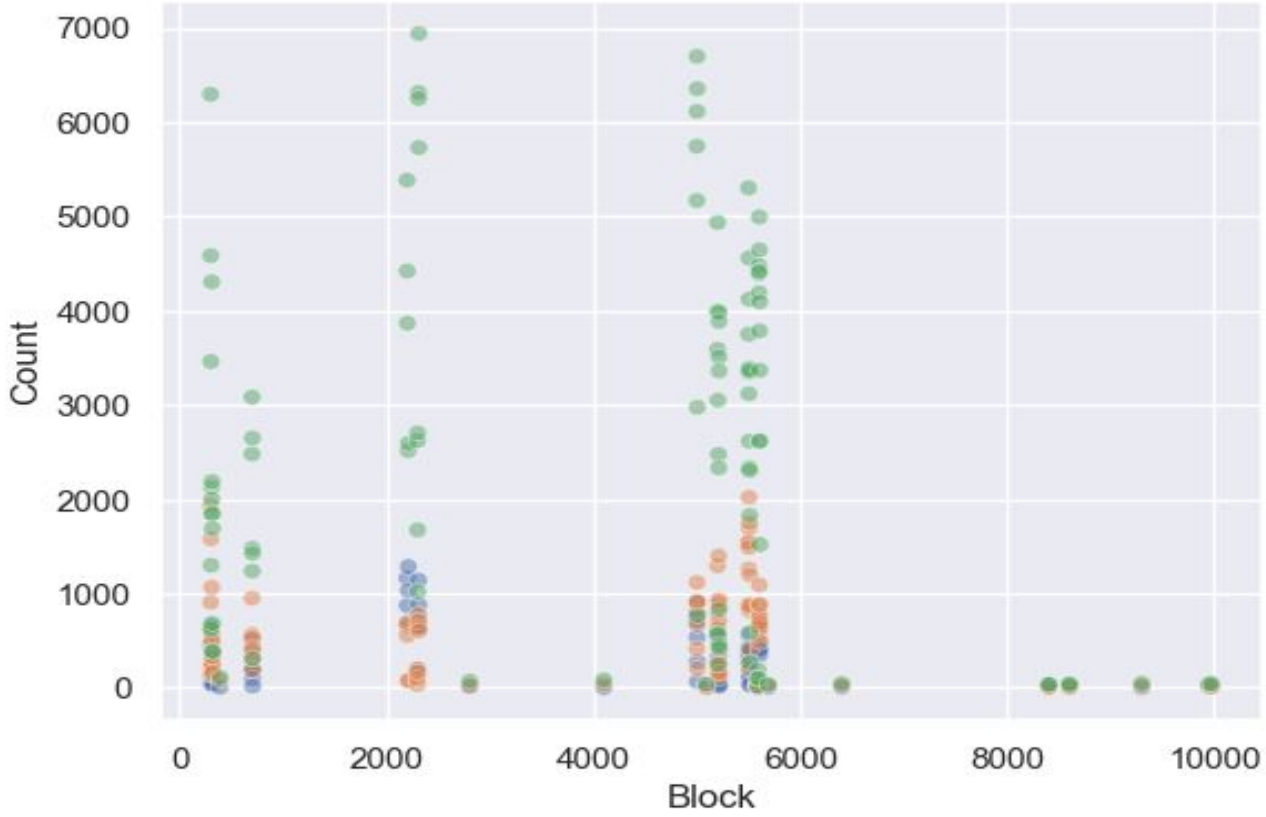
Delays By Route



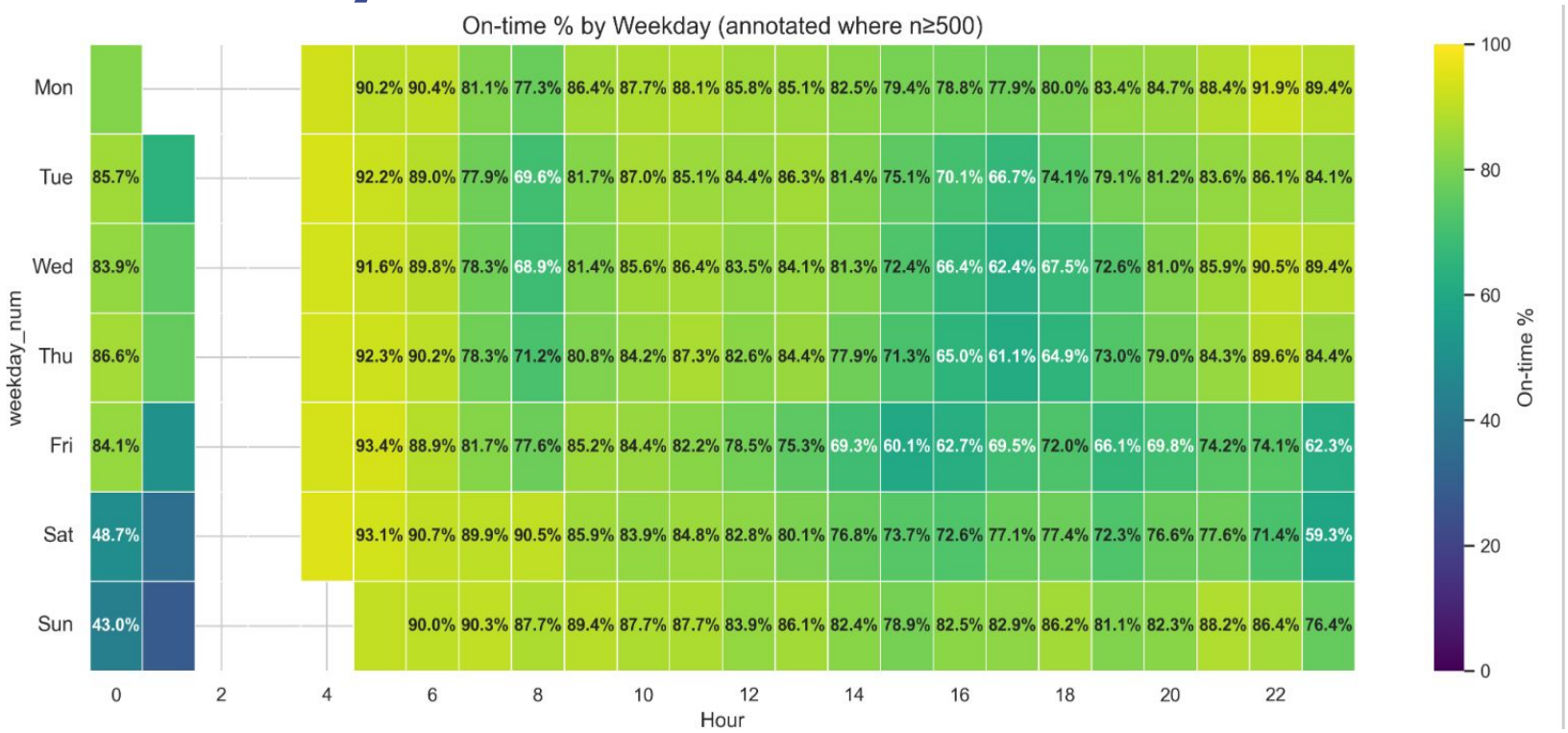
