



# Variable Speed Limit Study Upstream of an Indiana Work Zone with Vehicle-Matching

Michelle M. Mekker<sup>1</sup>, Stephen M. Remias<sup>2</sup>, Wayne A. Bunnell<sup>1</sup>, Drake W. Krohn<sup>1</sup>, Edward D. Cox<sup>3</sup>, Darcy M. Bullock<sup>1</sup>

1: Purdue University; 2: Wayne State University 3: Indiana Department of Transportation



Follow us on Twitter @JTRP1937 or search #PurdueTLab

## Variable Speed Limits Signs

Single Variable Speed Limit Sign at I-65 NB Mile Marker 79



Paired Variable Speed Limit Signs at I-65 NB Mile Marker 79

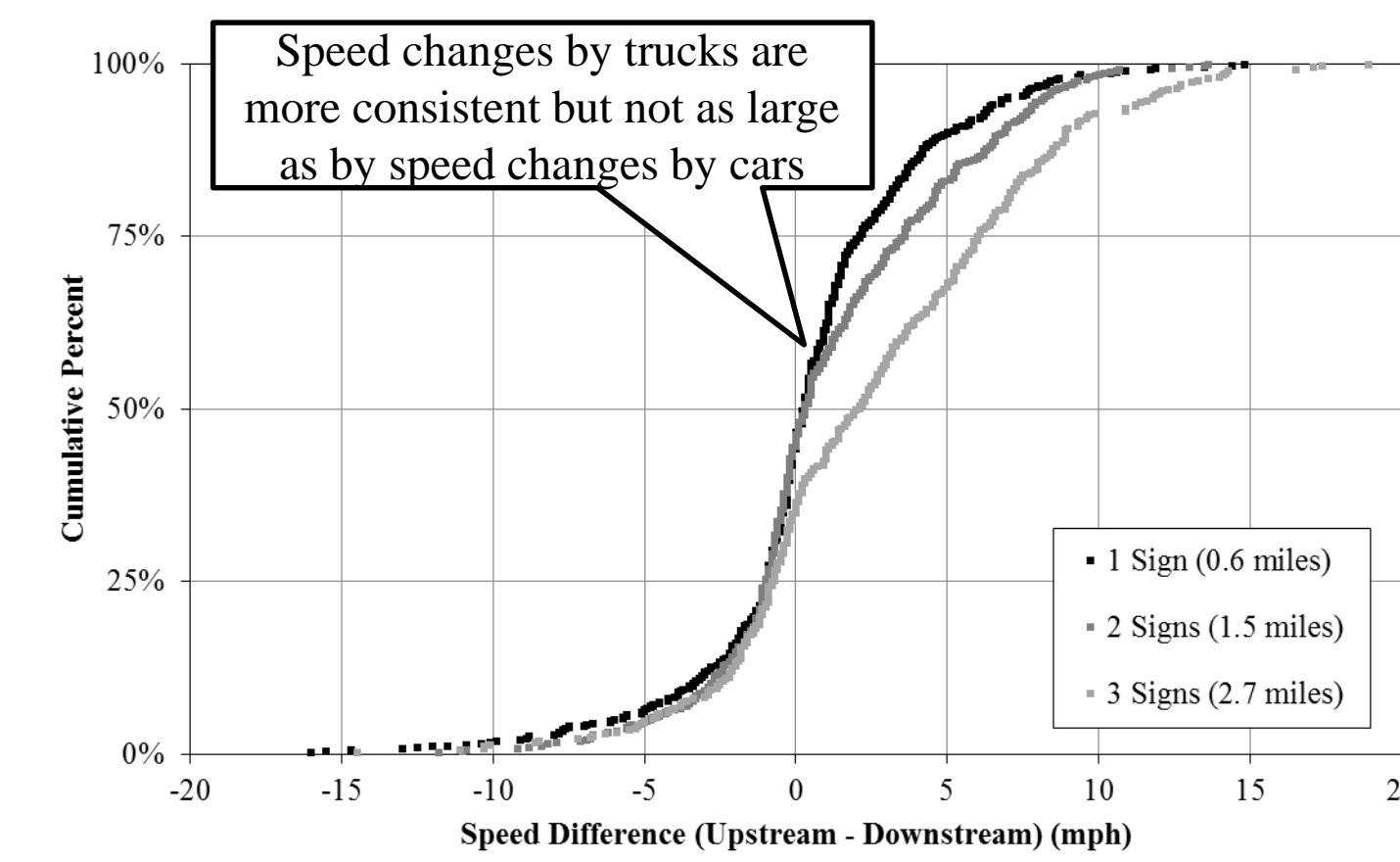
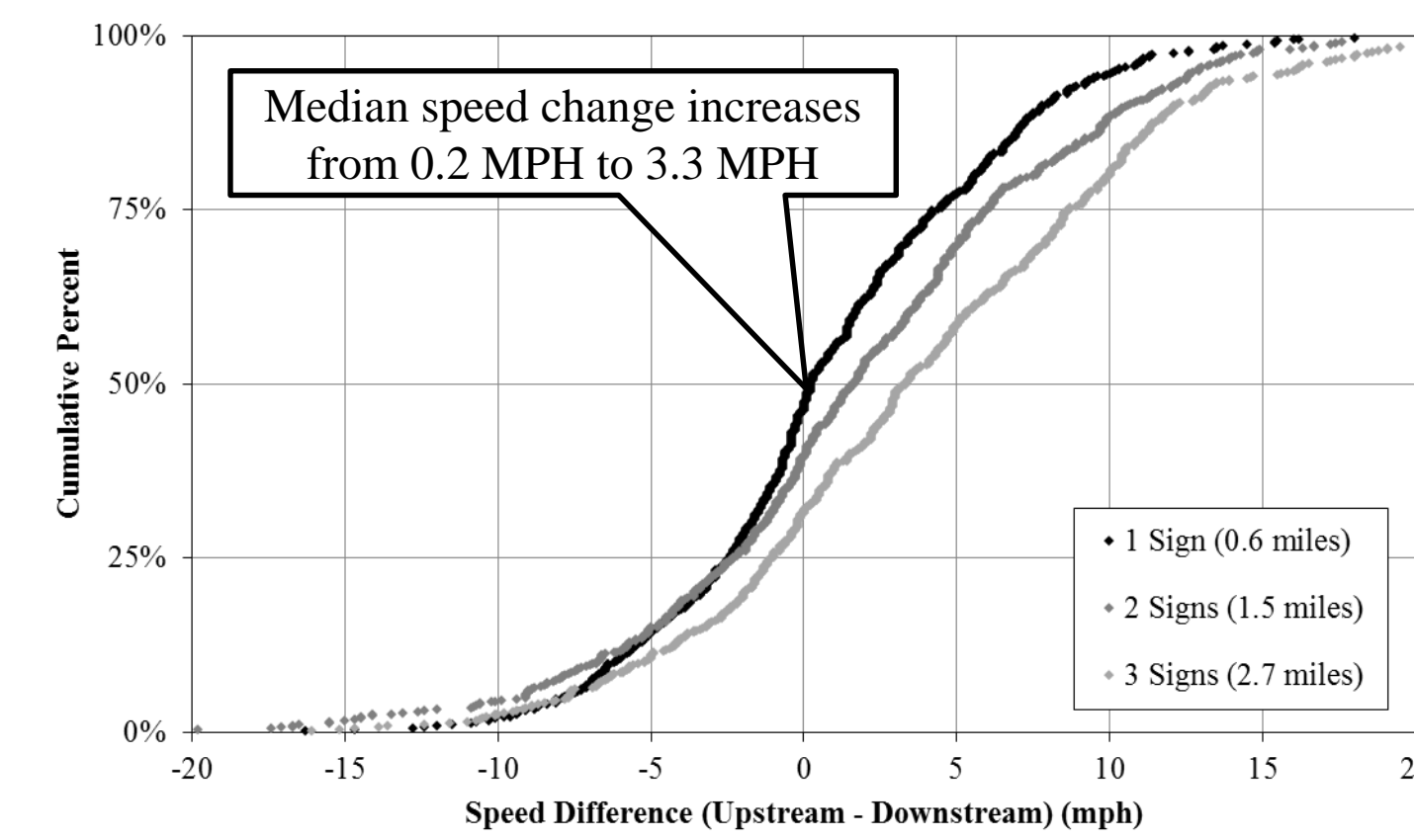
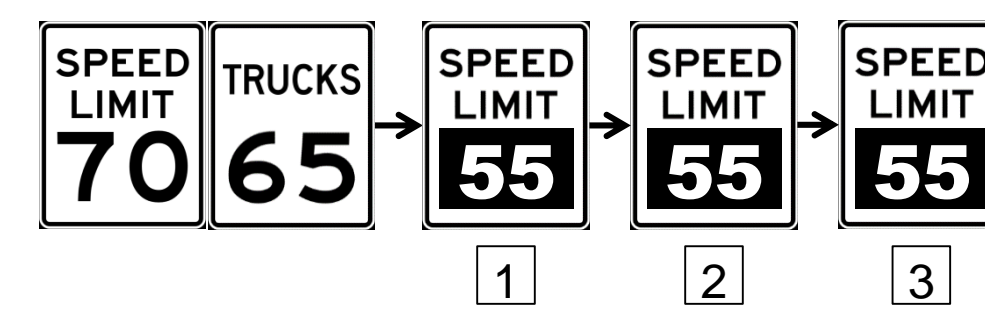


