

Signal Timing Briefs

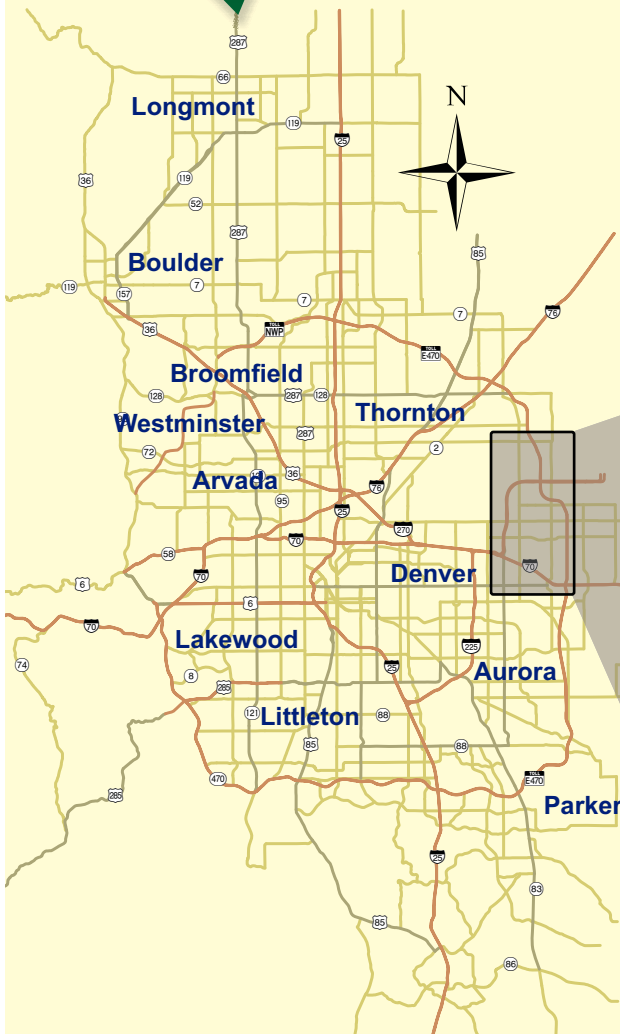
October 2015 - T15-9

Mobility



Tower Road: 104th Avenue to Colfax Avenue

The Denver Regional Council of Governments leads multijurisdictional partnerships to achieve optimal signal timing and coordination on area roadways. Adjustments to signal timing are key to ensuring the smoothest possible flow for drivers, saving time and money. Signal timing also minimizes greenhouse gas emissions and other pollutant emissions, preserving and enhancing air quality.

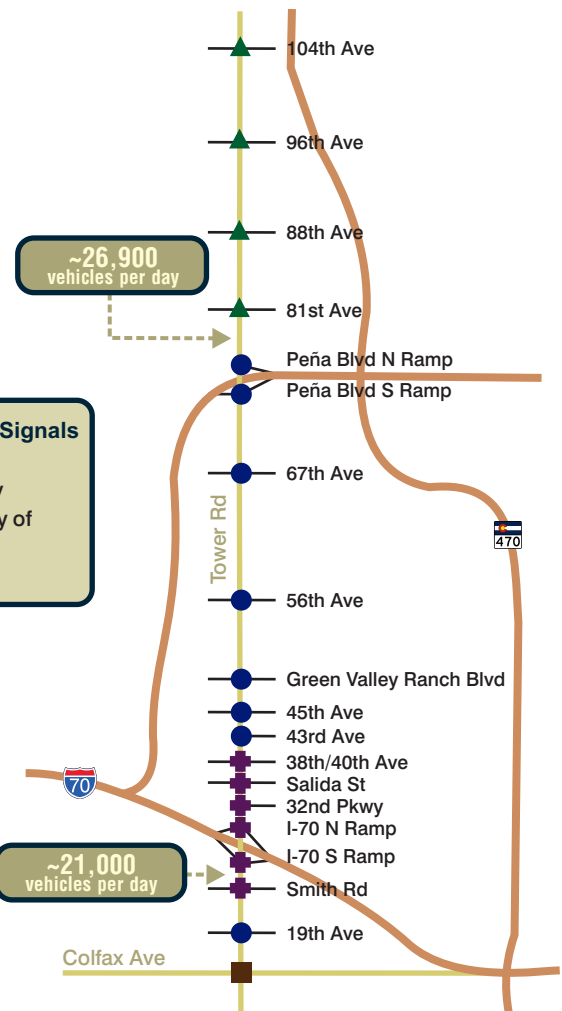


Project Description

This project implemented timing and coordination plans for 19 signals on Tower Road and cross-coordinated with a separate coordination timing project along Green Valley Ranch Boulevard.

Tower Road is a principal arterial roadway in the Metro Vision Regional Transportation Plan and travels north-south in the eastern portion of the Denver metro area, providing access to Interstate 70, Colfax Avenue on the southern end, and Peña Boulevard on the northern end of the project area. Land use along the roadway in the project area is a mixture of residential and commercial property.

