

Simulating Microtransit

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TransLoc

What is microtransit?

***Microtransit is a flexible and dynamic
demand-driven transportation service***

***Microtransit is a flexible and dynamic
demand-driven transportation service
^
agency-owned***

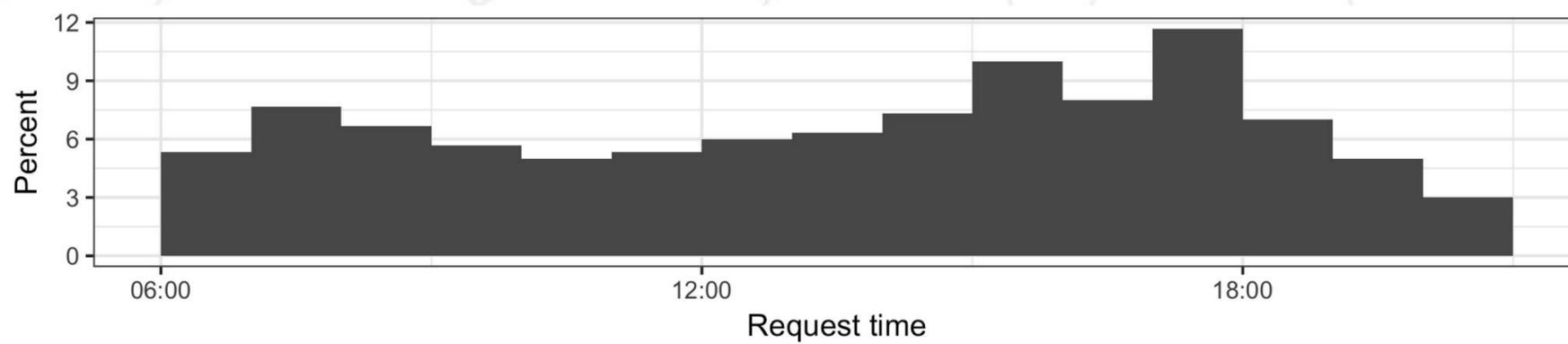
Why is simulation important?

