

Signal Timing Briefs

October 2014 - T14-11c

Mobility

DRCOG

DENVER REGIONAL COUNCIL OF GOVERNMENTS

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Ken Caryl Avenue: Valley Road to Platte Canyon Road

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.

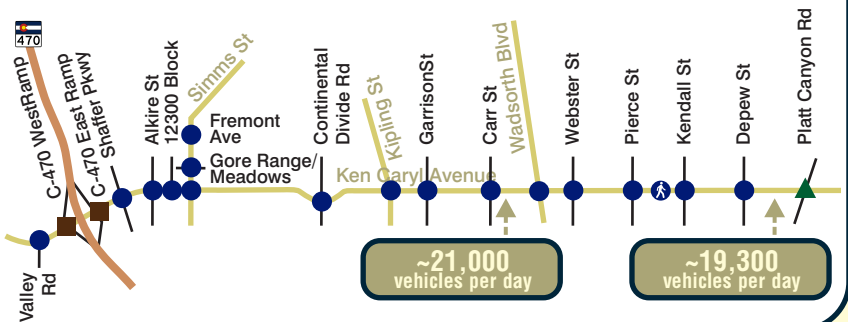


Project Description

The City of Littleton and Jefferson County are installing signal system and equipment upgrades on Ken Caryl Avenue. This project implemented timing and coordination plans for 18 signals on Ken Caryl Avenue with cross-coordination for two signals on Simms Street.

Ken Caryl Avenue is a principal arterial roadway in the Metro Vision Regional Transportation Plan and travels east-west in the southwestern portion of the Denver metro area, providing access to C-470 and the City of Littleton. Land use along the roadway in the project area is a mixture of residential and commercial property.

Ken Caryl Avenue



Project Partners' Signals

- Jefferson County
- CDOT
- ▲ City of Littleton
- ♠ Pedestrian-only signal

Project Achievements

Performance Measures

Vehicle hours of travel
 Fuel consumption
 Time and fuel costs
 Total greenhouse gas emissions
 Total criteria pollutant emissions

Daily Benefits

544 hours reduction
 275 gallons decrease
 \$12,800 savings
 5,702 pounds reduction
 68 pounds reduction

Ken Caryl Avenue: Valley Road to Platte Canyon Road

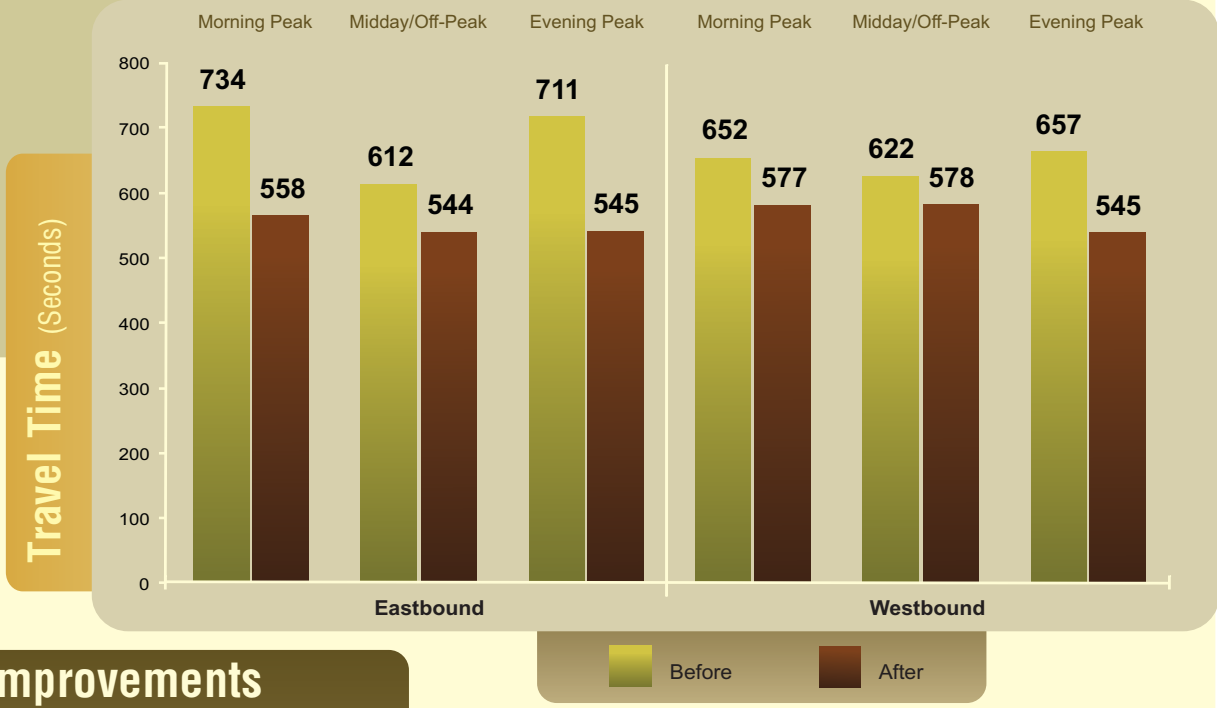
Timing Revision Weekday:

Time Period	Valley Rd C-470 W ramp to Mineral Ave	Morning Peak		Midday/Off-Peak		Evening Peak	
		Before	After	Before	After	Before	After
		Free ¹ (no change)		Free ¹ (no change)		Free ¹	3:30- 7:00 p.m.
		6:30-9:00 a.m. (no change)		9:00 a.m.- 4:00 p.m. ^{2,3}	9:00 a.m.- 3:30 p.m.	4:00- 7:00 p.m. ²	
Cycle Length (seconds)	Valley Rd to Carr St			75/Free ¹	90/Free ¹		
	Wadsworth Blvd			90/100 ³	100	60/120 ⁴	60/120 ⁵
	Webster St to Mineral Ave			75	90		
Other Timing Parameters		--	Revised	--	Revised	--	Revised

Travel Time Improvements (5.0 miles end to end)

Improvements were obtained during all periods in both directions.

- ¹ Valley Road operates in free mode (actuated operations instead of coordinated operations).
- ² The transition from mid-day to evening timing plans was 3:30 pm for the C-470 ramps and Wadsworth Boulevard.
- ³ Wadsworth Boulevard operated a 90-second cycle length from 9:00 to 11:30 am.
- ⁴ Garrison Street and Webster Street operated with a 60-second cycle length.
- ⁵ Garrison Street and Valley Road operate with a 60-second cycle length.



Overall Improvements

The value to motorists, in terms of weekday time and fuel savings, is calculated to be approximately \$12,800 daily or about \$3.2 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.