

Signal Timing Briefs

March 2015 - T15-2

Mobility

DRCOG

DENVER REGIONAL COUNCIL OF GOVERNMENTS

We make life better!

University Boulevard: Cresthill Lane to Girard Place

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

The Colorado Department of Transportation (CDOT) installed signal communications equipment upgrades on University Boulevard. This project implemented timing and coordination plans for 25 signals on University Boulevard and for 16 signals on several intersection roadways.

University Boulevard is a major regional arterial roadway in the Metro Vision Regional Transportation Plan through Cherry Hills Village, Greenwood Village, Centennial, and Douglas County providing access to C-470 and Hampden Avenue (SH 285). Land use along the roadway in the project area is a mix of commercial and residential.



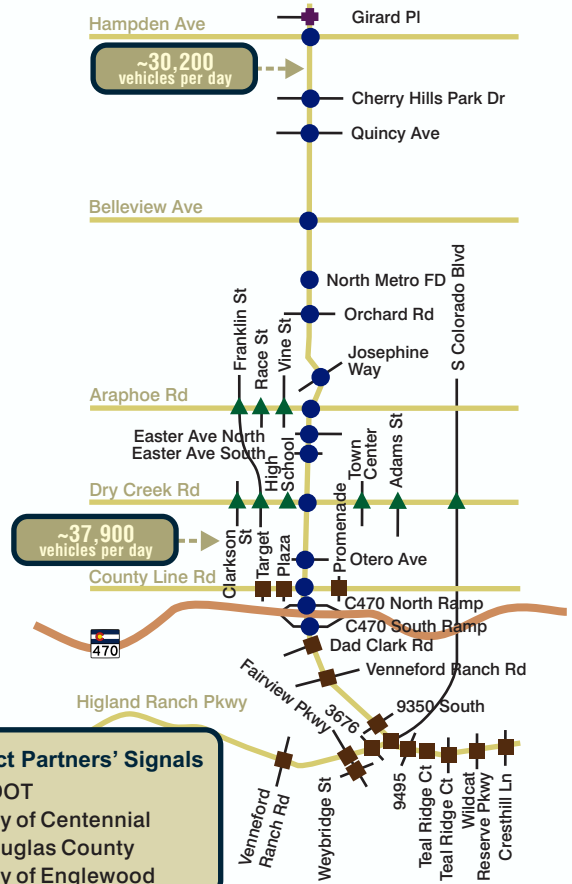
Project Achievements

Performance Measures

Daily Benefits

Vehicle hours of travel	1,064 hours reduction
Fuel consumption	539 gallons decrease
Time and fuel costs	\$25,250 savings
Total greenhouse gas emissions	11,160 pounds reduction
Total criteria pollutant emissions	129 pounds reduction

University Boulevard



University Boulevard: Cresthill Lane to Girard Place

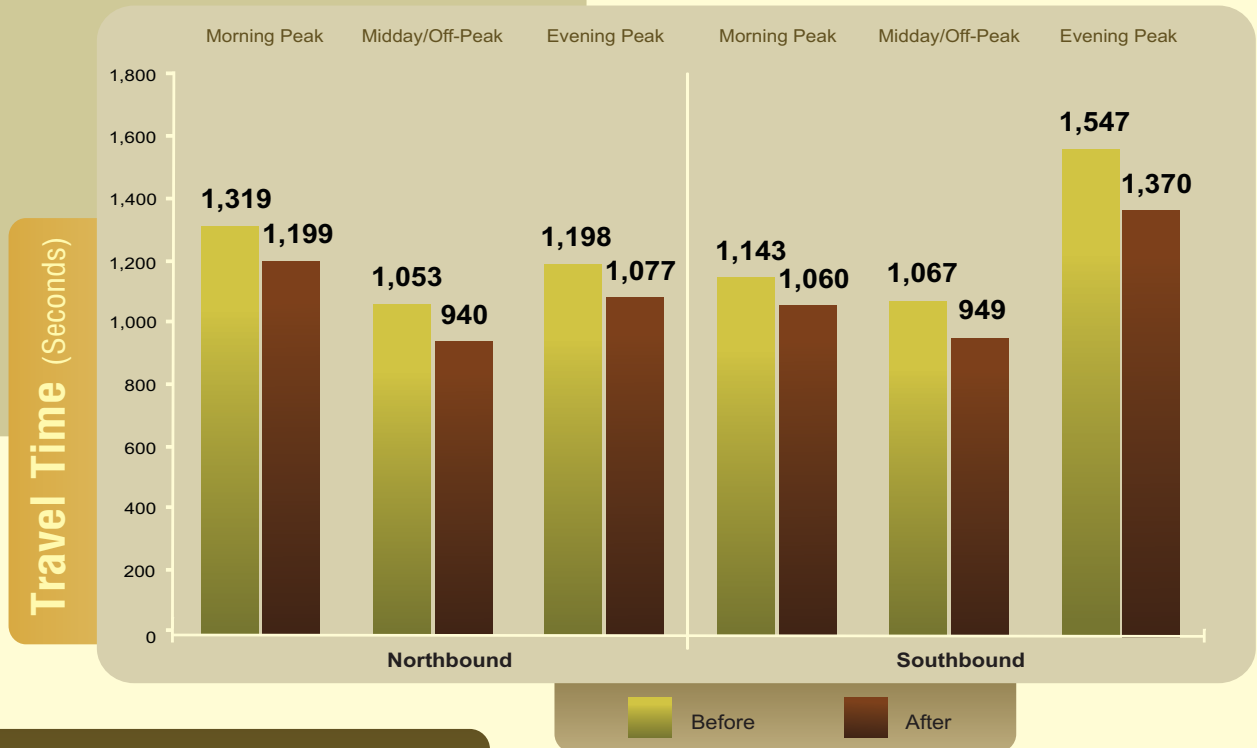
Timing Revision Weekday:

Time Period	Girard PI to C-470 South Ramp Dad Clark Dr and signals south	Morning Peak		Midday/Off-Peak		Evening Peak	
		Before	After	Before	After	Before	After
		6:00 - 8:30 a.m.	6:00 - 10:00 a.m.	8:30 a.m.- 3:00 p.m.	10:00 a.m.- 3:00 p.m.	3:00 - 6:30 p.m.	3:00 - 10:00 p.m.
Cycle Length (seconds)	Girard PI to C-470 South Ramp	120 ¹	180/120 ^{1,2}	100 ¹ (no change)		120	180/120 ²
	Dad Clark Dr and signals south	106 ³	120	110 ⁴	100 ⁴	120 (no change)	
Other Timing Parameters		--	Revised	--	Revised	--	Revised

Travel Time Improvements (8.7 miles end to end)

Improvements were obtained during all periods in both directions.

- ¹ The Arapahoe High School pedestrian signal on Dry Creek Road operates with a cycle length that is half of the University Boulevard signals.
- ² The signal at Belleview runs a 180-second cycle.
- ³ Cresthill Lane operated in free mode (uncoordinated).
- ⁴ The Fairview Parkway/Weybridge Street signal operates with a cycle length that is half of the Highlands Ranch Parkway signals.



Overall Improvements

The value to motorists, in terms of weekday time and fuel savings, is calculated to be approximately \$25,250 daily, or about \$6.31 million annually. An additional benefit of the project is improved reliability of signal operations, thanks to equipment upgrades. These upgrades allow traffic signal malfunctions to be quickly detected and reported. This results in less stopping and delays for the traveling public.