Effect of Traffic on Uber's Business

This report analyzes how traffic patterns impact Uber's vehicle availability, using an integrated dataset of Uber traffic and hourly weather data. Lag features and rolling weather metrics have been computed to better understand vehicle demand in relation to environmental conditions.

Dataset Preview (first 5 rows):

2015-01-11 00:00:00 | Junction: 1 | Vehicles: 15 | ID: 20151101001
2015-01-11 01:00:00 | Junction: 1 | Vehicles: 13 | ID: 20151101011
2015-01-11 02:00:00 | Junction: 1 | Vehicles: 10 | ID: 20151101021
2015-01-11 03:00:00 | Junction: 1 | Vehicles: 7 | ID: 20151101031
2015-01-11 04:00:00 | Junction: 1 | Vehicles: 9 | ID: 20151101041

Dataset Statistics:

	DateTime	Junction	Vehicles	ID	temp	rhum	wspd	prcp	Vehicles_lag_1h	Vehicles_lag_2h	Vehicles_lag_3h	temp_roll_3h	temp_roll_6h	rhum_roll_3h	rhum_roll_6h	wspd_roll_3h	wspd_roll_6h	prcp_roll_3h	prcp_roll_6h
count	19008	48120.00	48120.00	4.812000e+04	48120.00	48120.00	48120.00	0.0	48116.00	48112.00	48108.00	48120.00	48120.00	48120.00	48120.00	48120.00	48120.00	0.0	0.0
mean	2016-09-29 04:57:16.363636224	2.18	22.79	2.016330e+10	24.68	60.88	3.24	NaN	22.79	22.79	22.79	24.68	24.68	60.88	60.88	3.24	3.24	NaN	NaN
min	2015-01-11 00:00:00	1.00	1.00	2.015110e+10	0.50	7.00	0.00	NaN	1.00	1.00	1.00	2.59	4.90	7.33	8.17	0.00	0.00	NaN	NaN
25%	2016-04-06 23:45:00	1.00	9.00	2.016042e+10	21.17	41.00	0.00	NaN	9.00	9.00	9.00	21.30	21.56	41.33	42.65	0.00	0.60	NaN	NaN
50%	2016-09-21 23:30:00	2.00	15.00	2.016093e+10	24.70	64.67	2.40	NaN	15.00	15.00	15.00	24.74	24.75	64.33	63.50	2.40	2.60	NaN	NaN
75%	2017-04-05 11:15:00	3.00	29.00	2.017023e+10	28.63	82.00	5.40	NaN	29.00	29.00	29.00	28.52	28.21	81.67	80.50	5.07	5.10	NaN	NaN
max	2017-12-06 23:00:00	4.00	180.00	2.017063e+10	40.00	100.00	77.80	NaN	180.00	180.00	180.00	39.37	38.92	98.67	98.33	62.16	43.23	NaN	NaN
std	NaN	0.97	20.75	5.944854e+06	6.13	23.69	3.51	NaN	20.75	20.75	20.75	6.02	5.71	23.28	22.19	3.40	3.19	NaN	NaN