Delays by to and fro



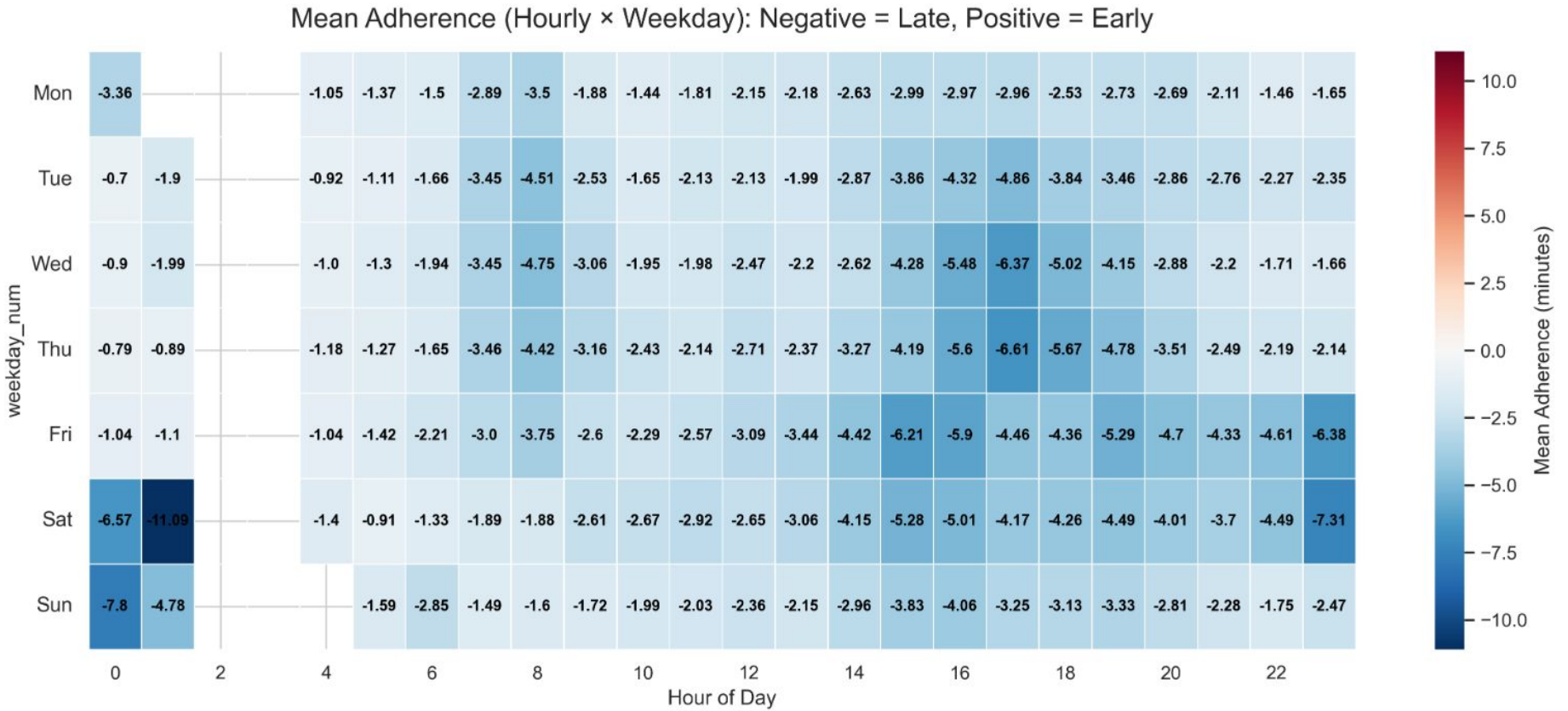
Does my block matter?



