

# ASSESSING LONGITUDINAL ARTERIAL PERFORMANCE & TRAFFIC SIGNAL RETIMING OUTCOMES

Steven Lavrenz, Christopher Day, W. Benjamin Smith, James Sturdevant, Darcy Bullock





# Assessing Longitudinal Arterial Performance and Traffic Signal Retiming Outcomes

Steven M. Lavrenz<sup>1</sup>, Christopher M. Day<sup>2</sup>, W. Benjamin Smith<sup>3</sup>,  
James R. Sturdevant<sup>3</sup>, Darcy M. Bullock<sup>2</sup>

1: Institute of Transportation Engineers; 2: Purdue University; 3: Indiana Department of Transportation

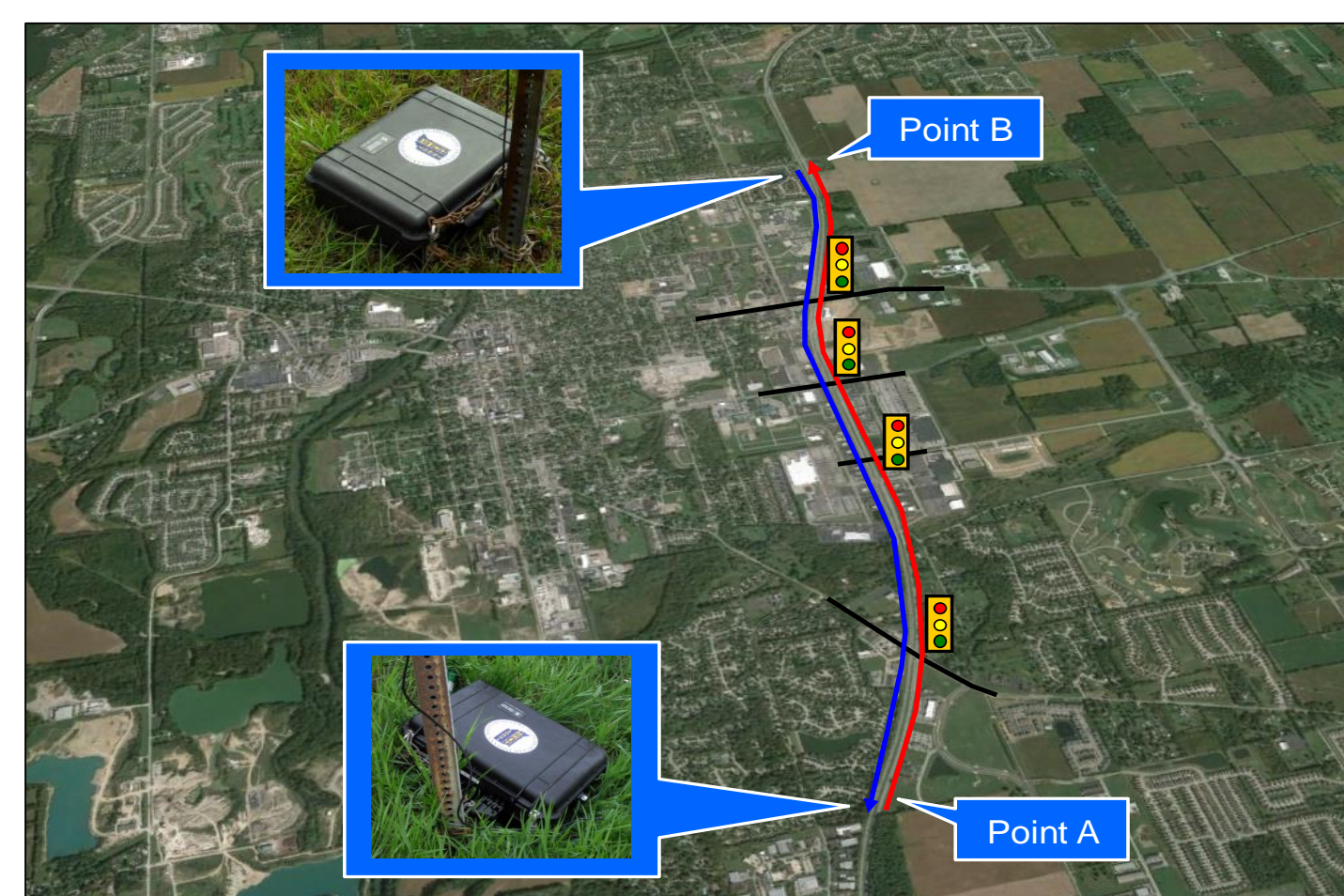
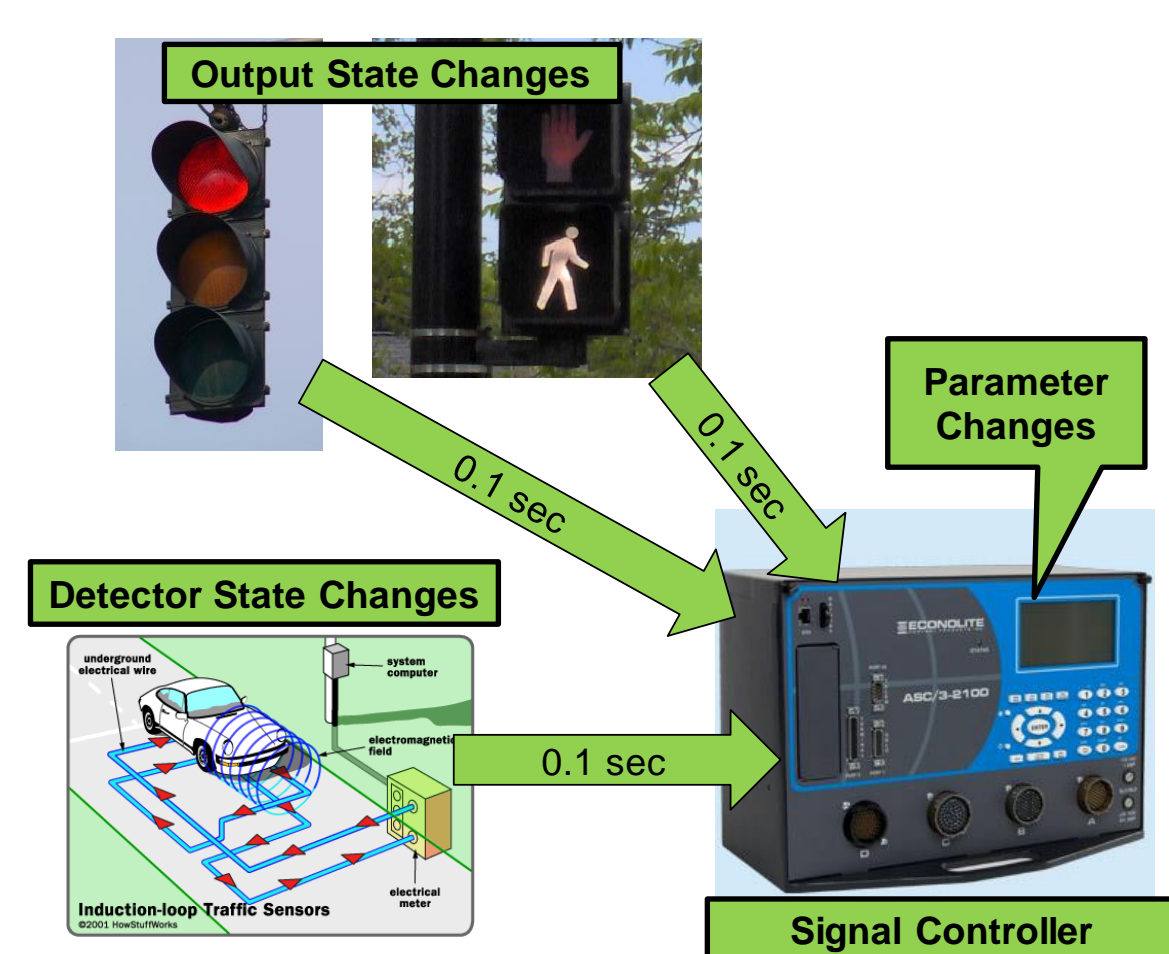