Tower Road



Project Partners' Signals

- City of Aurora
- Commerce City
- City and County of Denver
- CDOT

Project Achievements

Performance Measures

Daily Benefits

Vehicle hours of travel	490 hours reduction
Fuel consumption	255 gallons decreased
Time and fuel costs	\$11,650 savings
Total greenhouse gas emissions	5,257 pounds reduction
Total criteria pollutant emissions	70 pounds reduction

Tower Road: 104th Avenue to Colfax Avenue

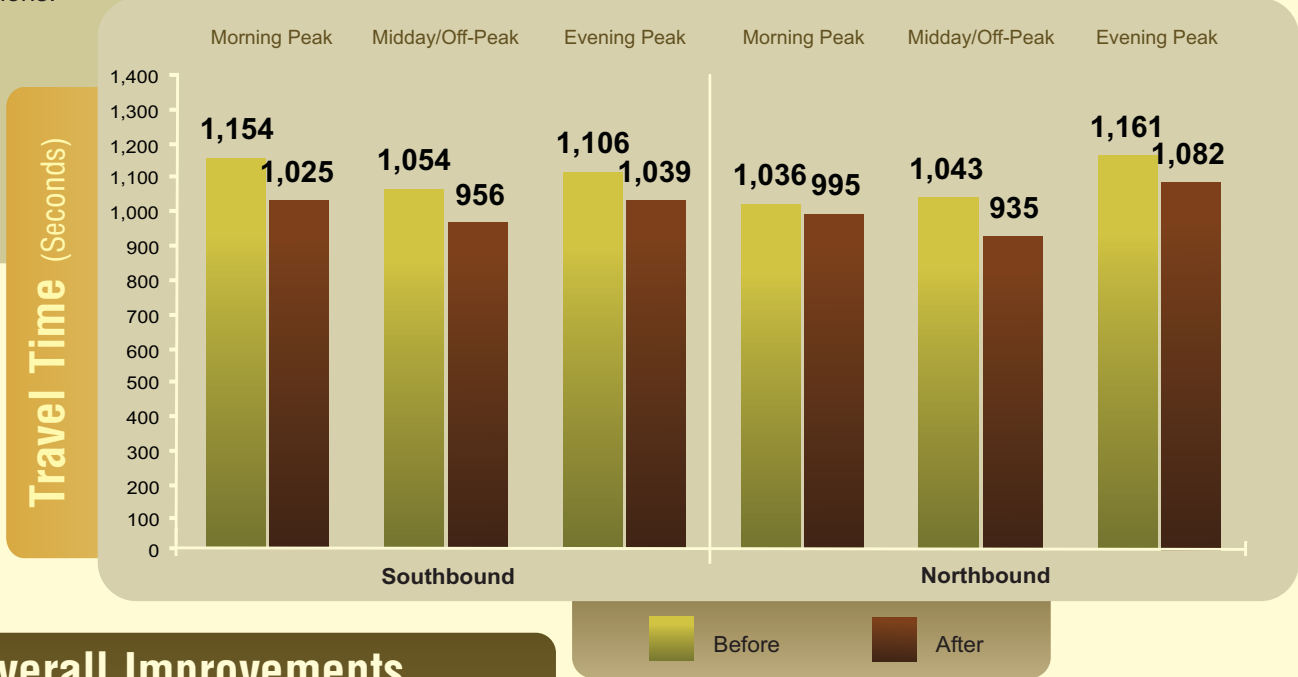
Timing Revision Weekday

Time Period		Morning Peak		Midday/Off-Peak		Evening Peak	
		Before	After	Before	After	Before	After
		104th Ave to 81st Ave	Free ¹	6 - 9 a.m.	Free ¹	9 a.m.- 2 p.m.	Free ¹
Pena Boulevard Ramps	5 - 10 a.m.	10 a.m.- 3 p.m.	3 - 8 p.m.				
67th Ave.	6 - 9 a.m.	9 a.m.- 3 p.m.	3 - 7 p.m.				
56th Ave.	Free ¹	Free ¹	Free ¹				
Green Valley Ranch Blvd to 43rd Ave.	5:30-9 a.m.	9 a.m.- 3 p.m.	3 - 9 p.m.				
38th/40th Ave to 19th Ave.	6:30-8:30 a.m.	8:30 a.m.- 4 p.m.	4 - 6 p.m.				
Colfax Ave.							
Cycle Length (seconds)	104th Ave to 81st Ave	Free ¹	60/120 ²	Free ¹	60/80/120 ^{2,3}	Free ¹	120
	Pena Boulevard Ramps	90		60		90	
	67th Ave.	80		80		80	
	56th Ave.	Free ¹		Free ¹		Free ¹	
	Green Valley Ranch Blvd to 43rd Ave.	100		90/100		100	
	Green Valley Ranch Blvd to 43rd Ave.	70		80/Free ^{5,6}		100/Free ⁵	
	Colfax Ave.	Free		60		Free	
Other Timing Parameters	--	Revised	--	Revised	--	Revised	

- ¹ These signals operated as "free" and did not run a coordinated plan.
- ² 19th Avenue operates with a 60-second cycle.
- ³ 67th to 104th avenues operate with an 80-second cycle.
- ⁴ Green Valley Ranch Boulevard operated with a 100-second cycle.
- ⁵ 38th and 40th avenues operated as "free" did not run a coordinated plan.
- ⁶ 19th Avenue operated as "free" and did not run a coordinated plan.

Travel Time Improvements (10 miles end-to-end)

Improvements were obtained during all periods in both directions.



Overall Improvements

The value to motorists, in terms of weekday time and fuel savings, is calculated to be approximately \$11,650 daily, or about \$2.9 million annually.