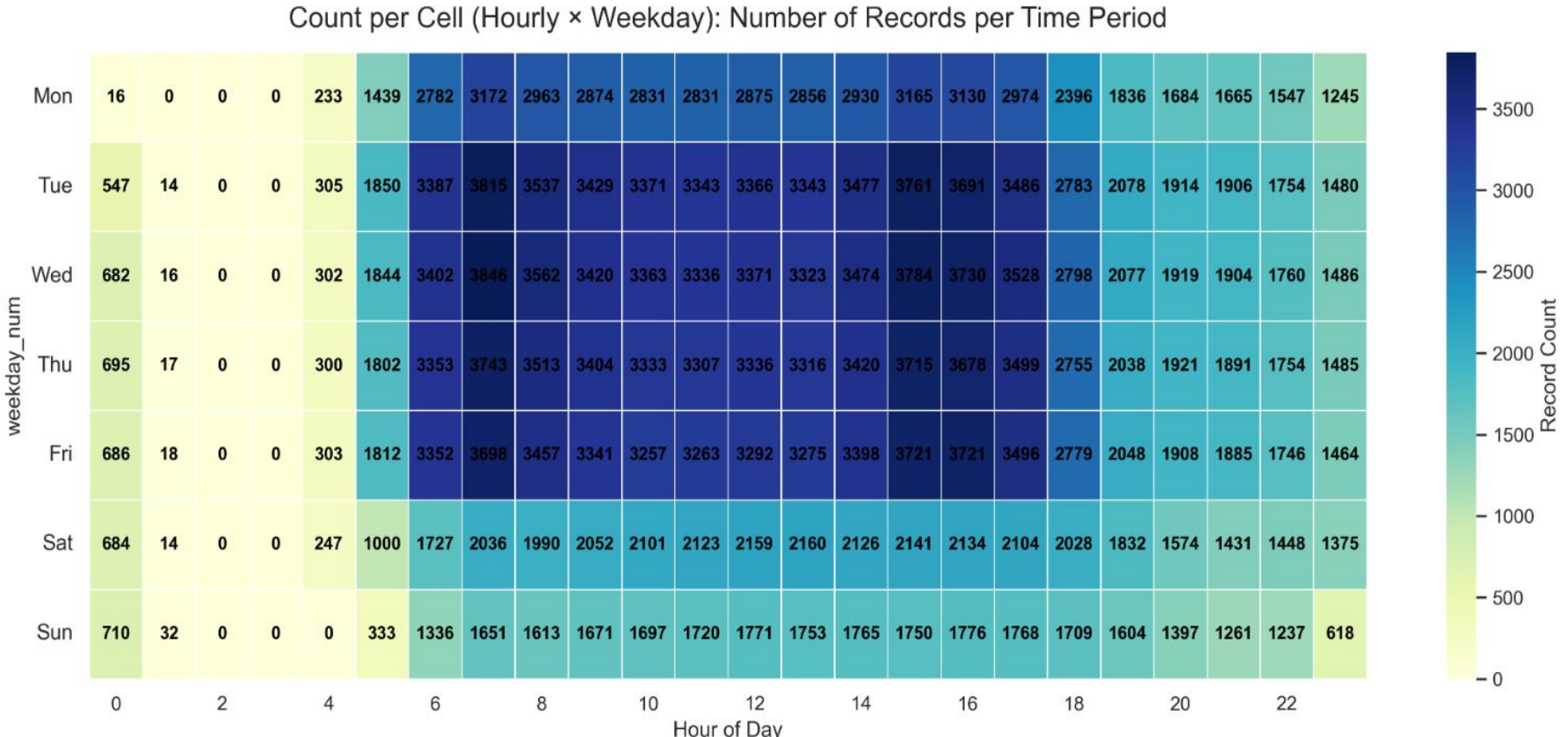
WeGo Public Transit On Time % Hourly