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## STUDY CORRIDOR: SR37 NORTH, FISHERS, IN

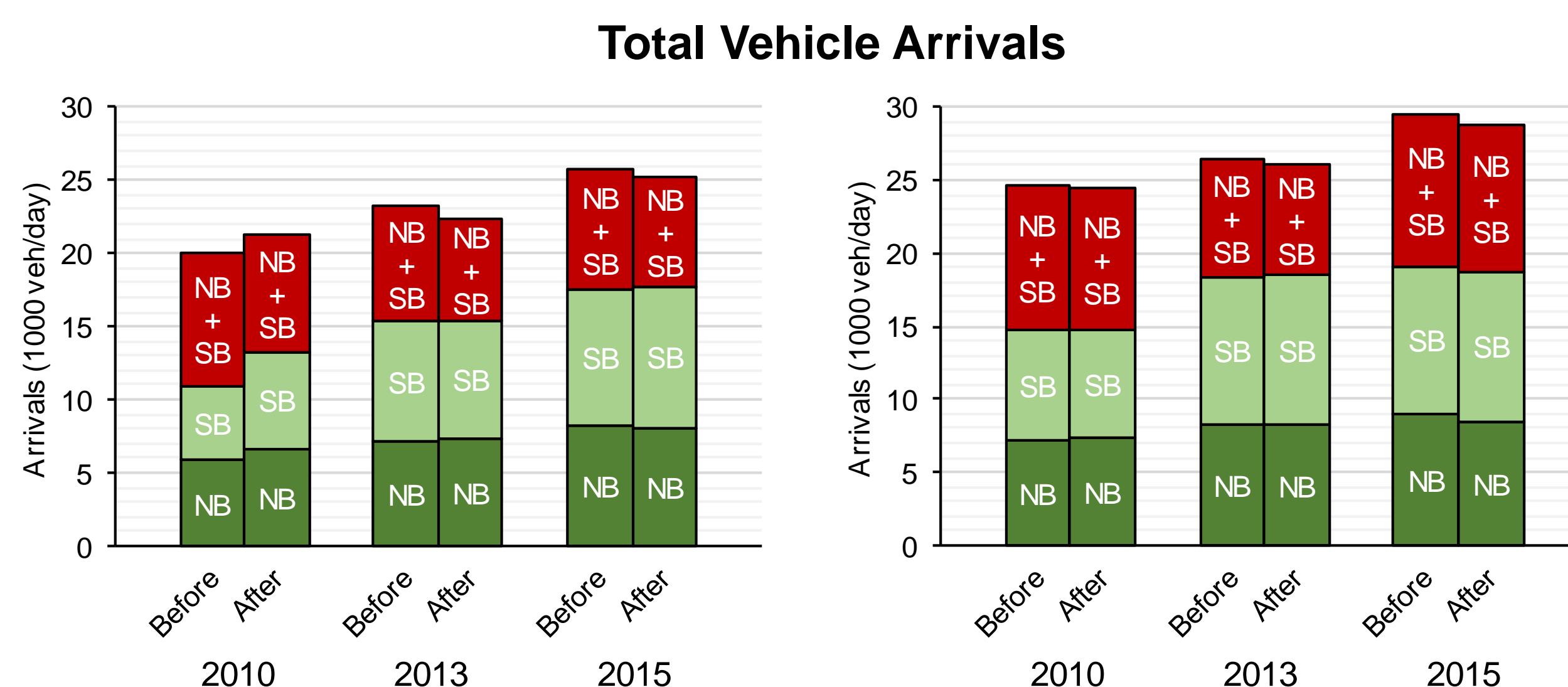
### High-Resolution Controller Data

### Travel