Map of Sign and Sampling Locations

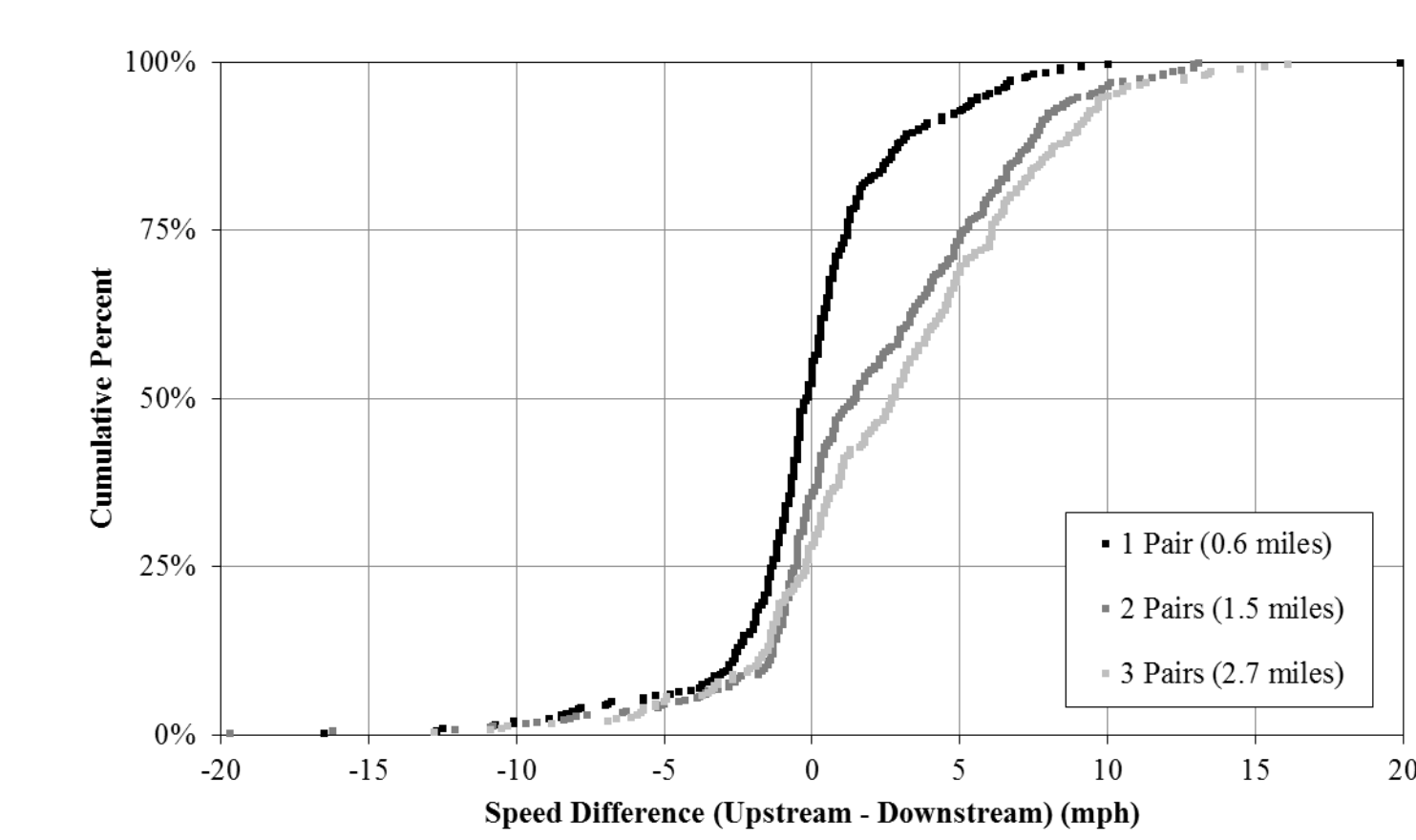
