



The Impact of the Pandemic on U.S. Airspace System Performance

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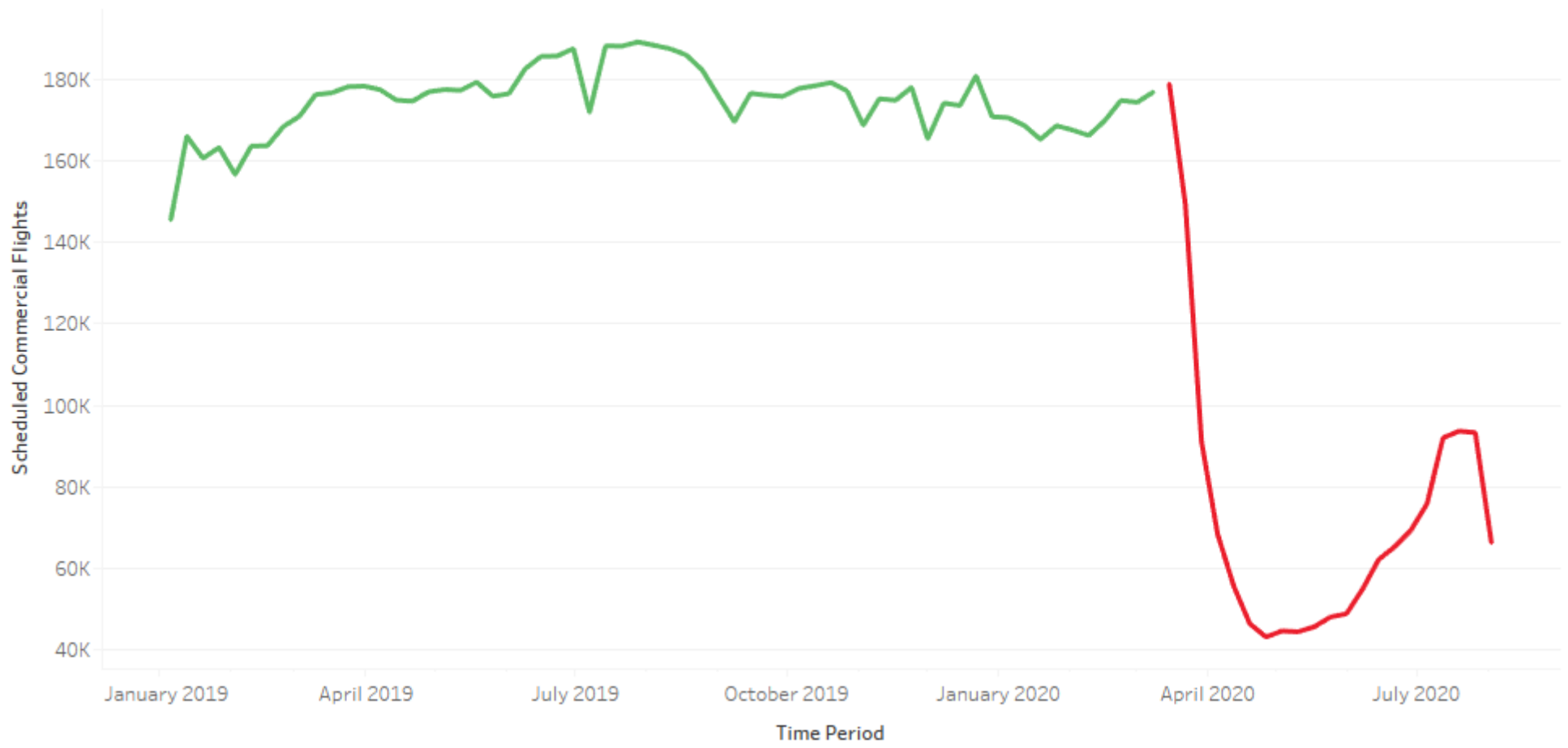
University of Maryland