Time: Bluetooth Reidentification

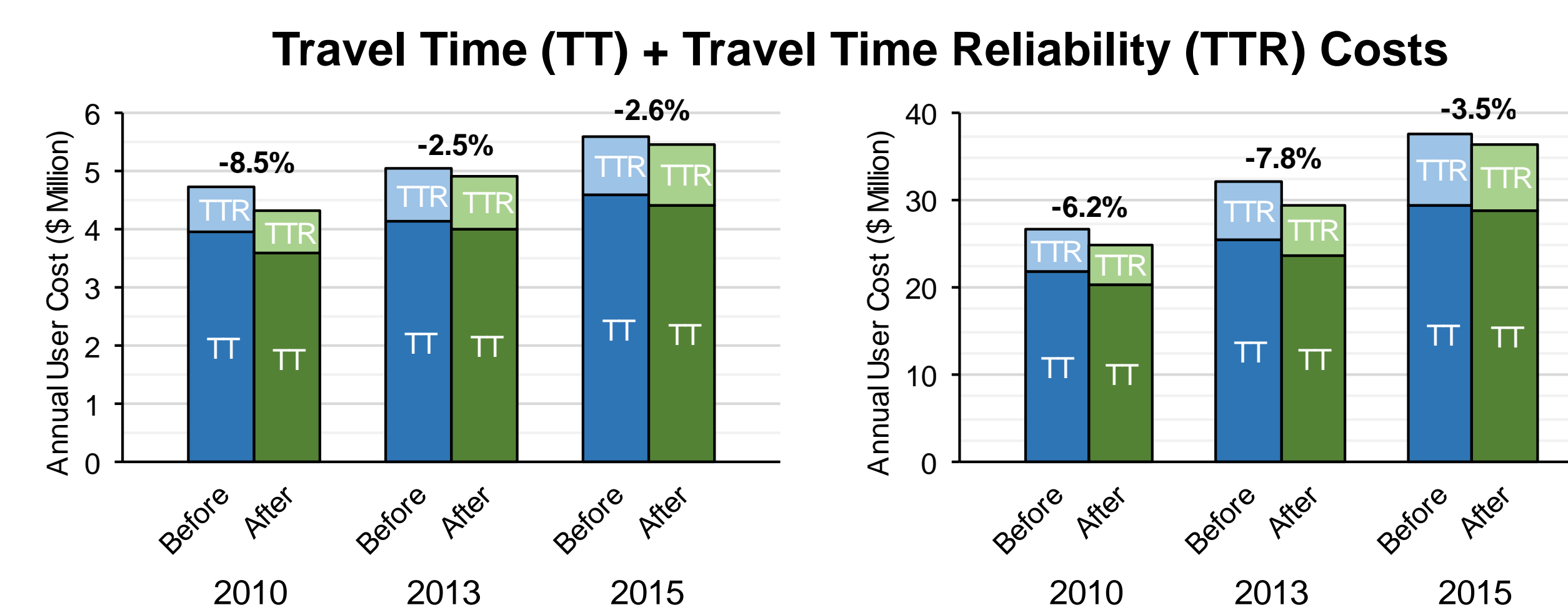


## ASSESSMENT OF 5-YEAR OPTIMIZATION OUTCOMES

### Volumes Increased; Percent on Green Also Increased