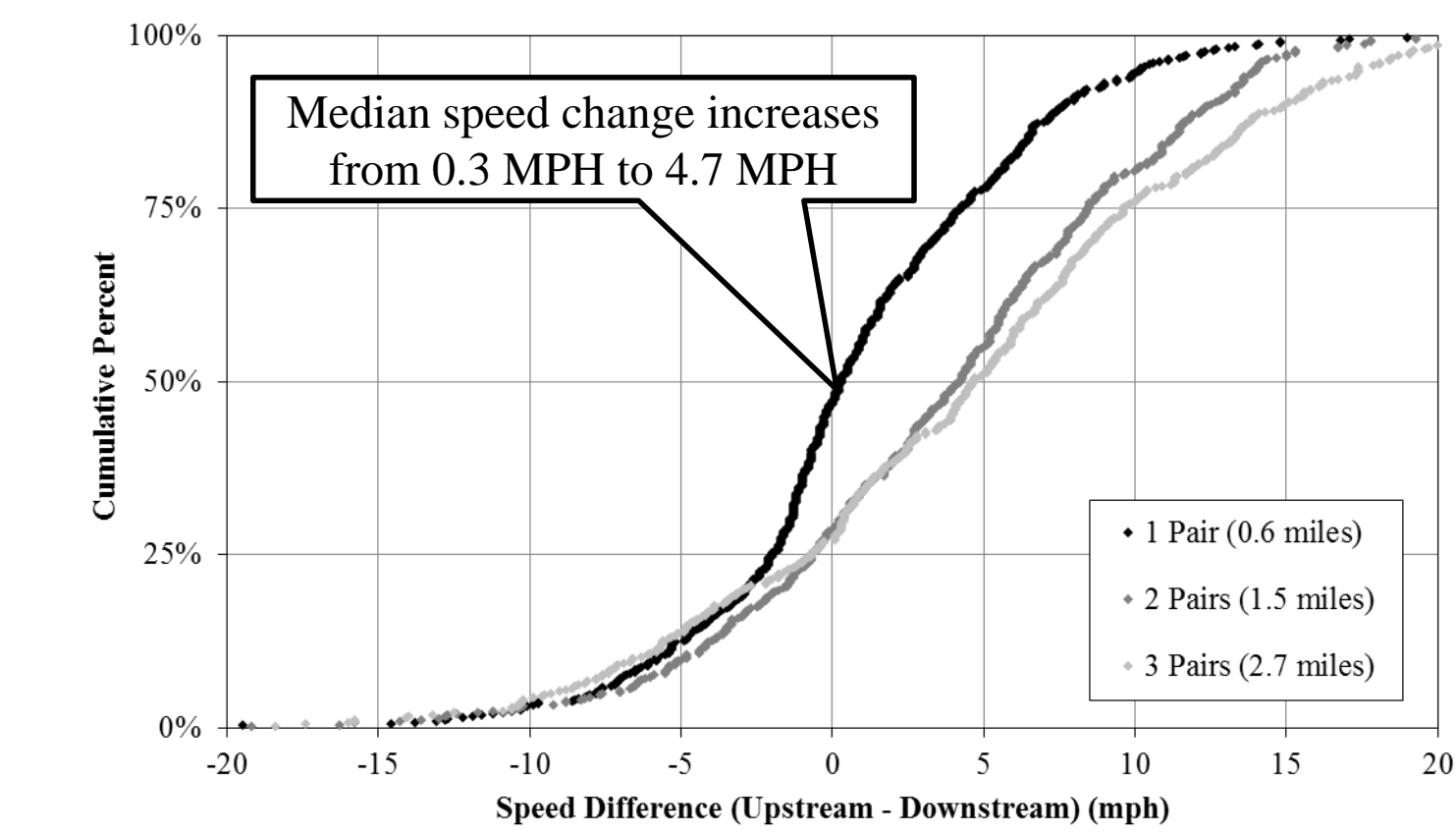
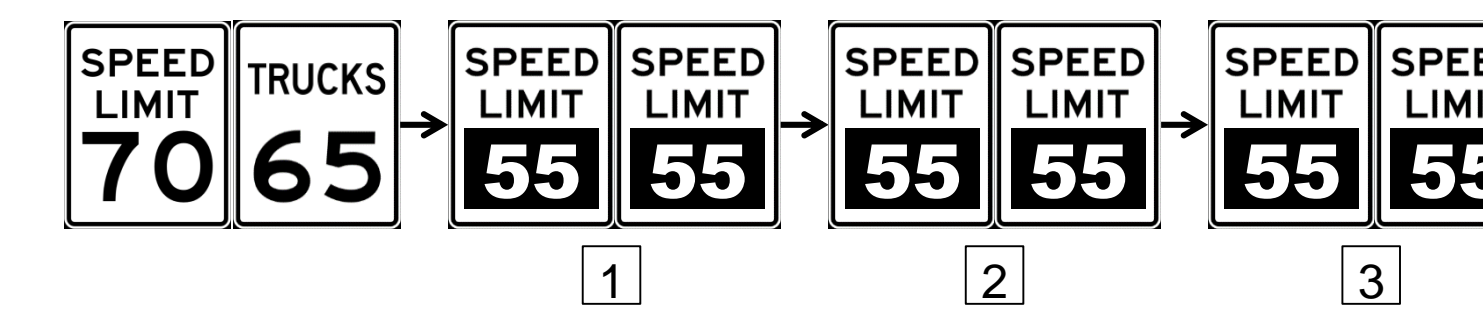


