

APPENDIX



Figure A1. Test vehicles. From left, 2016 Toyota Avalon, 2018 Dodge Caravan, 2018 Ford F-150.

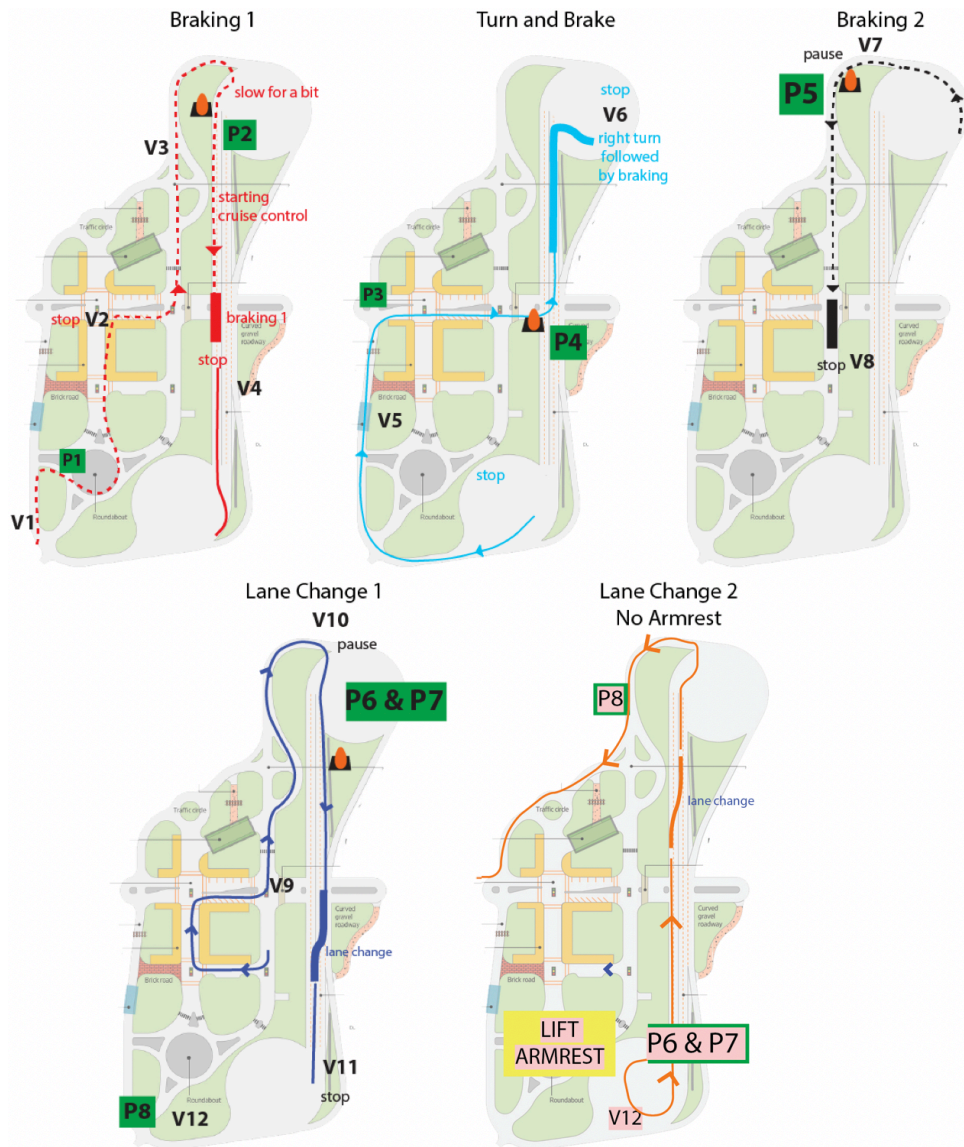


Figure A2. Vehicle route and event positions at Mcity. Events appear from left to right, top to bottom in the order in which they were presented.