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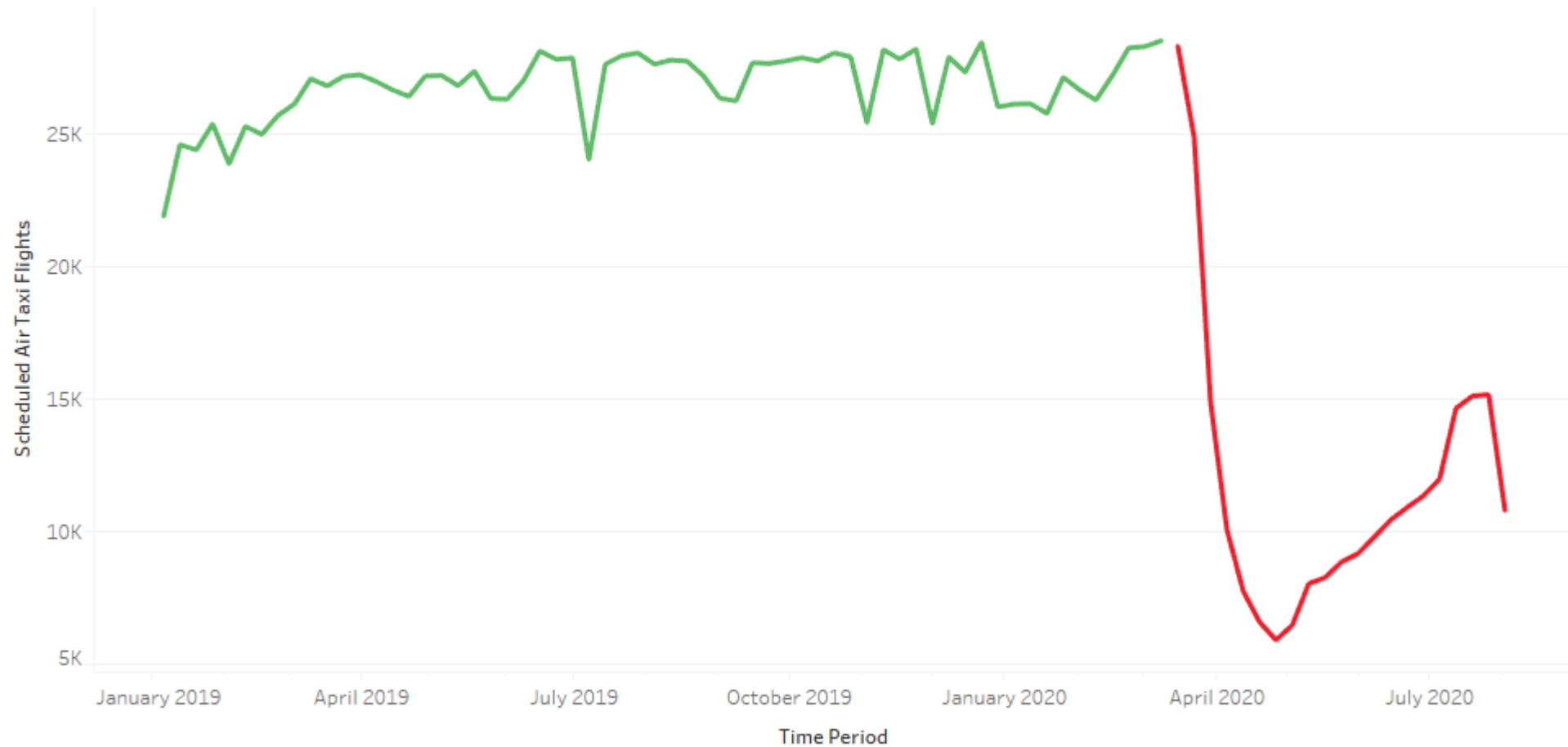
Number Weekly Scheduled Commercial Flights (ASPM Data / US Domestic):

Weekly Scheduled Commercial Flights



Air Taxi Weekly Flight Counts (ASPM Data / US Domestic):

Weekly Scheduled Air Taxi Flights



Air Cargo Weekly Flight Counts (ASPM Data / US Domestic):

Weekly Scheduled Freight Flights



How many airport pairs lost service?