## Longitudinal Comparison of Distributions of Speed Changes

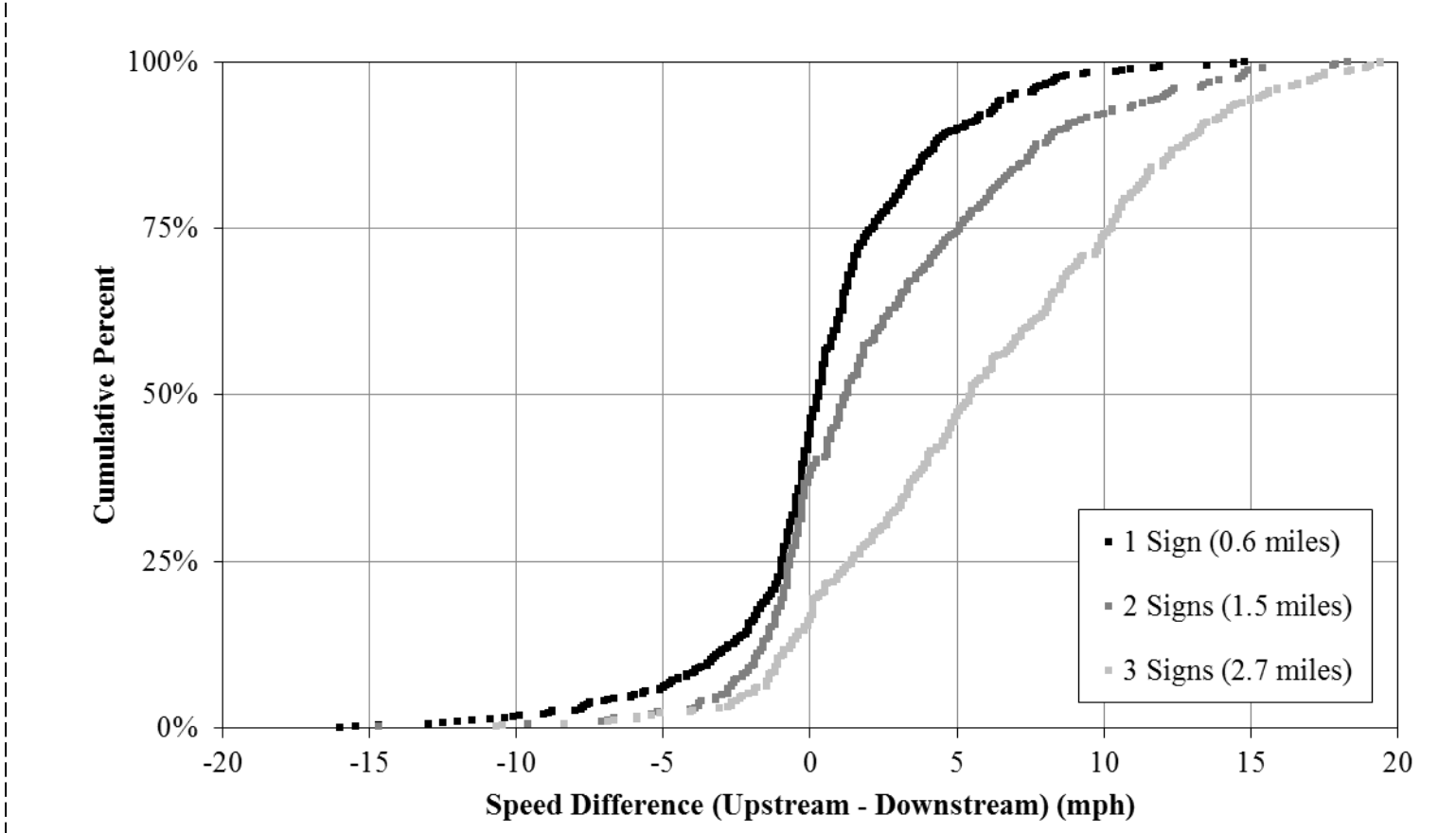
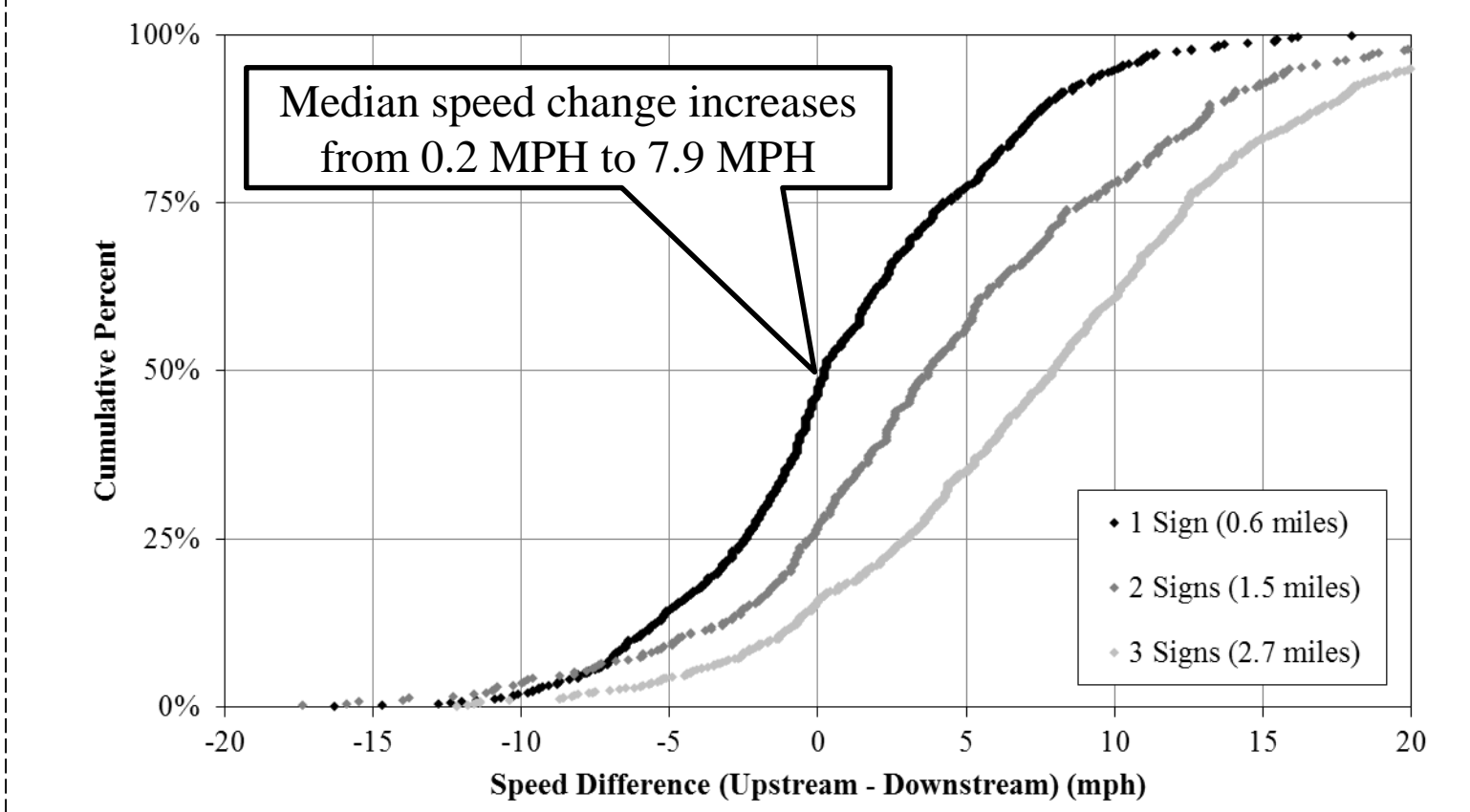
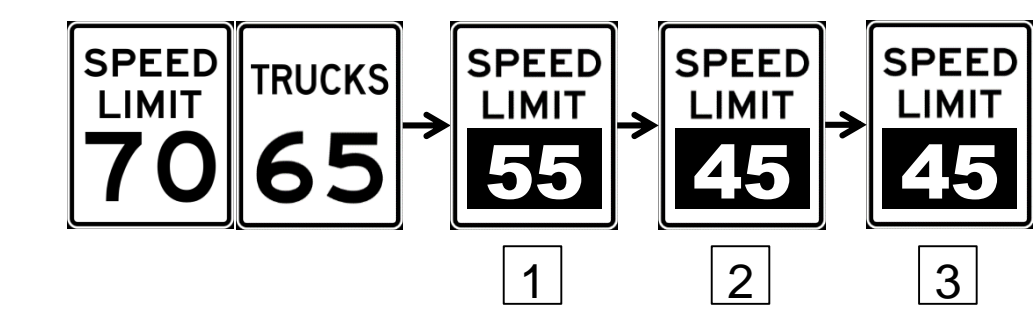
Studies 2 (New), 5, and 4 (New)