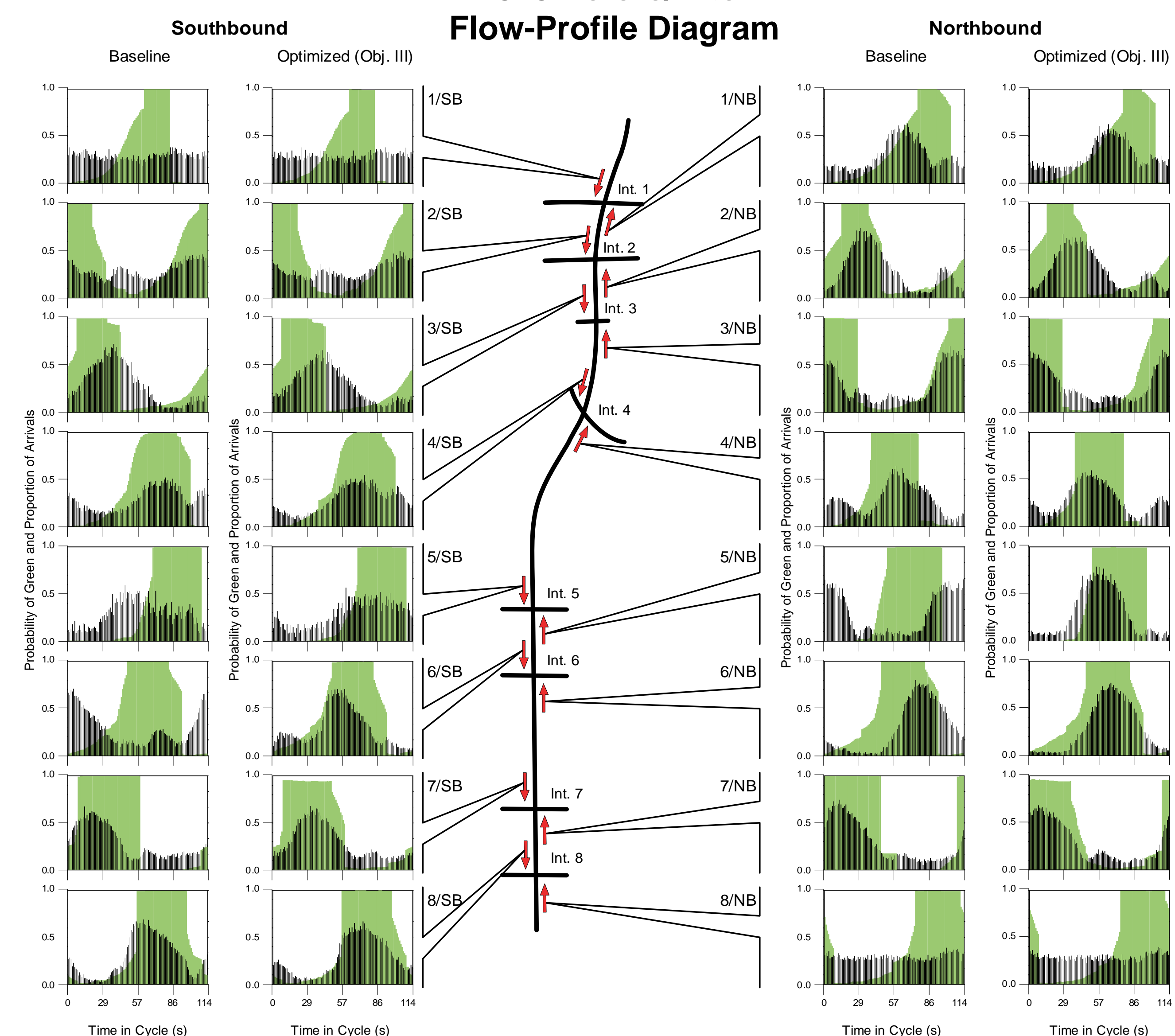


### User Costs Decreased During Each Optimization



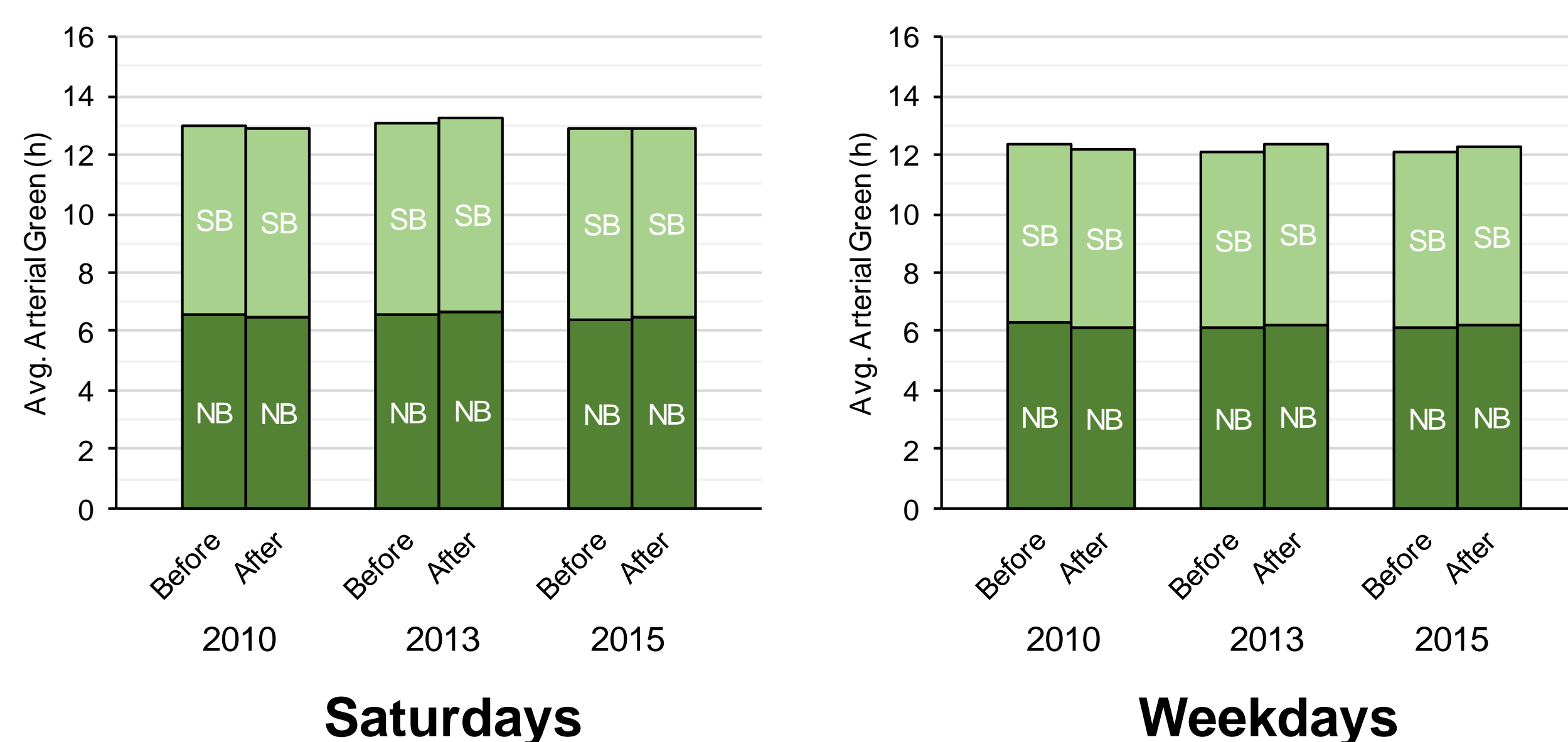
## DATA-DRIVEN OFFSET OPTIMIZATION 2010, 2013, 2015 Retiming