Have service → 6+ flights per week

No Service → < 3 flights per week

Lost Service

Count: 1118 City Pairs

#: 25



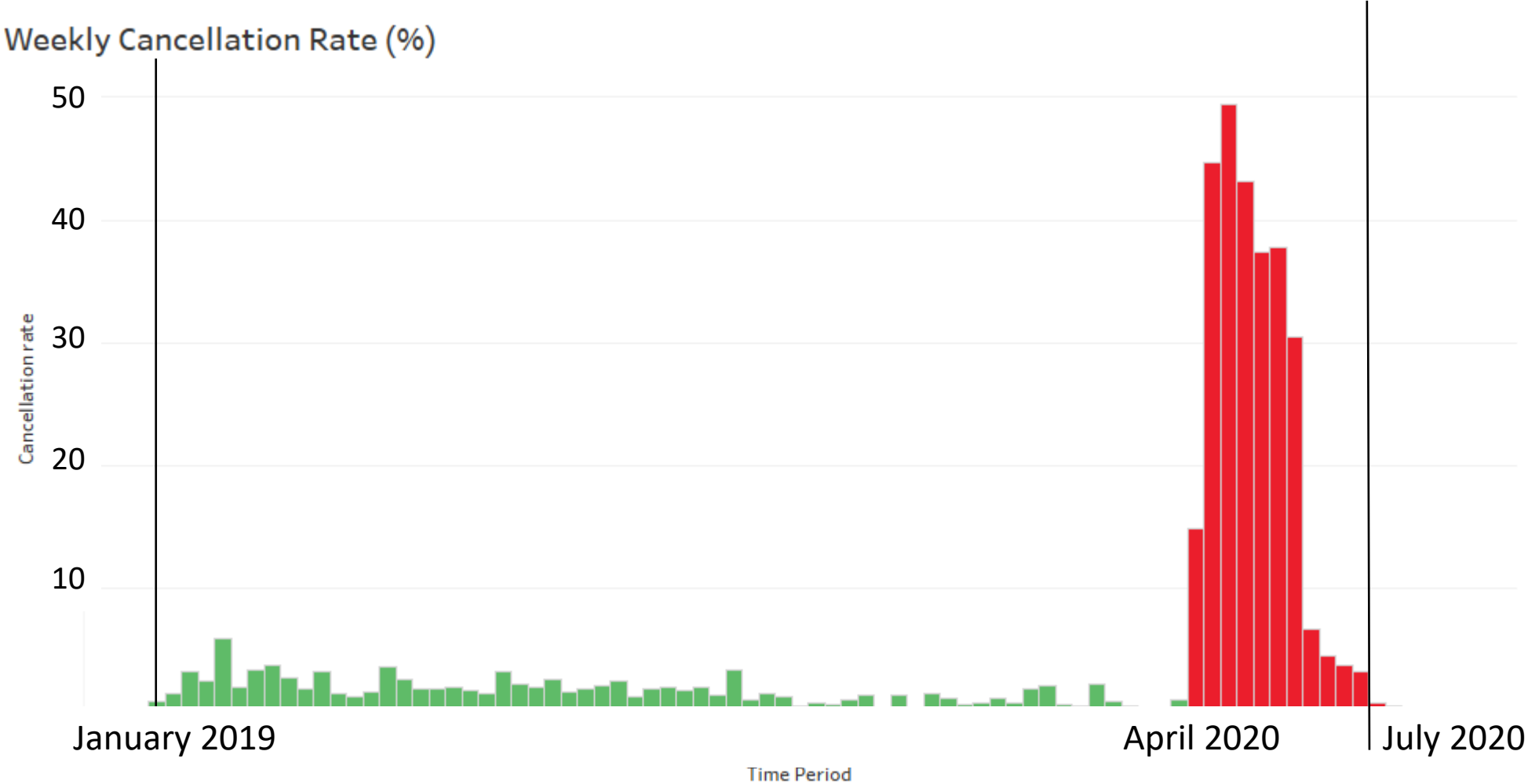
Flights that lost service in Apr-July 2020

FREQ 2019 (weekly)	6-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60
Count	536	247	198	83	26	5	7	6	4
%	52	31	29	19	8	2	4	5	4