Studies 8, 9, and 10



Studies 2 (New), 6, and 7

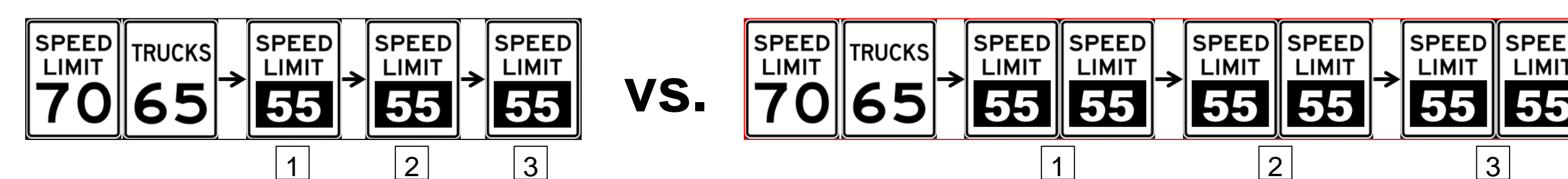


Speed Study Sampling Locations and Scenarios

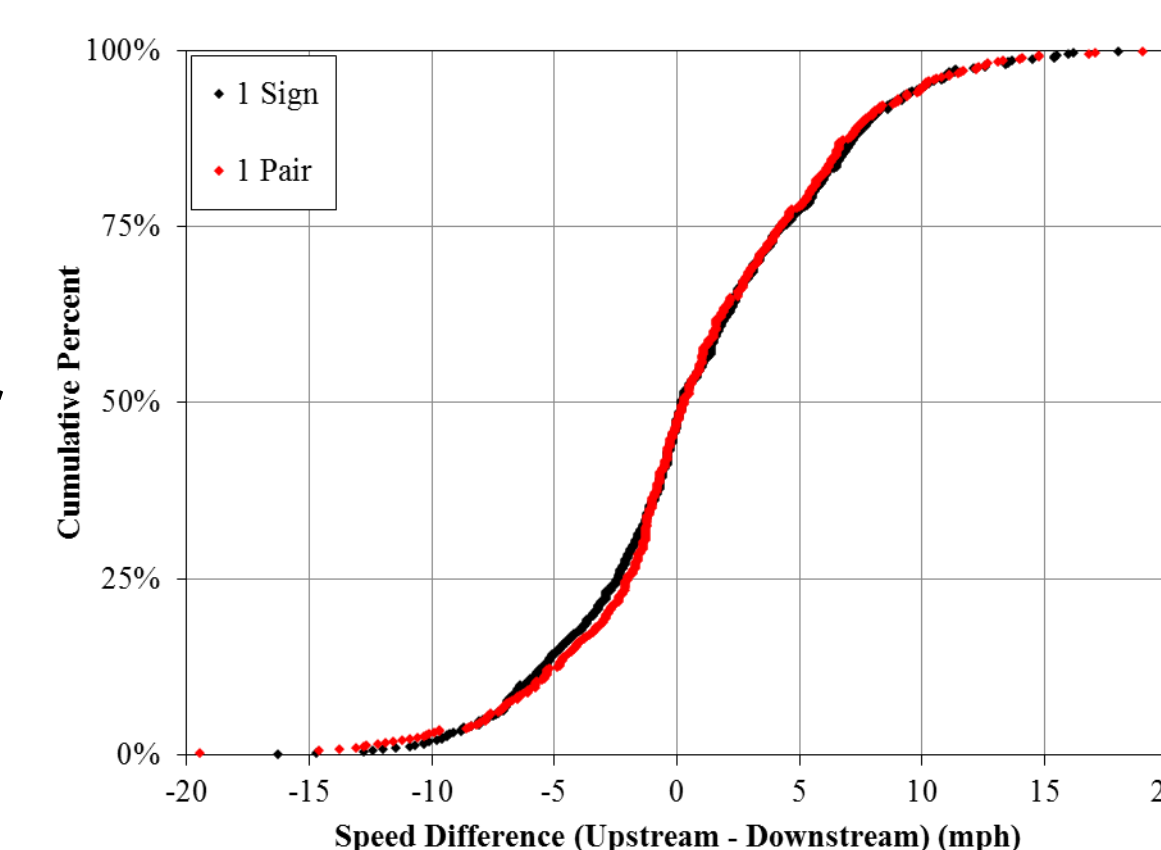
MM	Static Speed Limit Sign	Sampling Station	Variable Speed Limit Sign	Sampling Station	Variable Speed Limit Sign	Sampling Station	Variable Speed Limit Sign	Sampling Station	Work Zone Speed Limit Sign
Distance*		75.9	76.5	77.1	77.5	78.0	79.0	79.2	79.5
		3.6	3.0	2.4	2.0	1.5	0.5	0.3	
7/15/15 Study 1	70	X	65	X	55		55		45
7/15/15 Study 2	70	X	55	X	55		55		45
7/15/15 Study 3	70	X	65		55		55	X	45
7/15/15 Study 4	70	X	55		55		55	X	45
10/2/15 Study 2 New	70	X	55	X	55		55		45
10/23/15 Study 5	70	X	55		55	X	55		45
10/23/15 Study 4 New	70	X	55		55		55	X	45
11/6/15 Study 6	70	X	55		45	X	45		45
11/6/15 Study 7	70	X	55		45		45	X	45
11/20/15 Study 8	70	X	55	X	55		55		45
12/4/15 Study 9	70	X	55		55	X	55		45
12/11/15 Study 10	70	X	55		55		55	X	45

\*Distance to start of work zone in miles

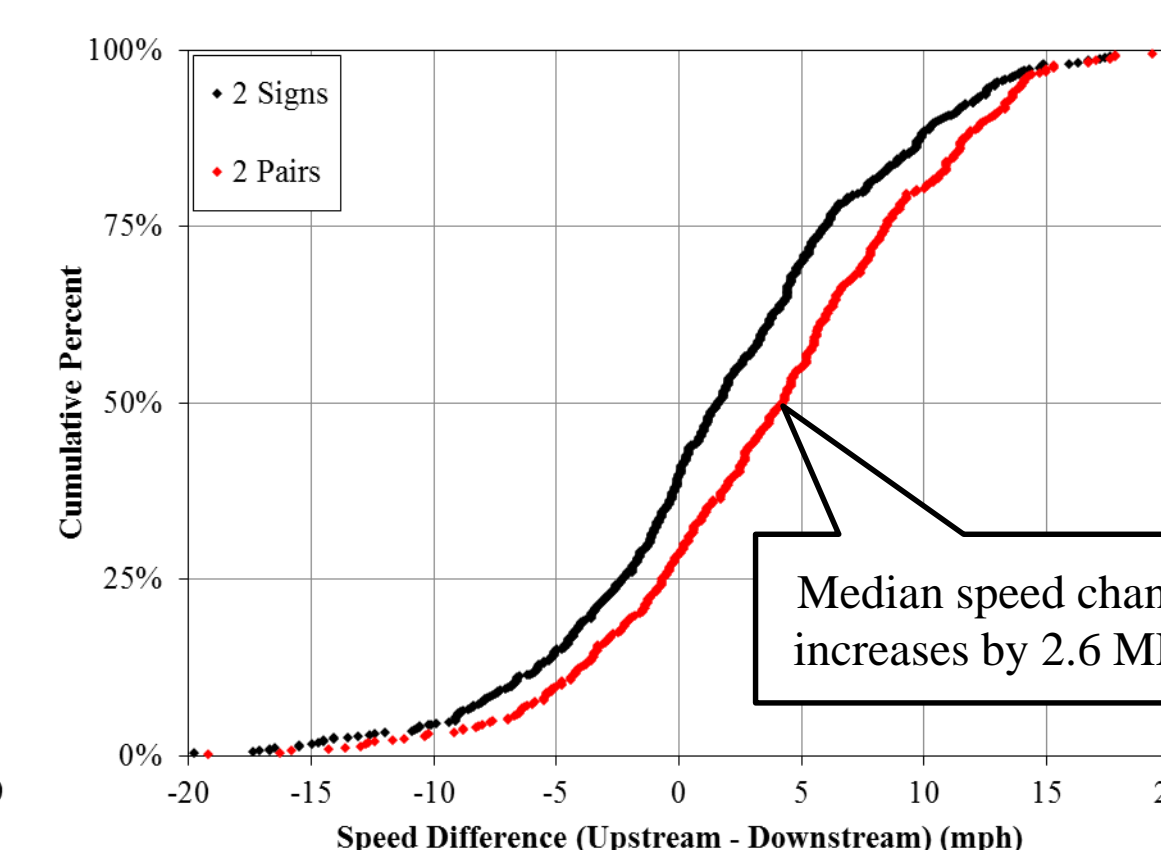
## Comparison of Distributions of Speed Changes for Different Variable Speed Limit Combinations