### 2010 Before/After Flow-Profile Diagram

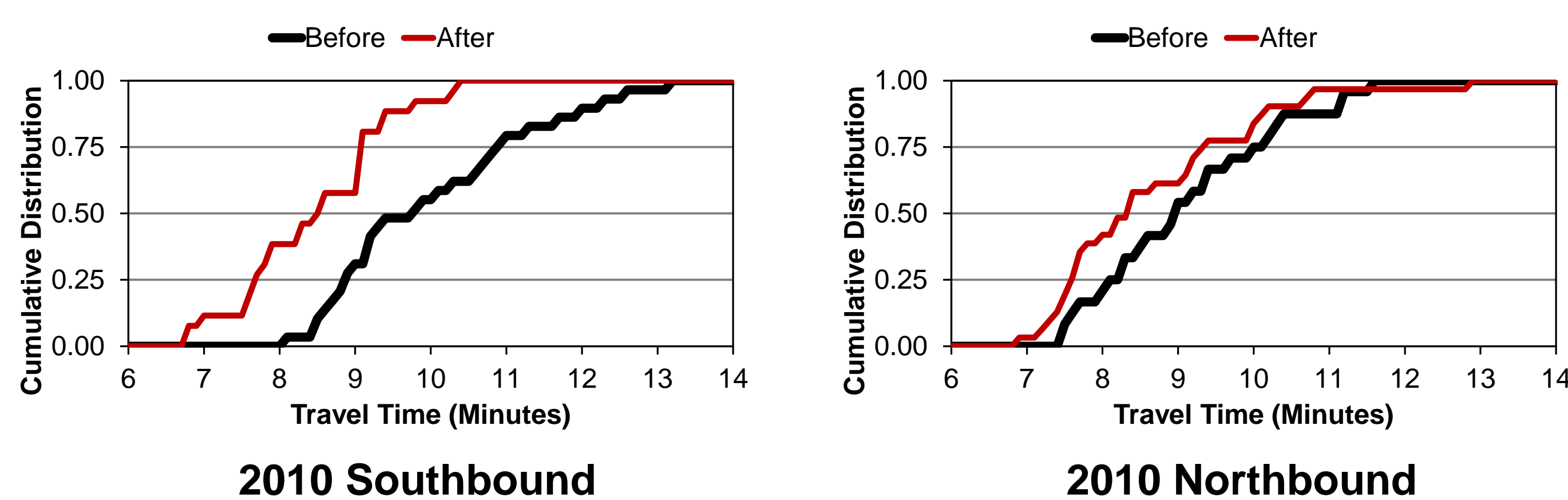


- Volumes on the corridor increased by 36% from 2010 to 2015
- Progression quality was continually improved, with each optimization resulting in a slight increase