***Microtransit is a flexible and dynamic
demand-driven transportation service***

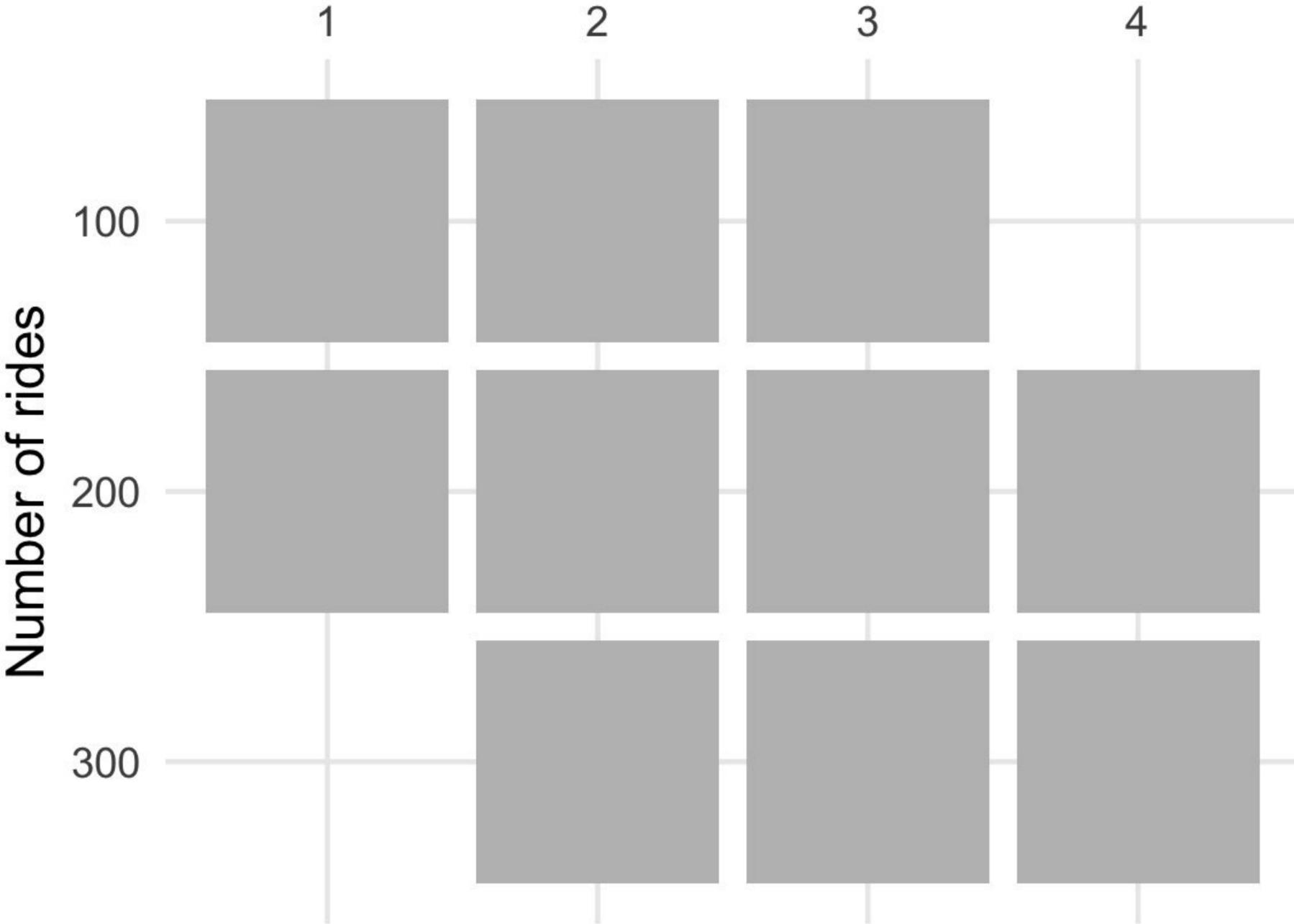


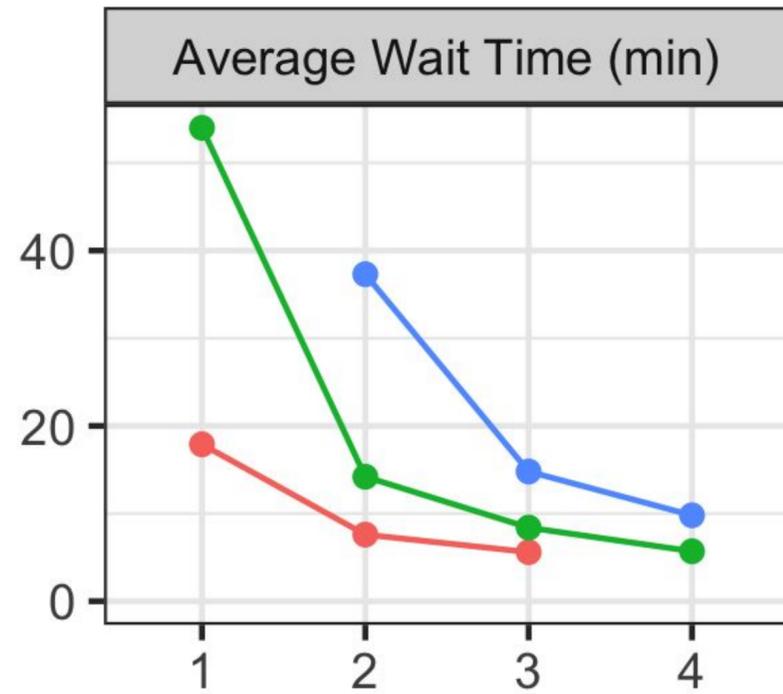