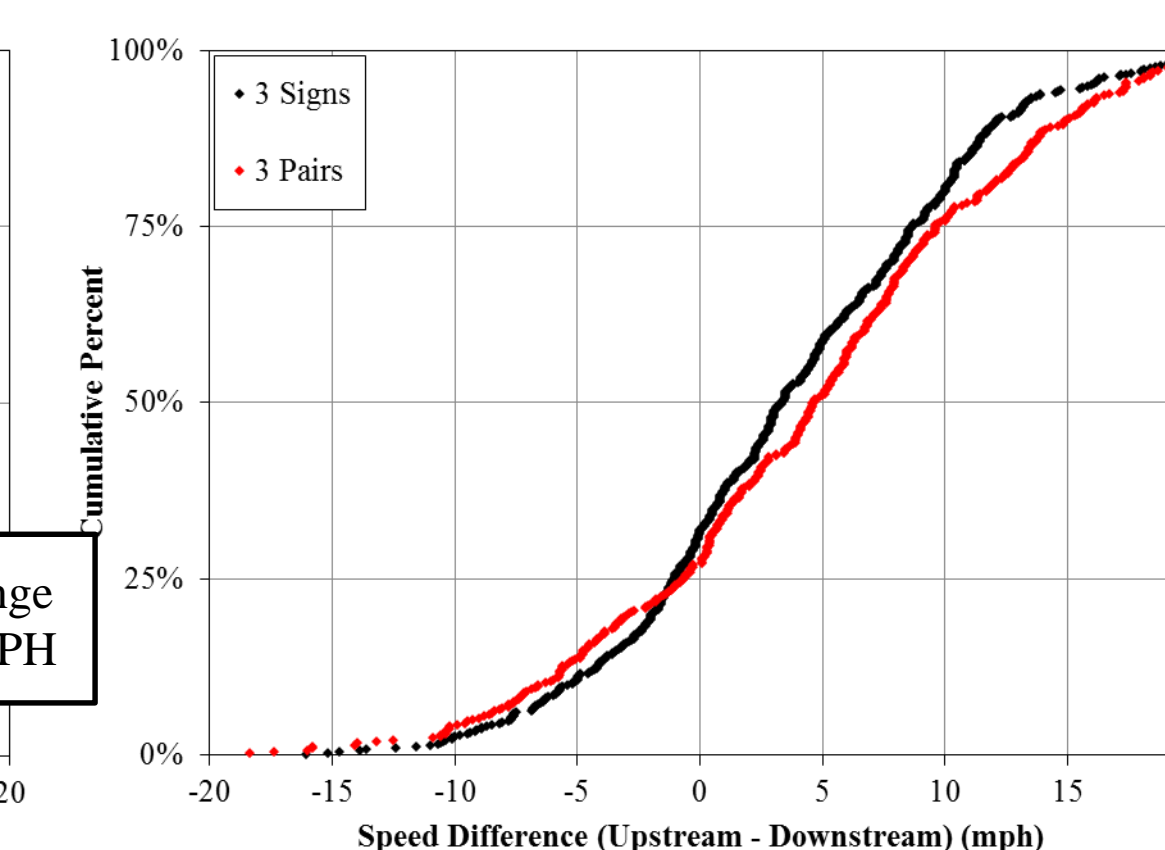
After 1 Sign Location Study 2 (New) vs. Study 8