- Gains were made without increasing the green time for the mainline at the expense of the side streets

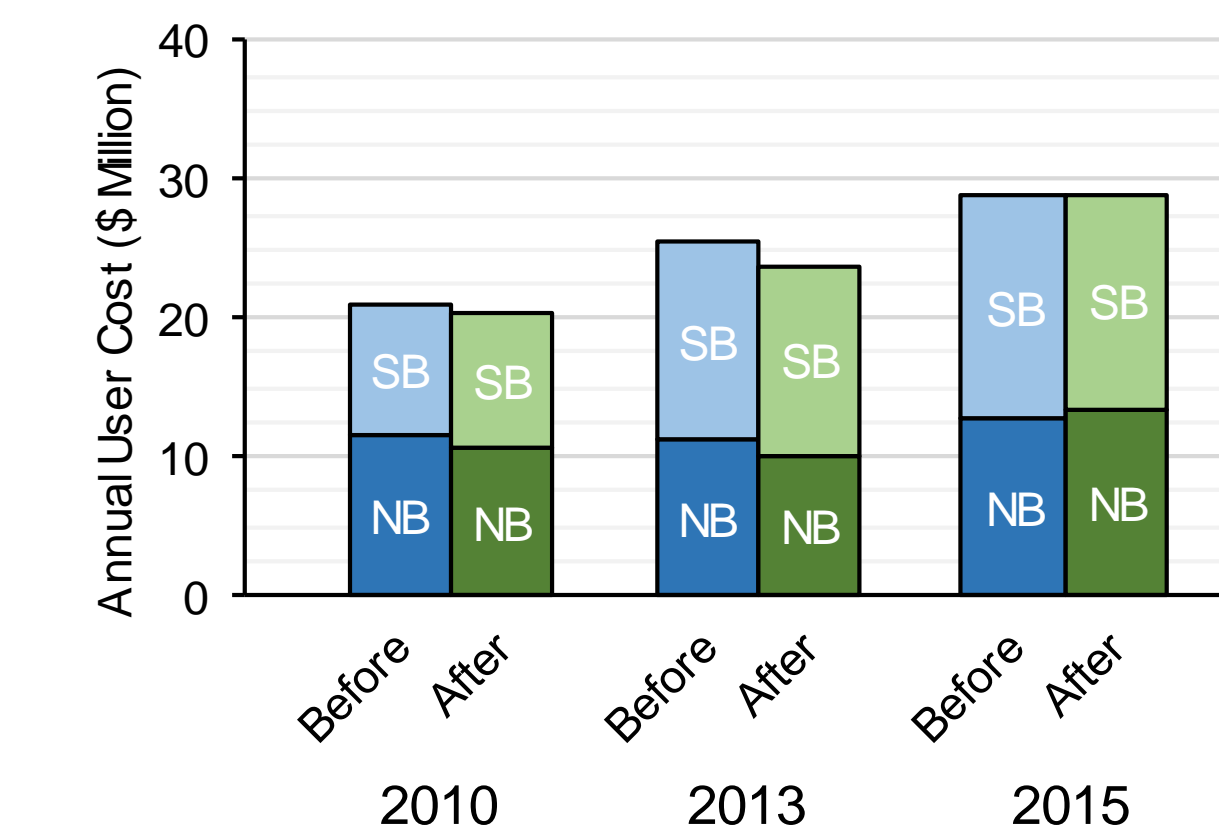
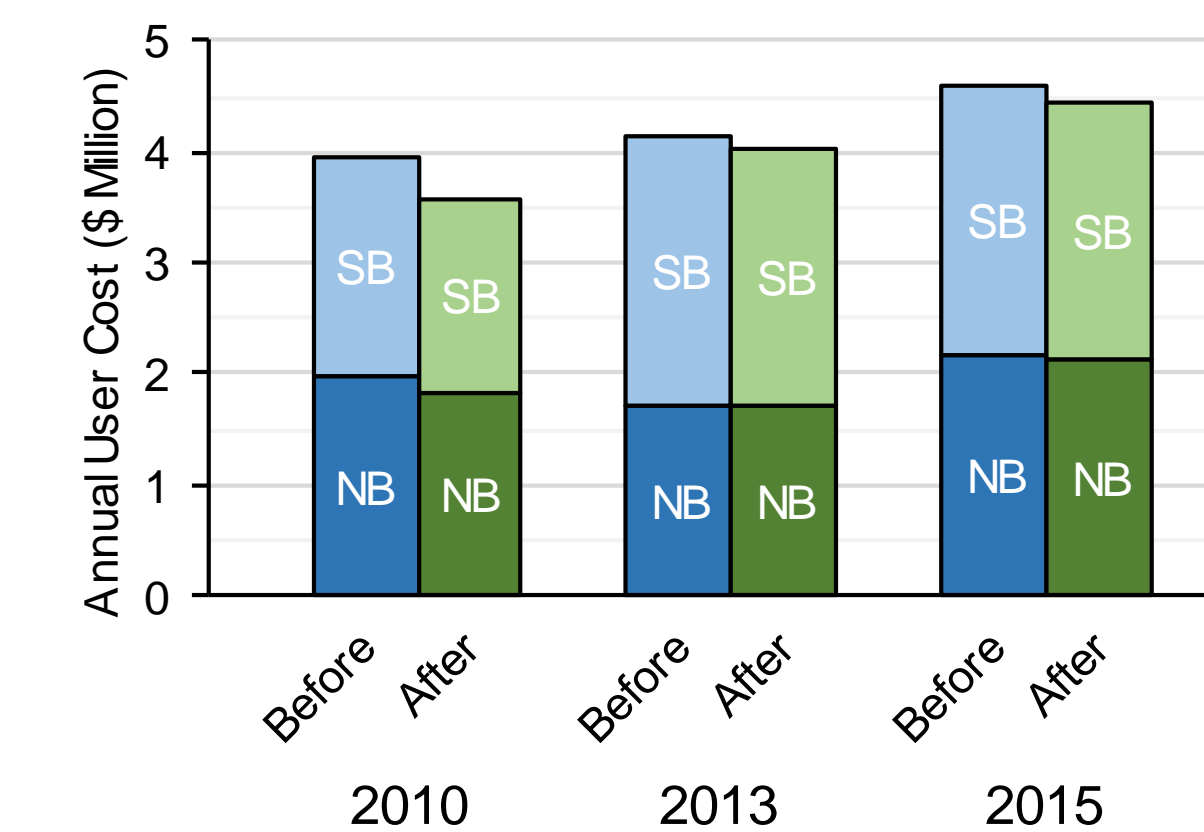
### Arterial Green Times Remained Constant