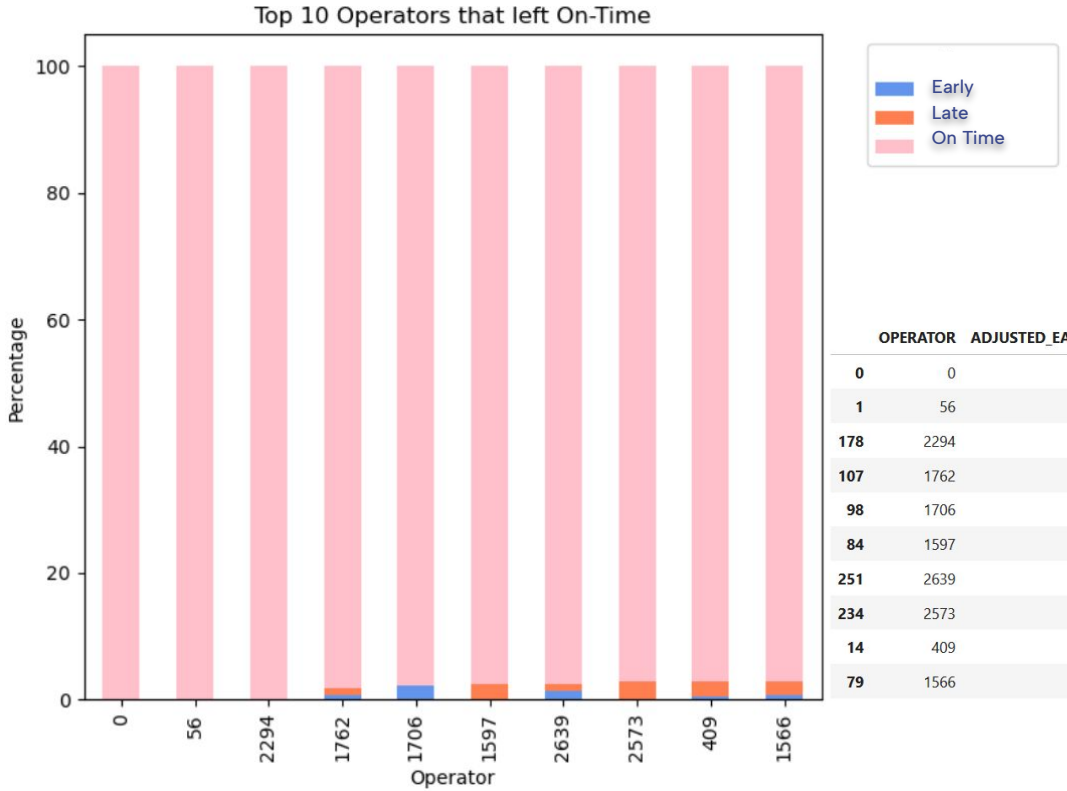
Mean Adherence (Hourly X Weekday)