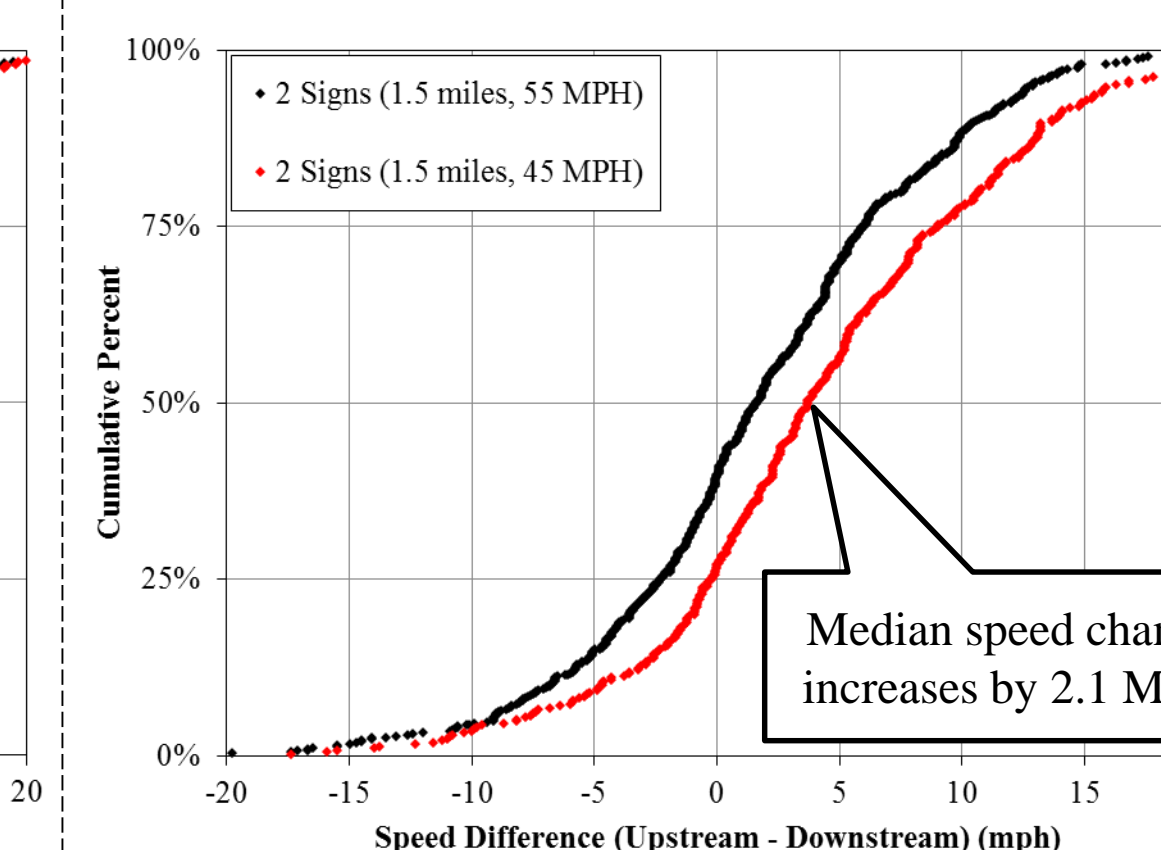
After 2 Sign Locations Study 5 vs. Study 9



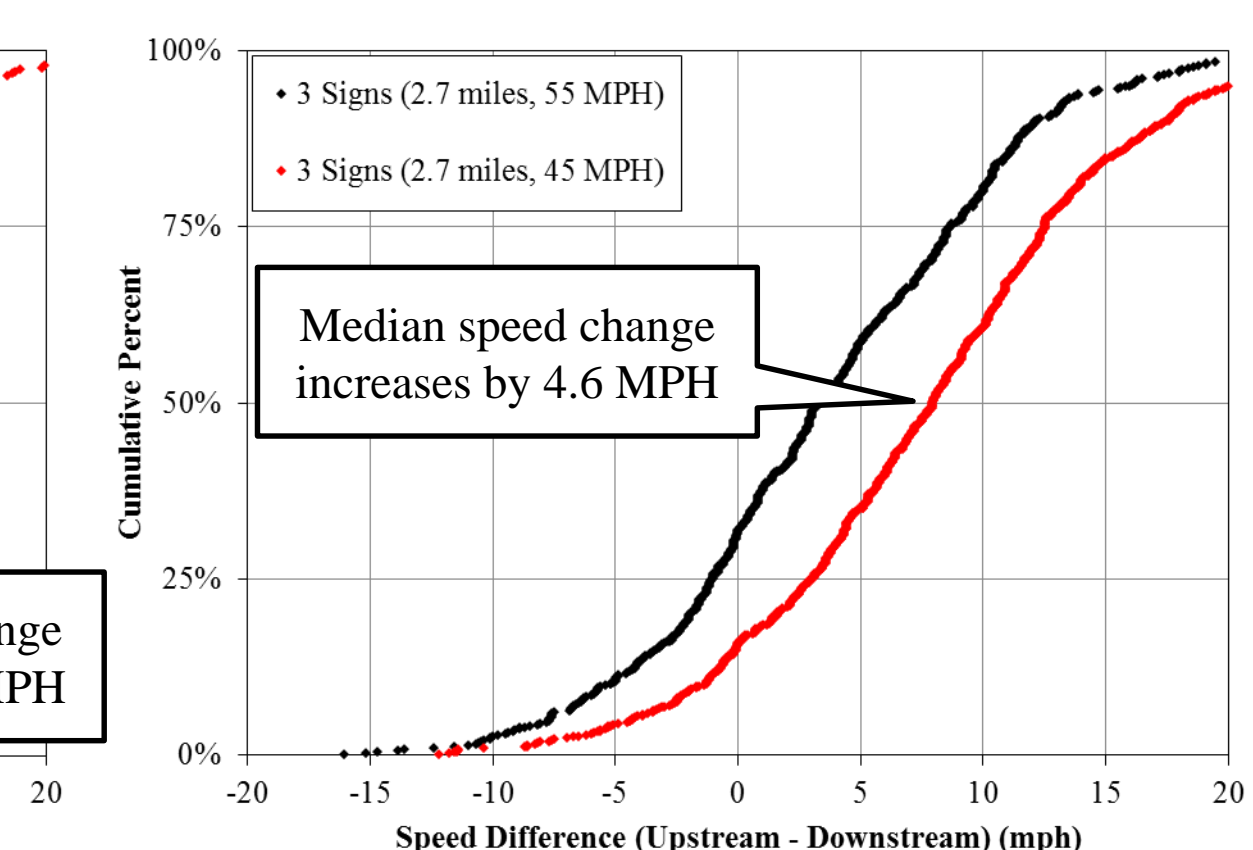
After 3 Sign Locations Study 4 (New) vs. Study 10



After 2 Sign Locations Study 5 vs. Study 6



After 3 Sign Locations Study 4 (New) vs. Study 7



Passenger Vehicles

Commercial Vehicles

Little change in truck behavior - signs more visible to trucks than cars

Median speed change increases by 3.4 MPH