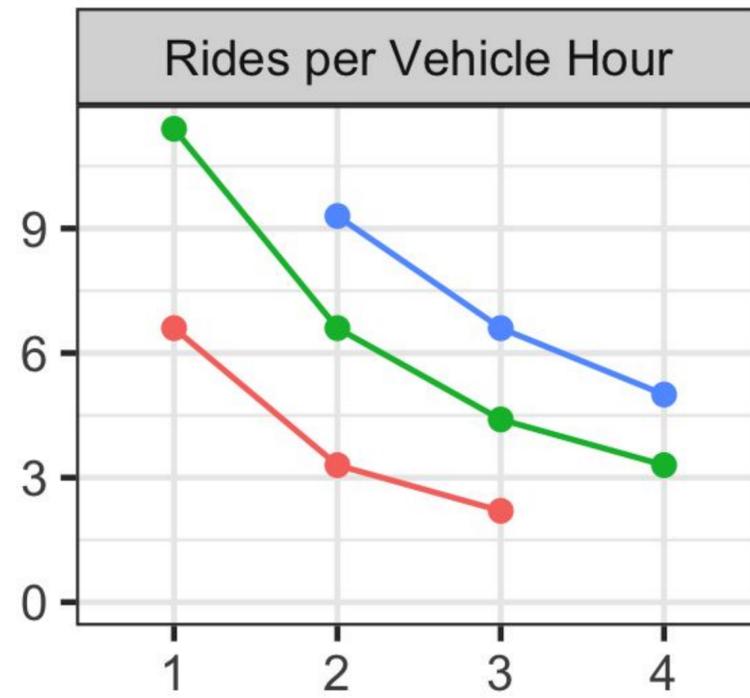
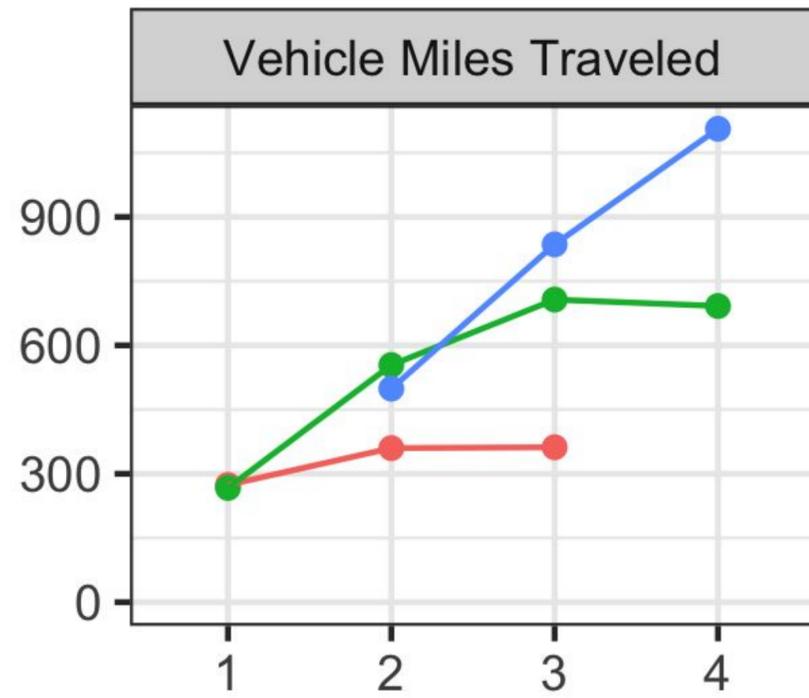
Simulation provides
a glimpse into the
future of a
microtransit service
... before there are
vehicles on the road