Number of Records Per Time Period

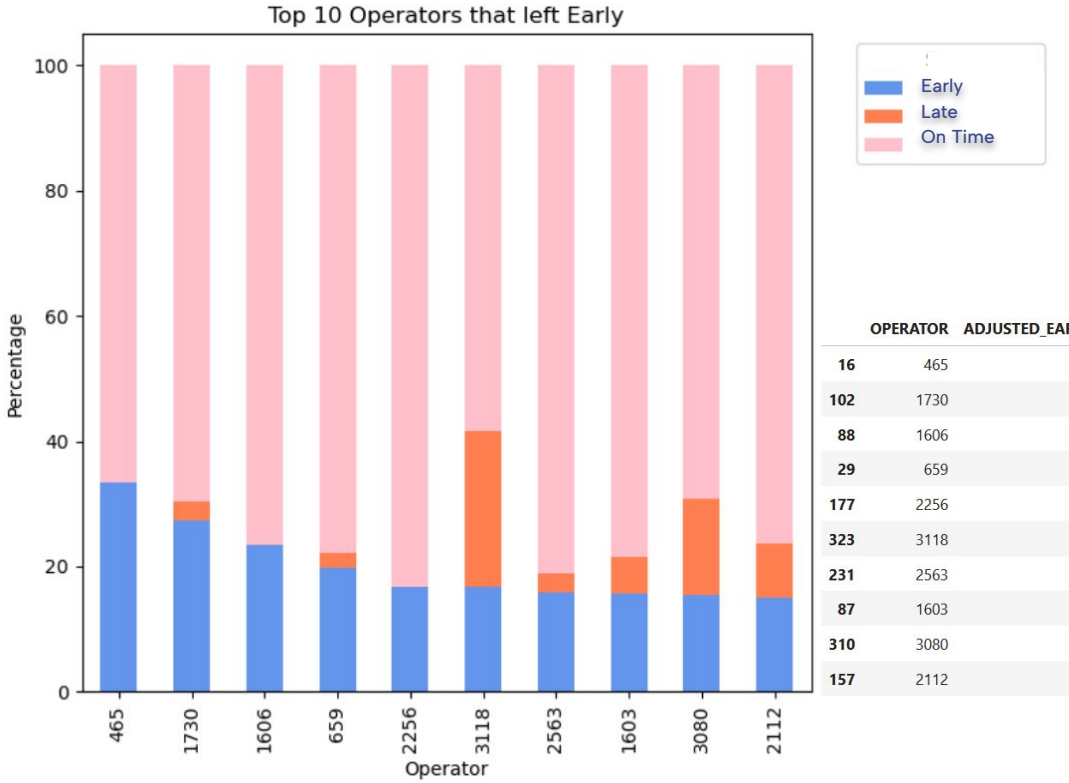


Influence of the Operator on Timeliness



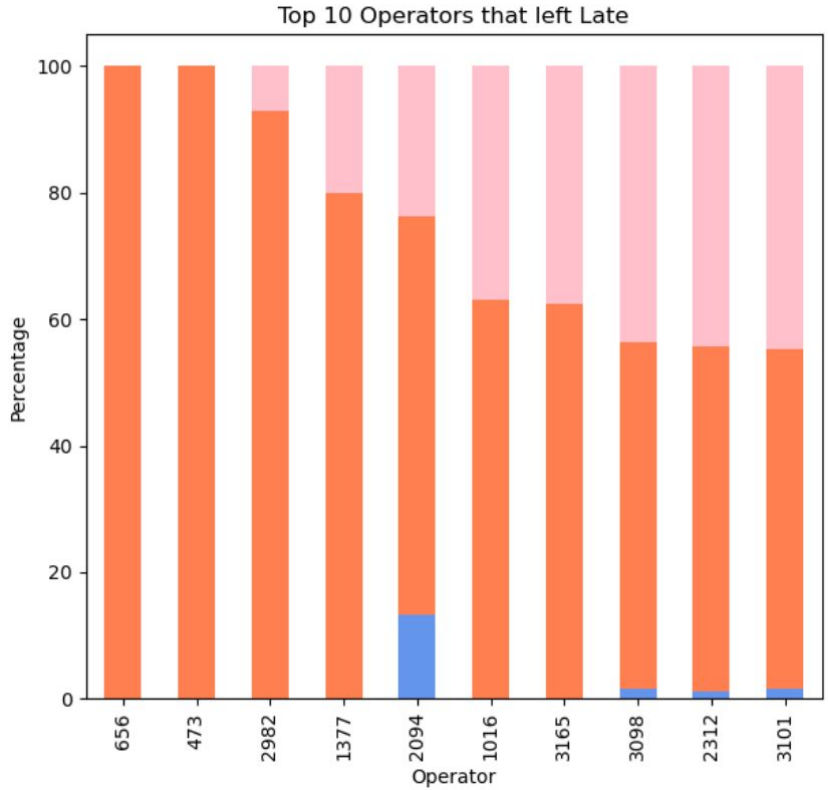
	OPERATOR	ADJUSTED_EARLY_COUNT	ADJUSTED_LATE_COUNT	ADJUSTED_ONTIME_COUNT	TOTAL	EARLY_PCT	LATE_PCT	ONTIME_PCT
0	0	0	0	1	1	0.00	0.00	100.00
1	56	0	0	3	3	0.00	0.00	100.00
178	2294	0	0	45	45	0.00	0.00	100.00
107	1762	16	23	2294	2333	0.69	0.99	98.33
98	1706	1	0	43	44	2.27	0.00	97.73
84	1597	0	6	252	258	0.00	2.33	97.67
251	2639	3	2	202	207	1.45	0.97	97.58
234	2573	0	12	400	412	0.00	2.91	97.09
14	409	9	61	2310	2380	0.38	2.56	97.06
79	1566	17	48	2135	2200	0.77	2.18	97.05

Influence of the Operator on Timeliness



	OPERATOR	ADJUSTED_EARLY_COUNT	ADJUSTED_LATE_COUNT	ADJUSTED_ONTIME_COUNT	TOTAL	EARLY_PCT	LATE_PCT	ONTIME_PCT
16	465	6	0	12	18	33.33	0.00	66.67
102	1730	181	20	460	661	27.38	3.03	69.59
88	1606	4	0	13	17	23.53	0.00	76.47
29	659	379	44	1492	1915	19.79	2.30	77.91
177	2256	1	0	5	6	16.67	0.00	83.33
323	3118	4	6	14	24	16.67	25.00	58.33
231	2563	70	14	359	443	15.80	3.16	81.04
87	1603	86	32	433	551	15.61	5.81	78.58
310	3080	4	4	18	26	15.38	15.38	69.23
157	2112	234	136	1199	1569	14.91	8.67	76.42