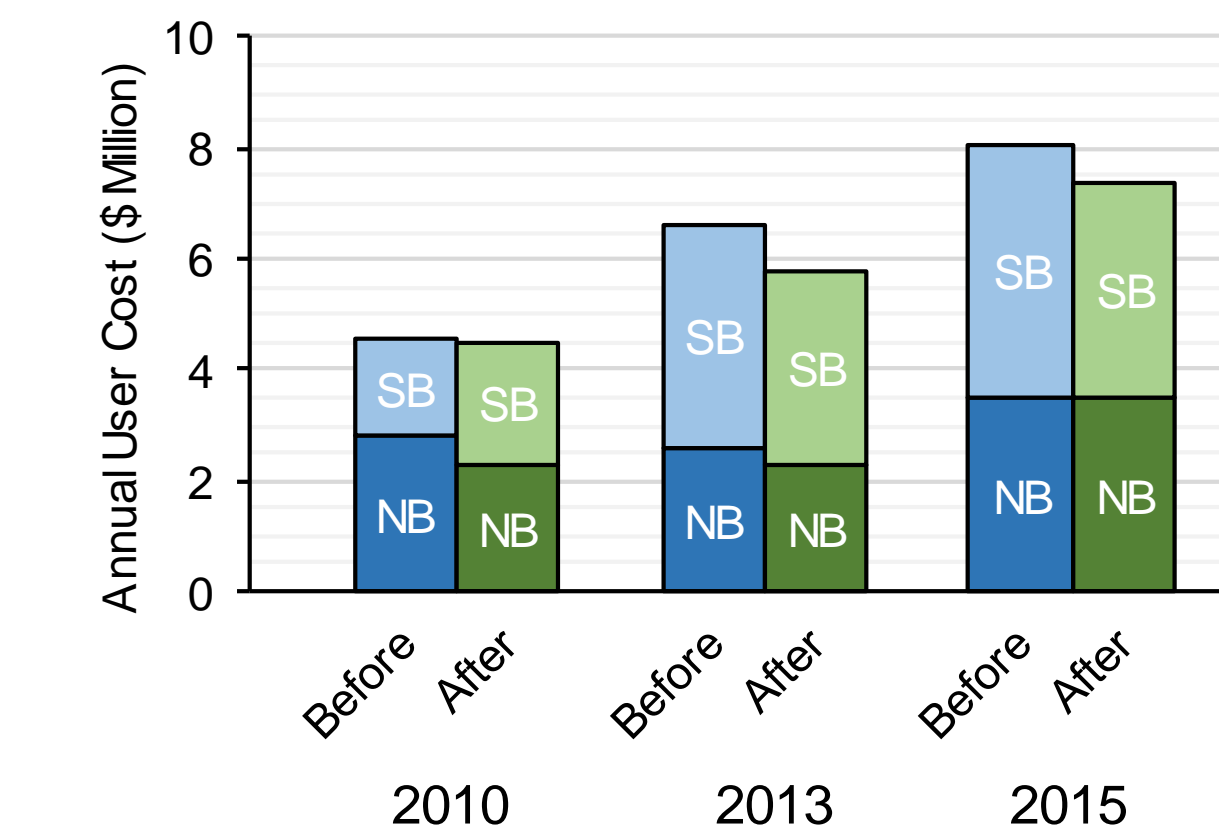
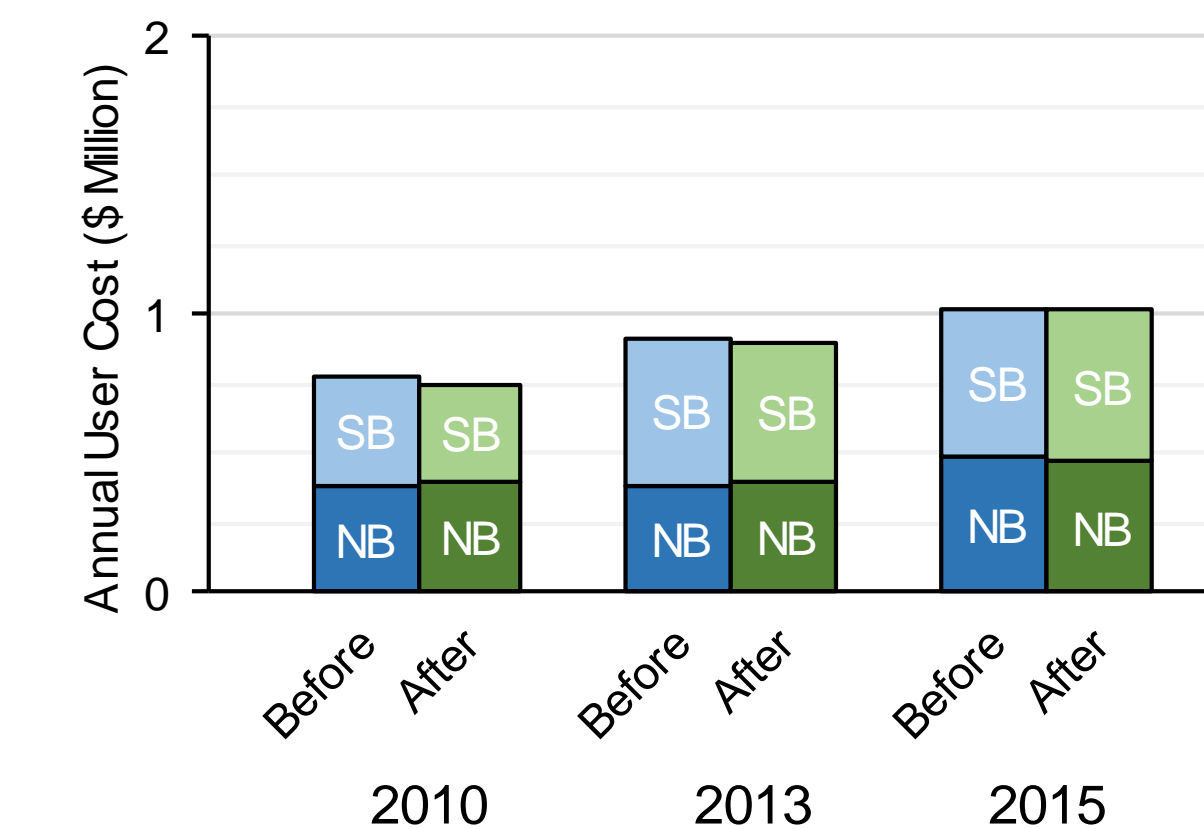
### Travel Time Distributional Analysis