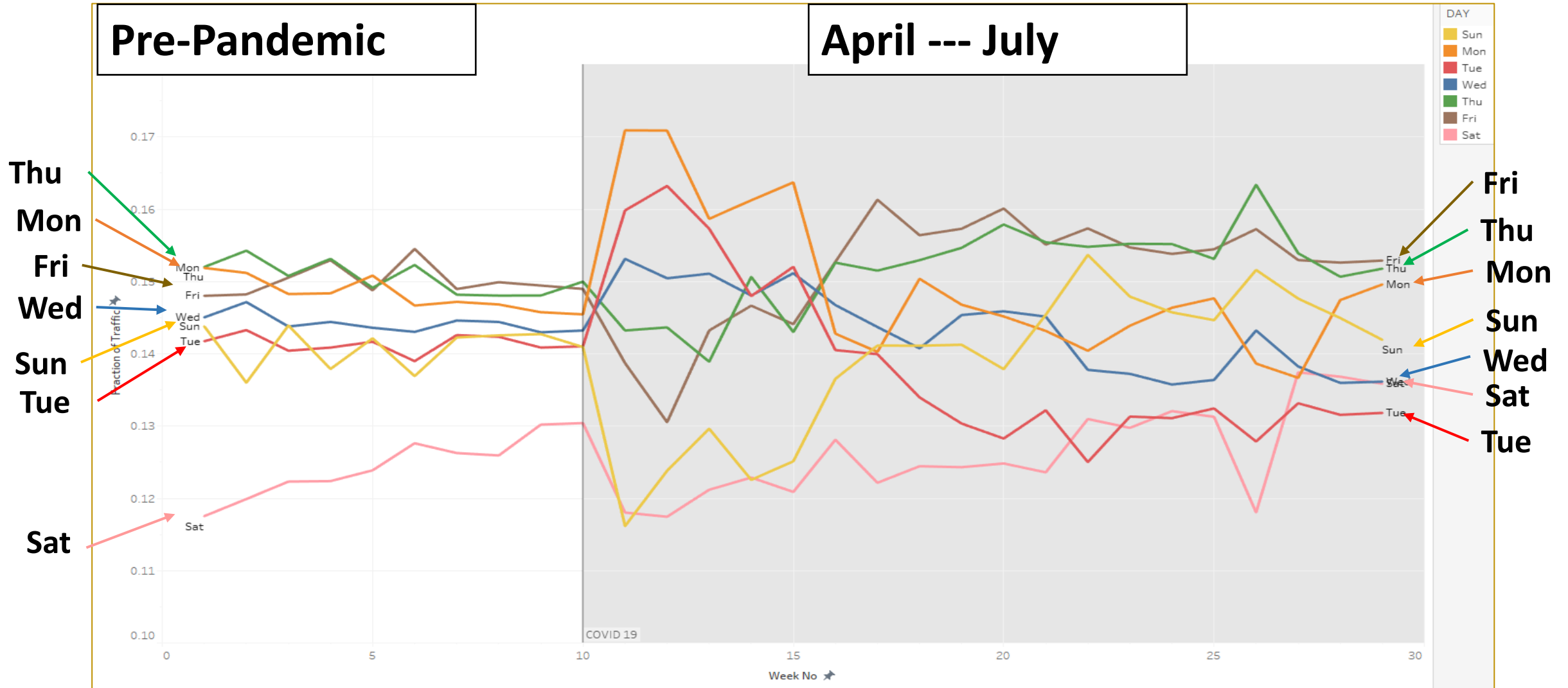
Examples:

PAIR	2019 FREQ	PAIR	2019 FREQ	PAIR	2019 FREQ	PAIR	2019 FREQ	PAIR	2019 FREQ
BOS-DAL	7	DAL-OKC	21	PIT-IAH	34	OGG-SFO	46	LGA-RIC	56
IAD-SHD	7	SFO-BWI	20	ELM-DTW	33	LGA-GSO	46	LAX-SAT	60
SBN-MSP	16	MCO-SLC	26	MSY-EWR	40	ATL-CHA	52		
MSP-BOI	16	RDU-MSP	25	TPA-RDU	38	LGA-PBI	51		

Weekly Cancellation Rates: Commercial Only (BTS)