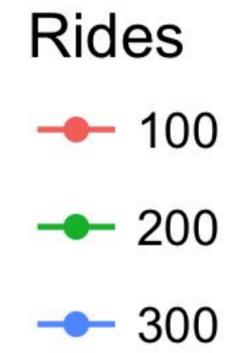


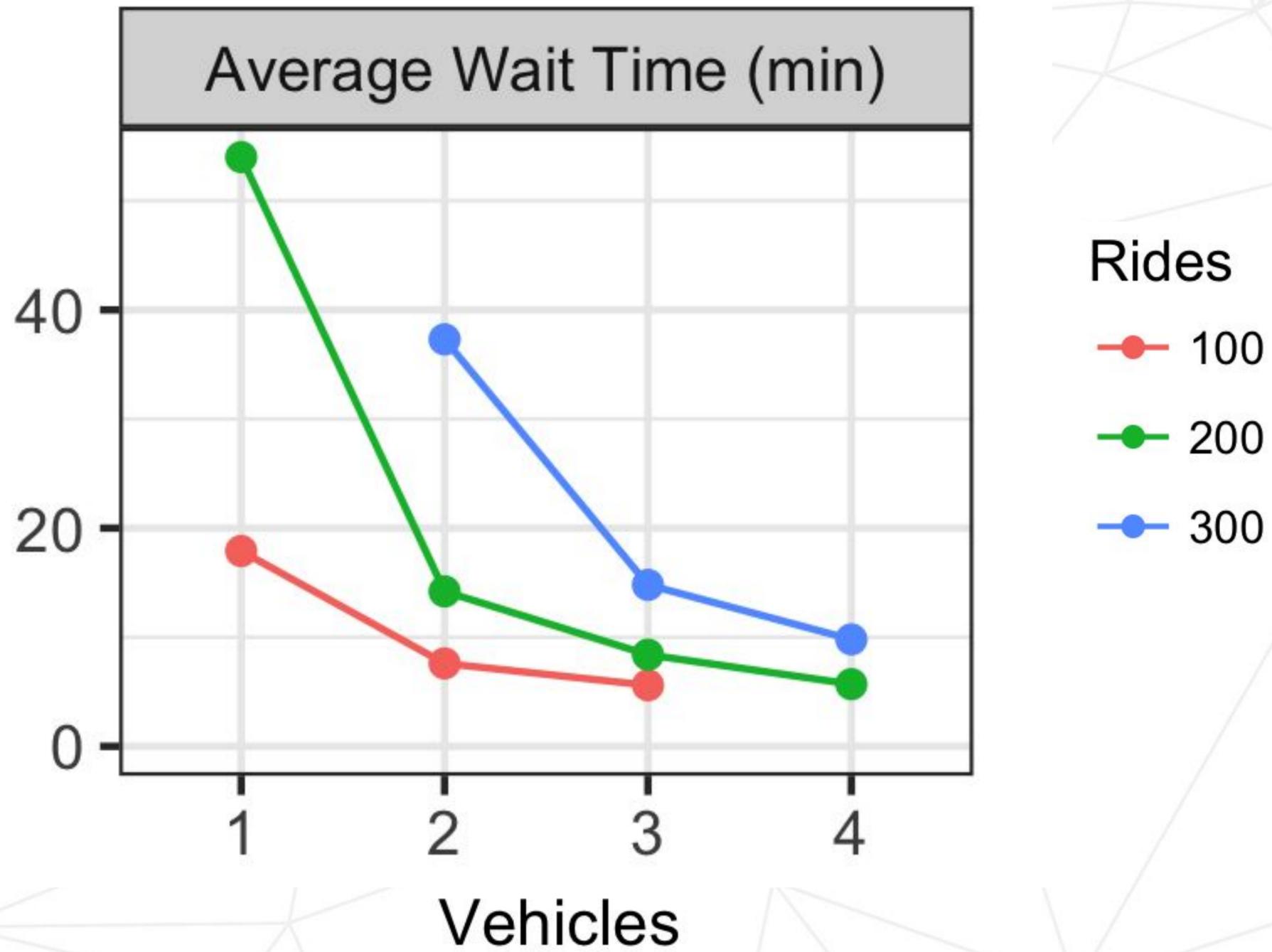
Number of vehicles

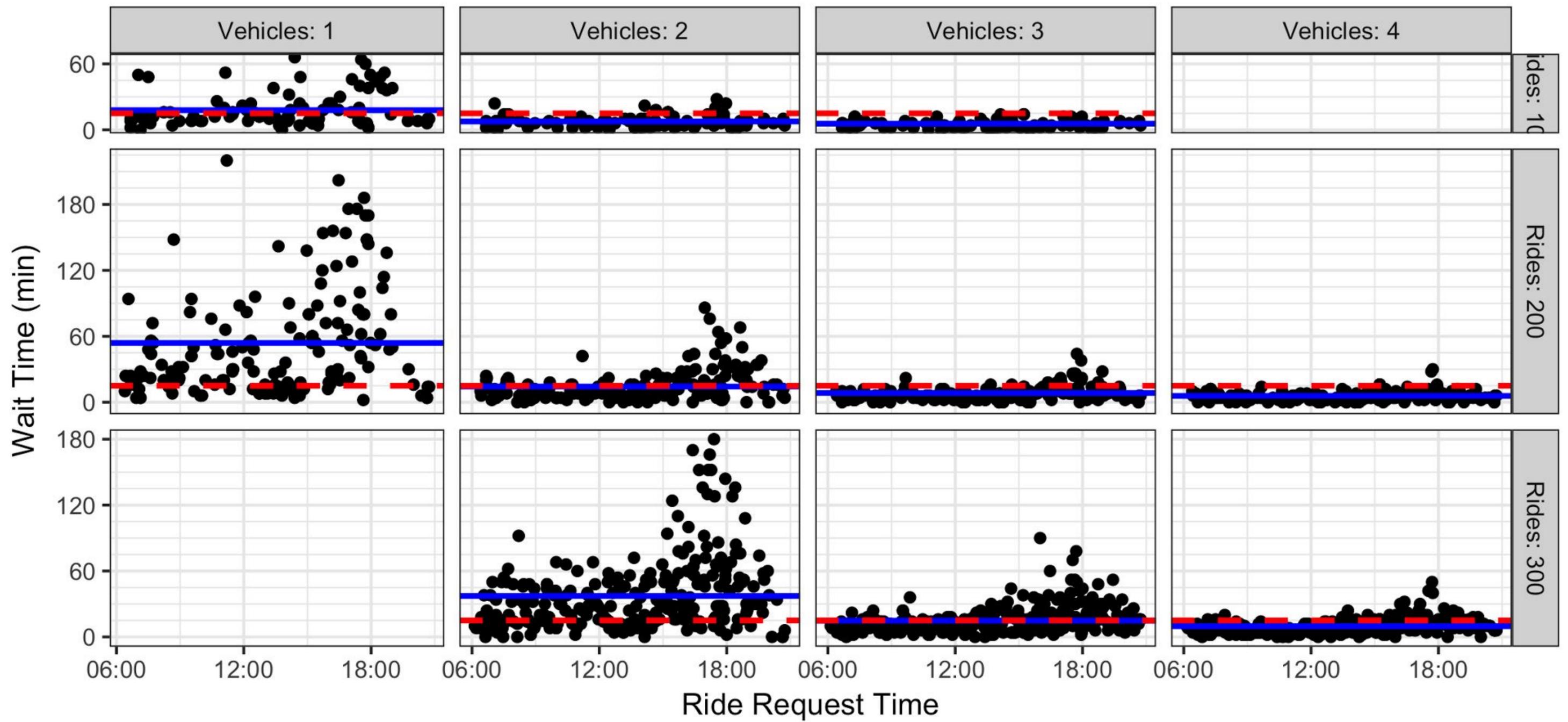


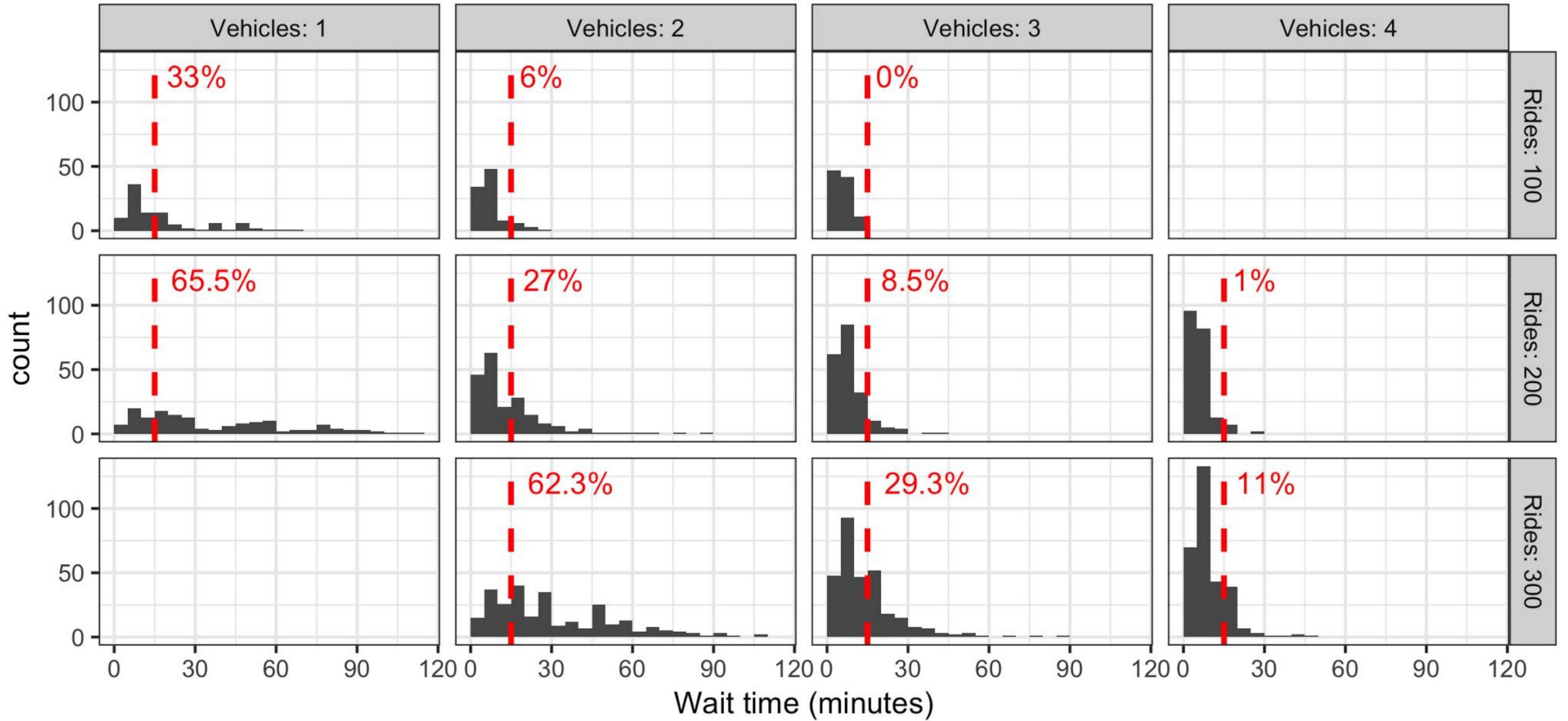


Vehicles









Operating Efficiency

Rides	Vehicles	Vehicle Miles Traveled	Average Miles per Vehicle	Revenue Hrs per Vehicle	Vehicle Utilization (trips per vehicle hr)*
100	1	274	274	13/15	6.6
100	2	360	180	7.5/15	3.3
100	3	362	121	5/15	2.2
200	1	267	267	14/15	11.4
200	2	554	277	12.5/15	6.6
200	3	707	236	10/15	4.4
200	4	692	173	7.5/15	3.3
300	2	499	250	13.5/15	9.3
300	3	836	279	13.3/15	6.6
300	4	1,106	277	12.2/15	5

Ride Quality

Rides	Vehicles	Served (%)	Average Wait Time (min)	95%ile Wait Time (min)*	Average Ride Duration (min)	95%ile Ride Duration (min)*	Average Total Trip Time*