Influence of the Operator on Timeliness

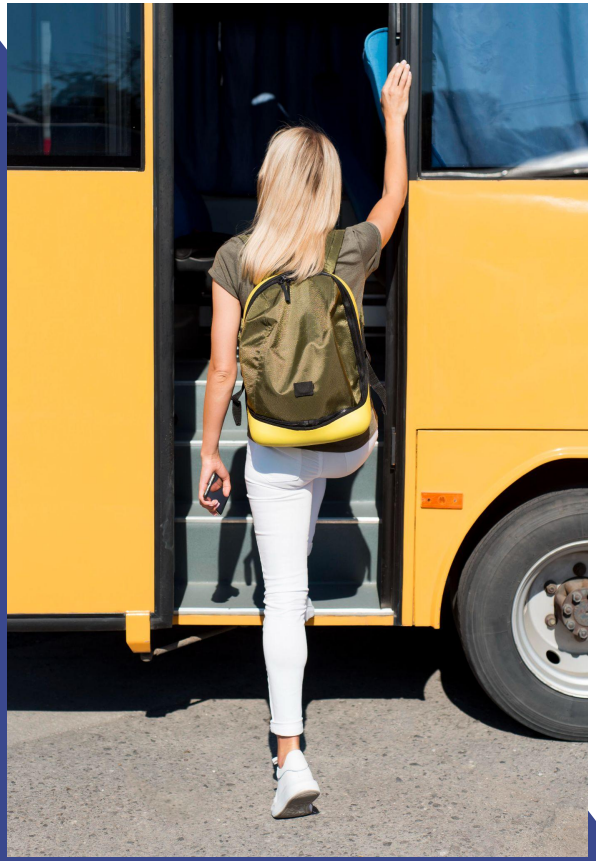


	OPERATOR	ADJUSTED_EARLY_COUNT	ADJUSTED_LATE_COUNT	ADJUSTED_ONTIME_COUNT	TOTAL	EARLY_PCT	LATE_PCT	ONTIME_PCT
28	656	0	1	0	1	0.00	100.00	0.00
18	473	0	1	0	1	0.00	100.00	0.00
294	2982	0	26	2	28	0.00	92.86	7.14
64	1377	0	48	12	60	0.00	80.00	20.00
153	2094	5	24	9	38	13.16	63.16	23.68
34	1016	0	87	51	138	0.00	63.04	36.96
338	3165	0	20	12	32	0.00	62.50	37.50
316	3098	7	251	199	457	1.53	54.92	43.54
181	2312	16	714	582	1312	1.22	54.42	44.36
319	3101	19	699	579	1297	1.46	53.89	44.64

Influence of the Operator on Timeliness

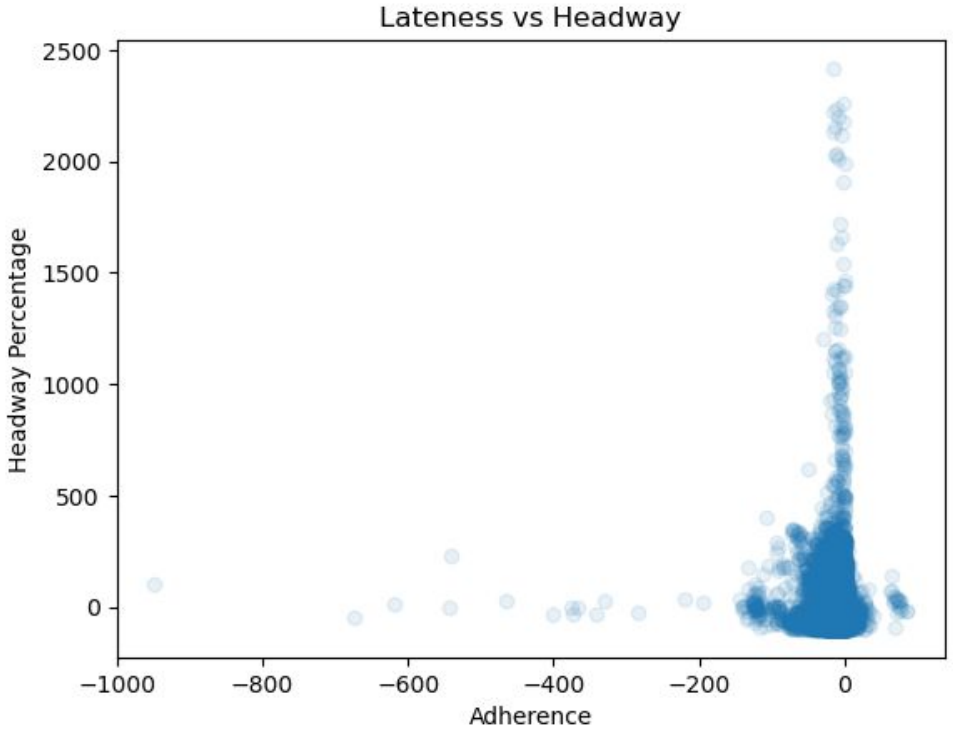
	OPERATOR
OPERATOR	1.000000
ADJUSTED_EARLY_COUNT	-0.068767
ADJUSTED_LATE_COUNT	0.003199
ADJUSTED_ONTIME_COUNT	-0.271178
TOTAL	-0.233310
EARLY_PCT	0.040423
LATE_PCT	0.099761
ONTIME_PCT	-0.112798

- Some Operators frequently leave early or they leave late.
- However, the correlation values of 0.04, 0.09, and –0.11 indicate that there is little or no correlation between the Operator and timeliness.