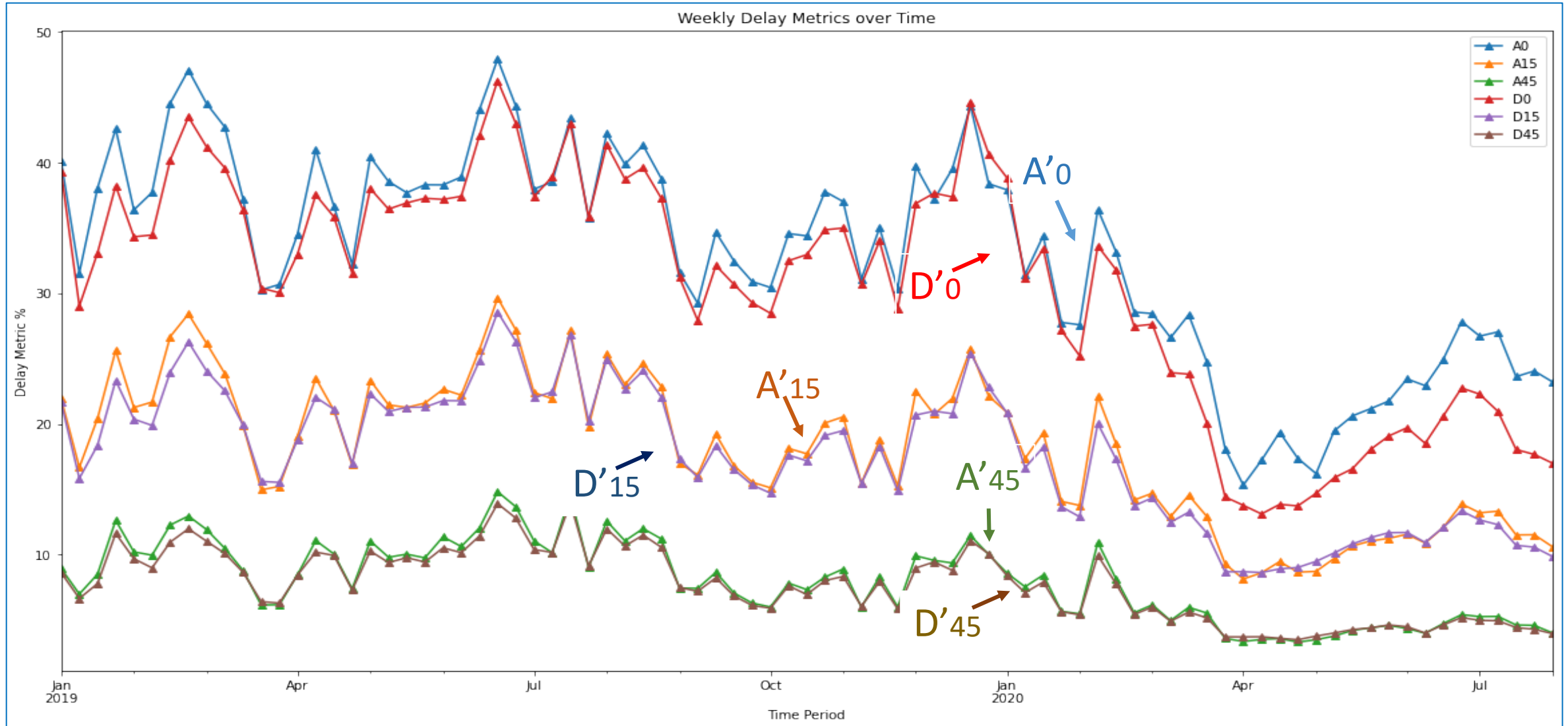


Fraction of weekly traffic by day-of-week:

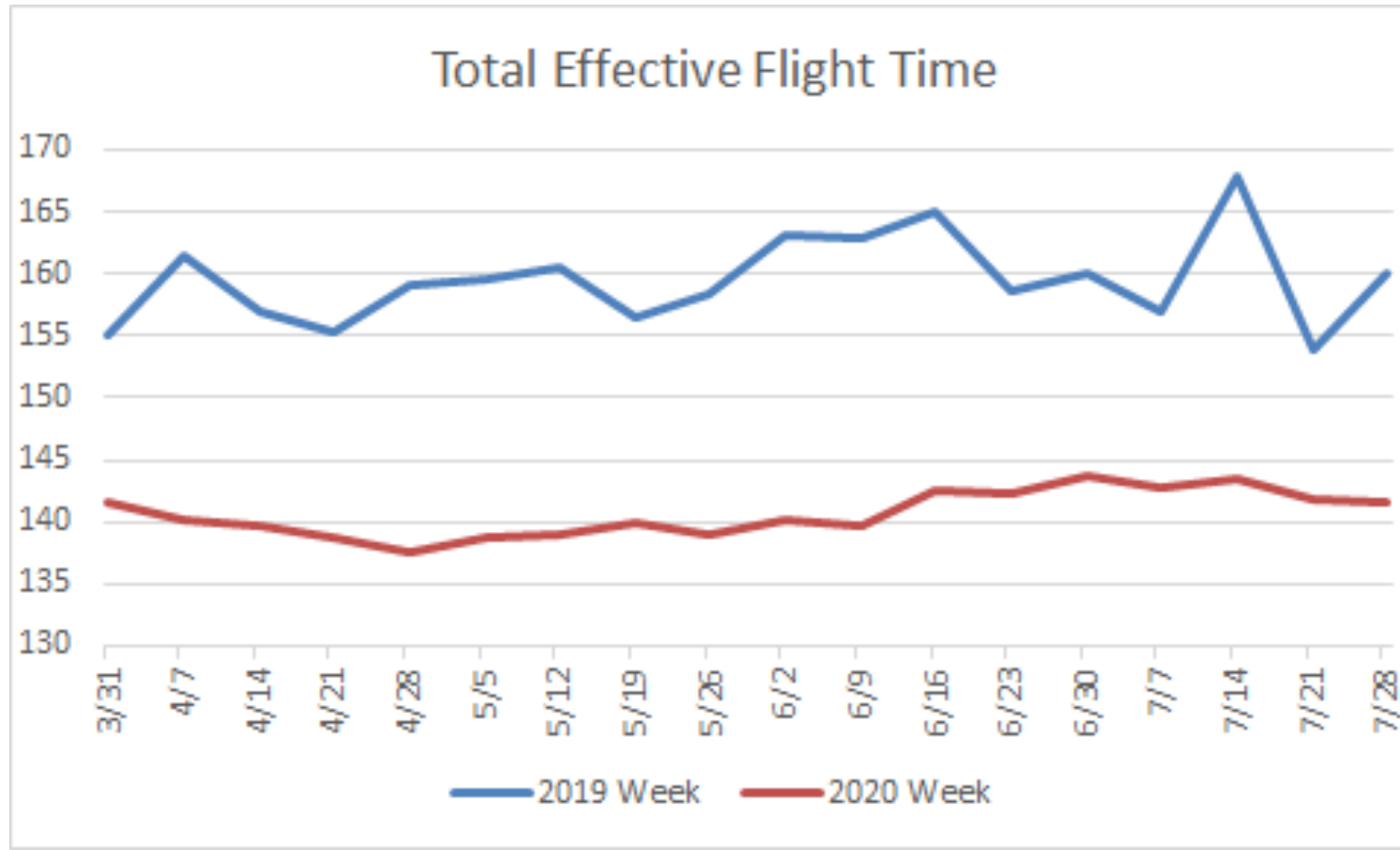
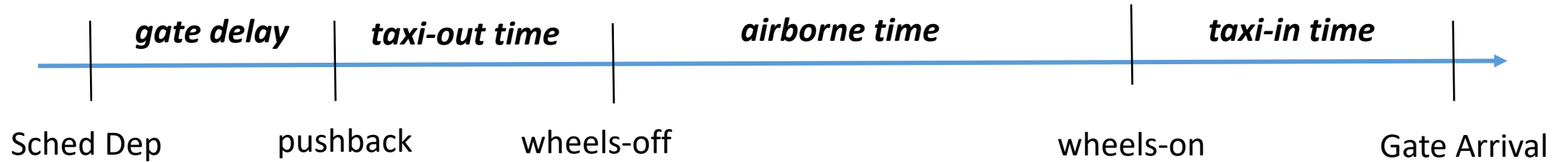