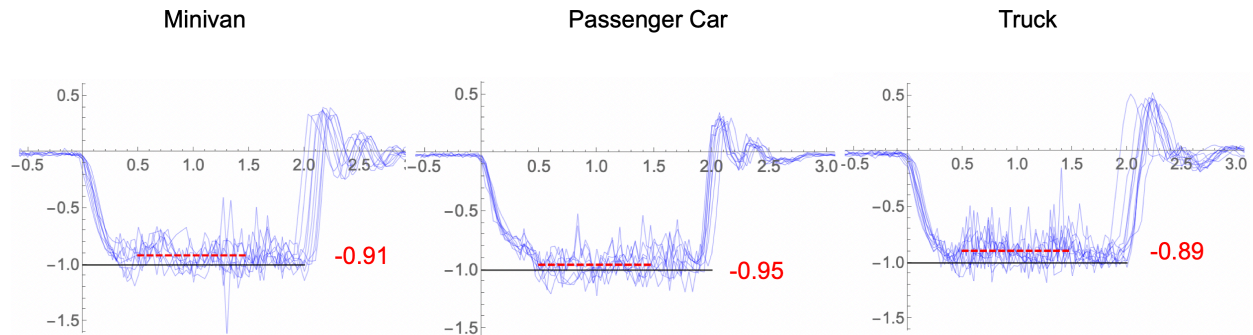


Figure A3. Vehicle longitudinal accelerations (g) during the first braking event. Mean values between 0.5 and 1.5 seconds are shown.