Keeping the Distance

The Relationship Between Adherence and Headway

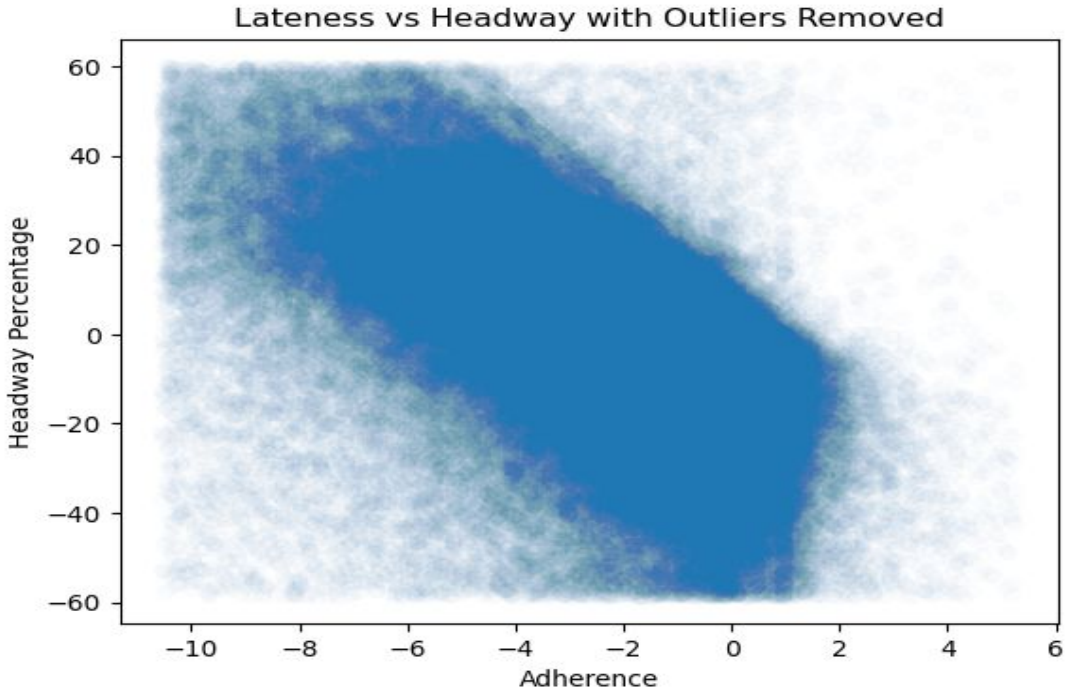


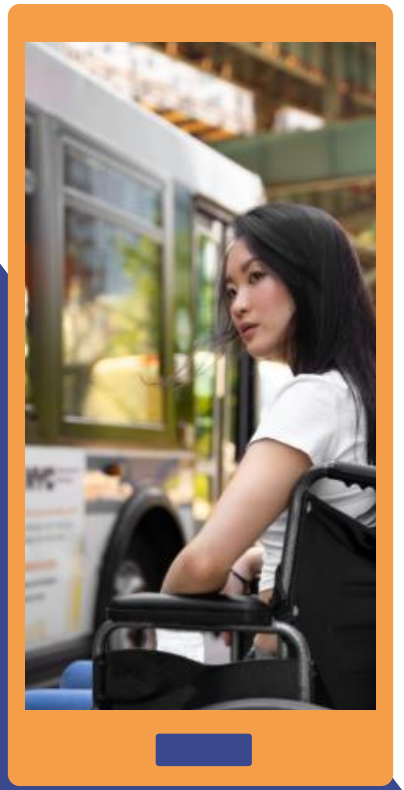
Keeping the Distance

The Relationship Between Adherence and Headway

Outliers Aside

By excluding statistical outliers, the negative correlation becomes more obvious and shows a clear relationship wherein lower adherence often correlates with higher headway percentages and deviations while more moderate adherence ranges correlate with lower headway percentages.





In Summary

1. Nearly 80% of WeGo buses ran on time, and most of the rest are only slightly off schedule.

2. Focus on fixing the problems present in west end, Nolensville pike, and Murfreesboro pike along with routes coming from downtown.

3. WeGo service is most consistent during weekday mid-day hours, with high on-time rates and reliable data.

4. Some Operators frequently leave a stop early or late, however there is little to no correlation between the Operator and timeliness.

5. When delays do occur, they impact the entire system.