Commercial Flight Delay Metrics:

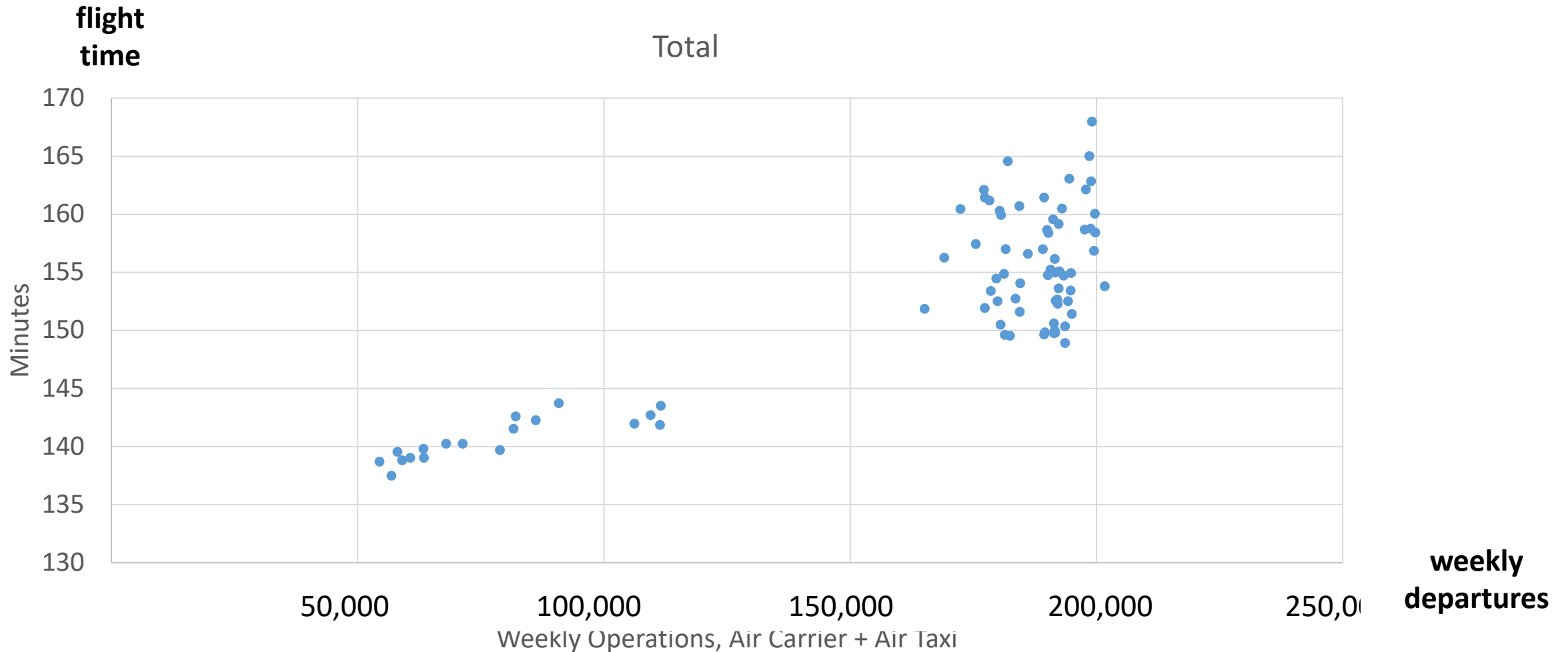
A'_x = % flights w arrival delay $\geq x$; D'_x = % flights w arrival delay $\geq x$