### Travel Time Costs

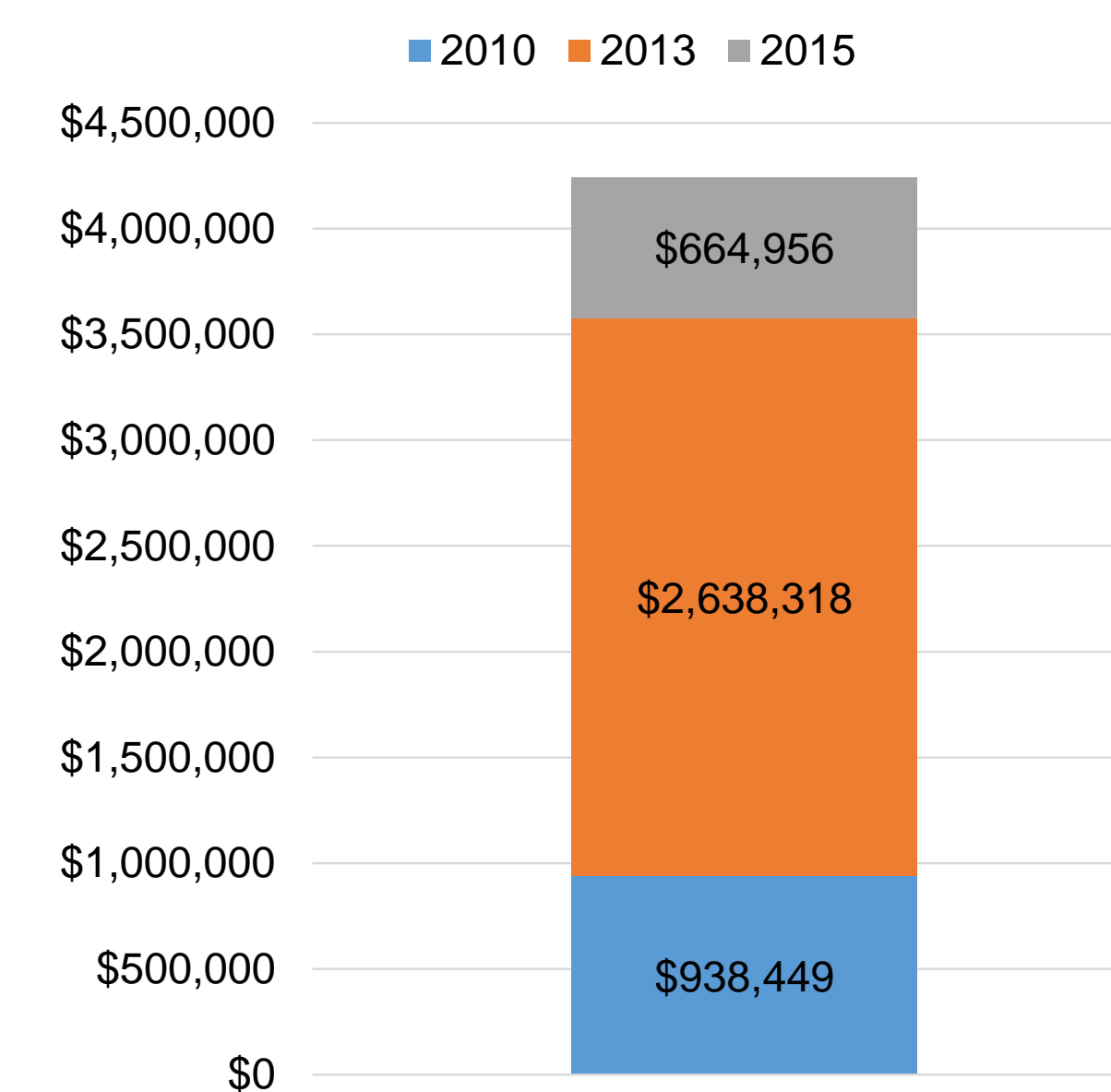


### Travel Time Reliability Costs



### Annualized User Cost Tabulation

Total of annualized user benefits from 2010, 2013, and 2015 optimizations:  
**\$4,241,723**



TOD Plan	2010		2013		2015	
	Travel Time Benefit	Reliability Benefit	Travel Time Benefit	Reliability Benefit	Travel Time Benefit	Reliability Benefit
0600-0900	\$ 8,415.58	\$ (8,138.18)	\$ 5,952.93	\$ (796.51)	\$ (1,953.99)	\$ 6,162.96
0900-1100	\$21,813.36	\$ (20,325.20)	\$12,413.78	\$ (1,644.59)	\$ (203,725.00)	\$ 11,569.31
1100-1300	\$31,971.29	\$ 2,206.47	\$11,460.93	\$ (30,082.79)	\$ 34,978.38	\$ (6,182.42)
1300-1500	\$78,511.29	\$ 8,432.60	\$ 2,228.86	\$ 8,679.64	\$ 24,948.07	\$ 11,197.51
<b>TOTTR Benefit</b>	<b>\$136,211</b>	<b>\$(16,770)</b>	<b>\$37</b>	<b>\$(13,742)</b>	<b>\$53,942</b>	<b>\$22,276</b>
<b>TT+TTR Benefit</b>	<b>\$136,211</b>	<b>\$(16,770)</b>	<b>\$37</b>	<b>\$(13,742)</b>	<b>\$53,942</b>	<b>\$22,276</b>

TOD Plan	2010		2013		2015	
	Travel Time Benefit	Reliability Benefit	Travel Time Benefit	Reliability Benefit	Travel Time Benefit	Reliability Benefit
0600-0900	\$25,621.11	\$ 13,430.74	\$12,000.96	\$ (2,298.89)	\$ 1,674.47	\$ 6,162.96
0900-1100	\$73,880.99	\$ 2,888.08	\$15,468.99	\$ (1,644.59)	\$ 34,746.34	\$ 38,666.84
1100-1300	\$68,718.40	\$ 19,833.50	\$ 46,024.23	\$ 43,563.90	\$ 4,000.12	\$ (48,175.32)
1300-1500	\$69,888.20	\$ 15,217.58	\$ 3,770.20	\$ (4,940.71)	\$ 9,094.41	\$ (17,886.51)
<b>TOTTR Benefit</b>	<b>\$238,518</b>	<b>\$48,357</b>	<b>\$81,267</b>	<b>\$(1,518.09)</b>	<b>\$49,475</b>	<b>\$68,952</b>
<b>TT+TTR Benefit</b>	<b>\$238,518</b>	<b>\$48,357</b>	<b>\$81,267</b>	<b>\$(1,518.09)</b>	<b>\$49,475</b>	<b>\$68,952</b>

TOD Plan	2010		2013		2015	
	Travel Time Benefit	Reliability Benefit	Travel Time Benefit	Reliability Benefit	Travel Time Benefit	Reliability Benefit
0600-0900	\$ 542,377.26	\$ 6,618.36	\$ 143,214.17	\$ 40,320.98	\$ (62,789.00)	\$ 30,823.51
0900-1100	\$ 1,483,871.11	\$ 79,916.87	\$ 318,513.71	\$ (1,644.59)	\$ (40,053.57)	\$ (71,006.46)
1100-1300	\$ 1,221,590.80	\$ 79,306.10	\$ 1,097,181.50	\$ (9,013,910)	\$ (1,196,196.18)	\$ 21,848.44
1300-1500	\$ 1,381,004.88	\$ 61,846.53	\$ 1,185,042.52	\$ 88,548.28	\$ (218,874.17)	\$ (1,661,496)
1500-1900	\$ 3,148,115.15	\$ 272,126.97	\$ 688,132.44	\$ 176,930.71	\$ (1,187,886.51)	\$ (67,607.40)
<b>TOTTR Benefit</b>	<b>\$8,944,006</b>	<b>\$488,710</b>	<b>\$3,061,588</b>	<b>\$277,381</b>	<b>\$(1,979,000)</b>	<b>\$(10,815)</b>
<b>TT+TTR Benefit</b>	<b>\$8,944,006</b>	<b>\$488,710</b>	<b>\$3,061,588</b>	<b>\$277,381</b>	<b>\$(1,979,000)</b>	<b>\$(10,815)</b>