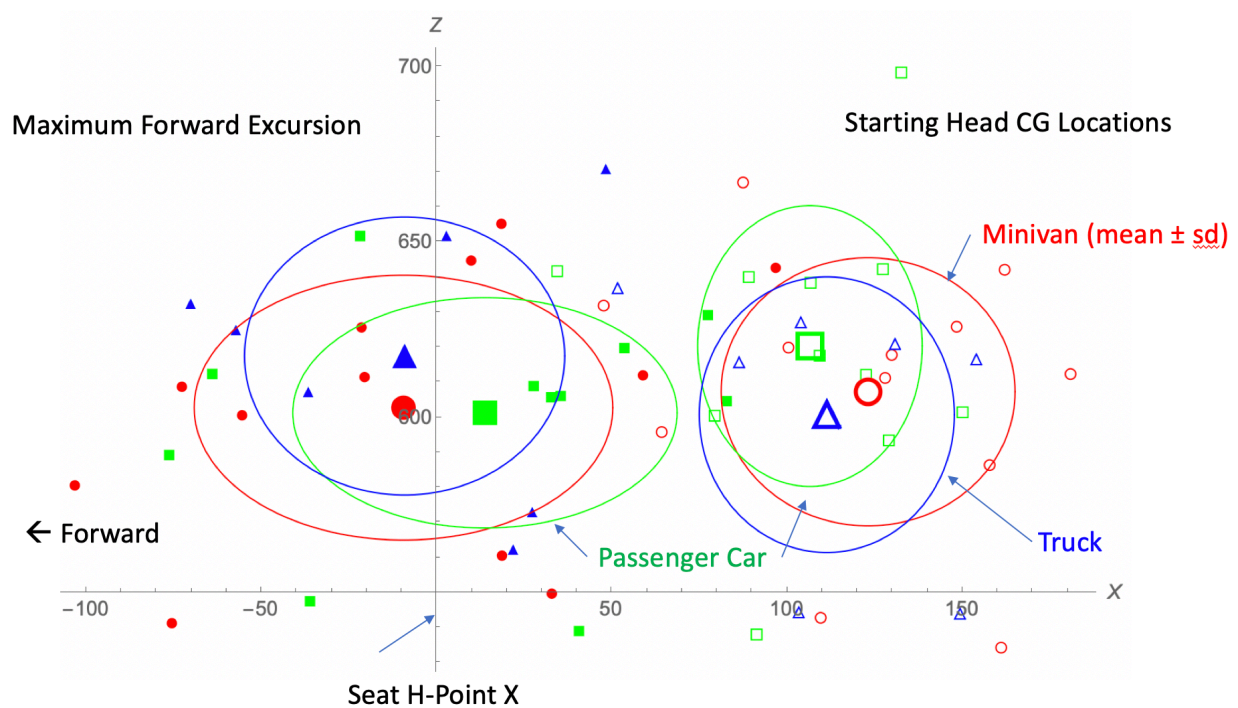


Figure A4. Head CG excursions in the **second** braking event (B2) in side view (mm). Head CG locations at the start of the event (open symbols) and at the point of maximum forward excursion (filled symbols) are shown for the truck (triangle), minivan (circle), and passenger car (square). The mean for each vehicle is shown with larger symbols. The ellipses for each vehicle have axes with length \pm one standard deviation on each axis.

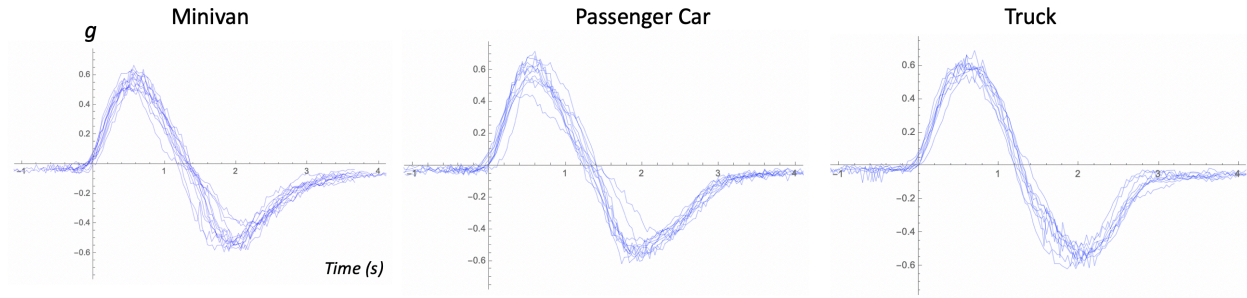


Figure A5. Vehicle lateral accelerations (g) during the first lane-change event.

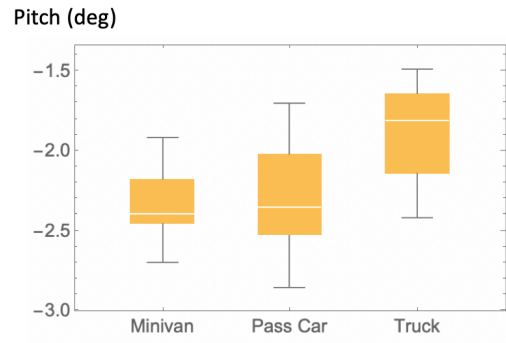


Figure A6. Box plot of vehicle pitch in braking events. Negative values indicate the front of the car is lower.

	IMU re HPt			mean head location re HPt			IMU re mean head			
Vehicle	X	Y	Z	X	Y	Z	X	Y	Z	Distance
Minivan	109	-430	-282	134	7	627	25	437	909	1009
Pass	119	-371	-104	122	-23	621	3	348	725	805
Truck	62	-467	-242	138	-6	627	76	461	869	986
Column Mean	96	-423	-209	131	-7	625	35	415	834	933
	delta re mean head			% re mean head						
Vehicle	X	Y	Z	Distance	X	Y	Z	Distance		
Minivan	-10	22	75	76	-27%	5%	9%	8%		
Pass	-32	-67	-109	-128	-91%	-16%	-13%	-14%		
Truck	41	45	34	53	118%	11%	4%	6%		

Table A1. Comparison of IMU locations across vehicles (mm). The table shows the IMU location with respect to H-point and mean head location. The differences across vehicles in mm and percentage relative to the mean are also shown.