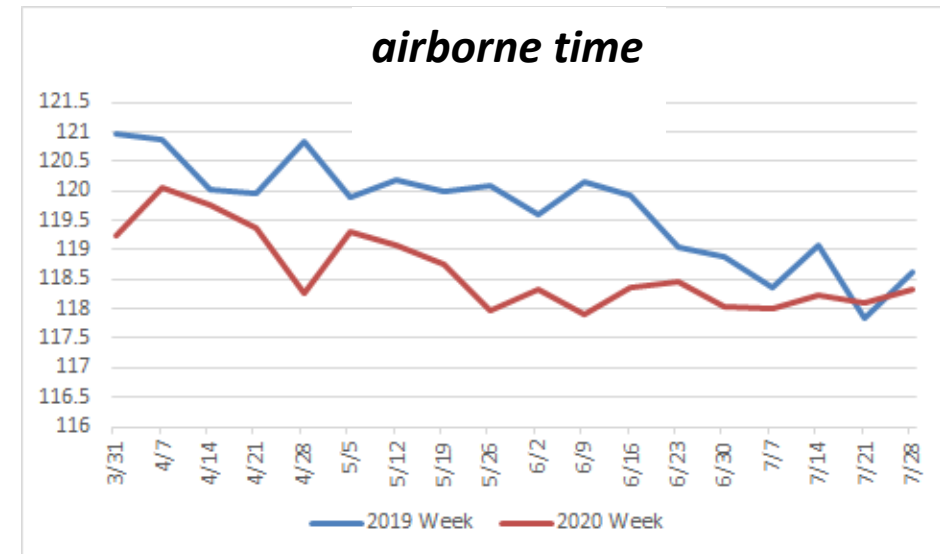
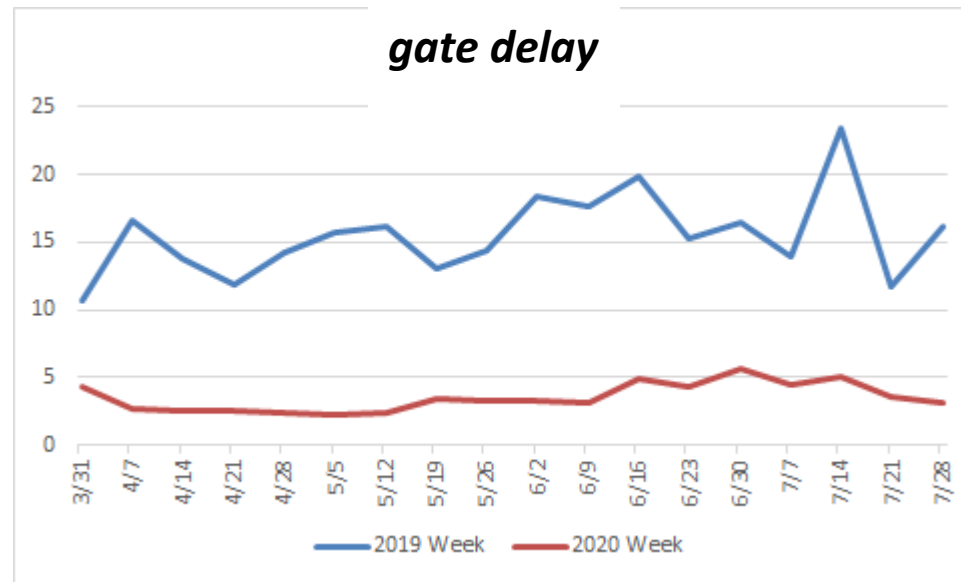
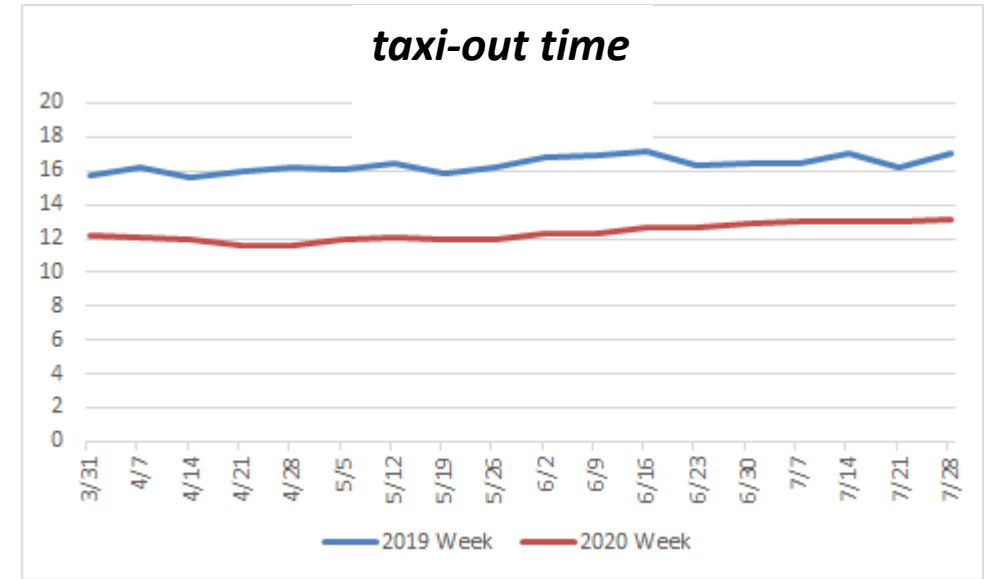
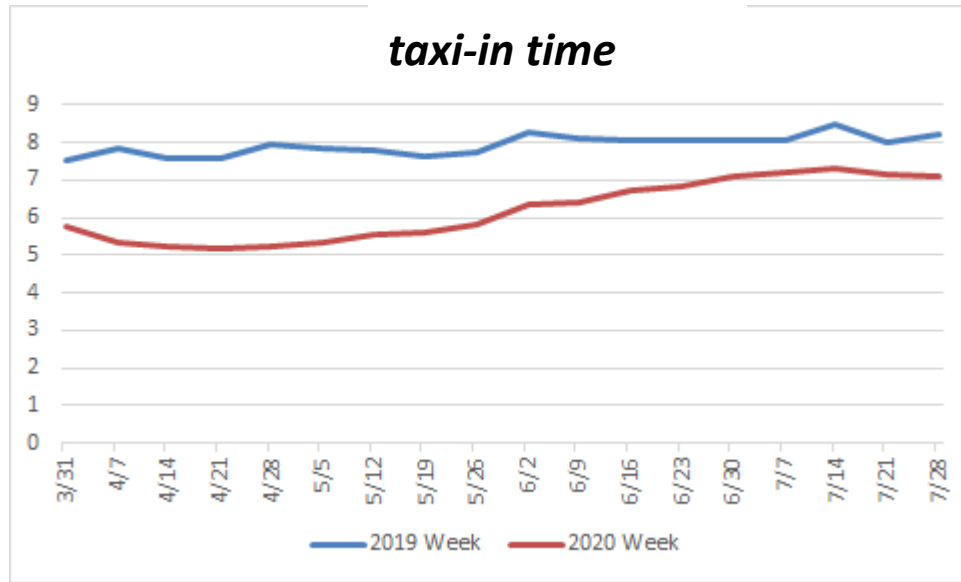
Breaking Down Performance: Total Effective Flight time



Total Effective Flight Time vs Demand



Breaking Down Flight Time: Gate Delay, Taxi-in, Taxi-out and Airborne



Drill-Down on Airborne Time

**Comparison of Airborne Time:
April-July 2019 vs April-July 2020**

A-Time Range 2019 (Min)	0-50	50-100	100-150	150-200	200-250	250-300	300-350	350-400
A-Time Reduction in 2020 (Min)	0.51	1.16	1.63	1.58	1.97	4.89	3.16	6.61
%	1.33%	1.57%	1.30%	0.92%	0.89%	1.76%	0.99%	1.83%

Final Thoughts

- Flight operations are down significantly with small communities more adversely impacted (as expected) – demand is recovering slowly
- The unprecedented low level of operations provides an opportunity to better understand how the system reacts to changes in demand
- A deeper dive ways could reveal ways to adjust system structure and management to improve operations as demand returns