100	1	100	17.9	50.1	10.4	32.3	28.4
100	2	100	7.6	18.1	6.9	14.1	14.6
100	3	100	5.6	12.1	6.4	12	12
200	1	88.5	54	158.1	18.3	72.3	72.3
200	2	100	14.2	42	10.2	26.1	24.4
200	3	100	8.4	22	7.6	16.1	16
200	4	100	5.7	14	7.2	14	13
300	2	96.3	37.3	109.1	21.3	61.1	58.6
300	3	100	14.8	36.1	12	28.1	26.8
300	4	100	9.8	20.1	9.1	20	18.8

Vehicle Capacity

Rides	Vehicles	% Ride Sharing	Average Load	% Time w/ 7+ Rides
100	1	85	1.8	0
100	2	44	1.3	0
100	3	29	1.2	0
200	1	86	4	15
200	2	77	1.7	1
200	3	48	1.3	0
200	4	37	1.2	0
300	2	95	3.5	11
300	3	81	1.7	0
300	4	53	1.3	0

Why is simulation important?

Why is simulation important?

- Informing service design
- Preparing for dynamic operations
- Reducing risk

Questions?

Ride ID	Vehicle	Request time	Mins. until pickup	Pickup lat.	Pickup long.	Pickup time	Dropoff time	Mins. on vehicle	Dropoff lat.	Dropoff long.
101	1	06:32	0	39.023	-94.646	06:32	06:44	12	38.972	-94.699
2	1	06:44	4	38.974	-94.697	06:48	06:54	6	38.972	-94.699
5	1	07:00	6	38.987	-94.697	07:06	07:14	8	38.972	-94.699
103	1	07:02	4	38.987	-94.697	07:06	07:14	8	38.972	-94.699
9	1	07:30	2	38.978	-94.702	07:32	07:58	26	38.972	-94.699
10	1	07:32	4	38.983	-94.695	07:36	07:58	22	38.972	-94.699
12	1	07:34	6	38.985	-94.7	07:40	07:58	18	38.972	-94.699
14	1	07:36	16	38.974	-94.697	07:52	08:10	18	39.023	-94.646
110	1	07:36	2	38.985	-94.694	07:38	07:58	20	38.972	-94.699

