Signal Timing Briefs

April 2015 - T15-5a

Mobility

DRCOG
DENVER REGIONAL COUNCIL OF GOVERNMENTS
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Wolfensberger Road/Wilcox Street/5th Street: Prairie Hawk Drive to Woodlands Boulevard

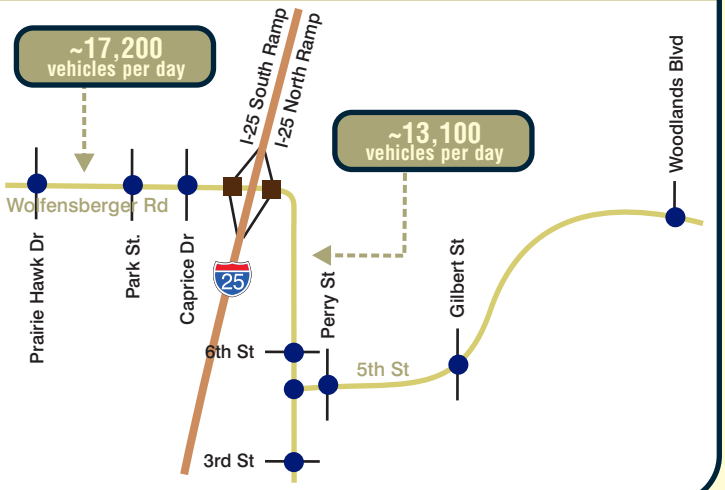
The Denver Regional Council of Governments leads multijurisdictional partnerships to achieve optimal signal timing and coordination on area roadways. Adjustments to signal timing are key to ensuring the smoothest possible flow for drivers, saving time and money. Signal timing also minimizes greenhouse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

Project Description

The Town of Castle Rock installed signal equipment and communications upgrades across its traffic signal system. This project implemented timing and coordination plans for 10 signals on Wolfensberger Road, Wilcox Street, and 5th Street and provided cross-coordination for one signal on Wilcox Street. Development of the timing and coordination plans was completed using the services of a consultant Muller Engineering Company, Inc.

Wolfensberger Road, Wilcox Street, and 5th Street are principal arterial roadways in the Metro Vision Regional Transportation Plan, providing access between Castle Rock and SH-86 and I-25. Land use along the roadway in the project area is a mix of commercial and residential.

Wolfensberger Road



Project Partners' Signals

- Town of Castle Rock
- CDOT

Project Achievements

Performance Measures	Daily Benefits
Vehicle hours of travel	84 hours reduction
Fuel consumption	55 gallons decrease
Time and fuel costs	$2,000 savings
Total greenhouse gas emissions	1,145 pounds reduction
Total criteria pollutant emissions	15 pounds reduction

Wolfensberger Road/Wilcox Street/5th Street: Prairie Hawk Drive to Woodlands Boulevard

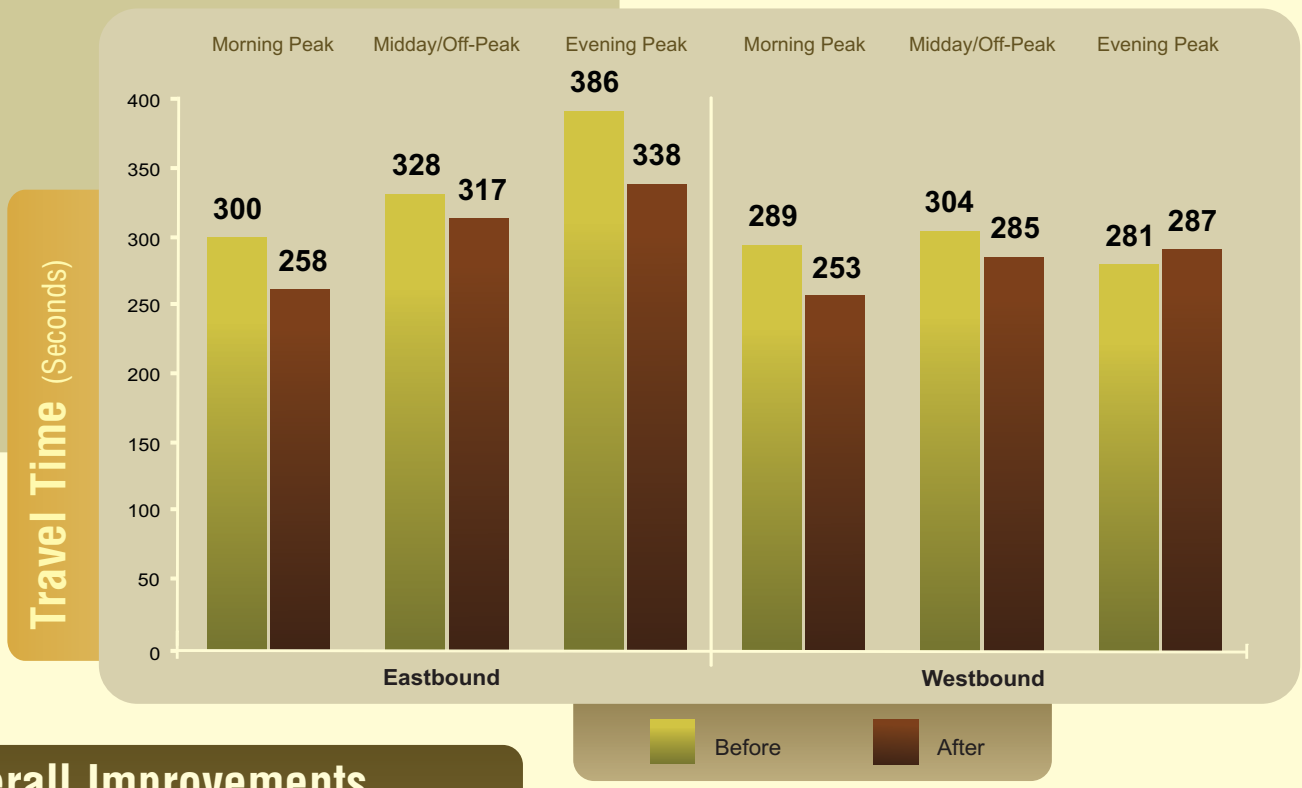
Travel Time Improvements
(1.8 miles end to end)

Improvements were obtained during all periods in both directions, except for the westbound direction in the evening period. However, the overall benefits during the evening period are positive. This is because improvements in the eastbound direction exceed the westbound results.

Timing Revision Weekday:

Time Period	Prairie Hawk Dr to Woodlands Blvd	Morning Peak		Midday/Off-Peak		Evening Peak	
		Before	After	Before	After	Before	After
		6:00 - 8:30 a.m.	6:00 - 9:00 a.m.	8:30 a.m. - 3:30 p.m.	9:00 a.m. - 3:00 p.m.	3:30 - 7:00 p.m.	3:00 - 6:00 p.m.
Cycle Length (seconds)	Prairie Hawk Dr to Caprice St	75	90	75	80	86	100
	I-25 SB Ramp & I-25 NB Ramp	76		Free		86	
	6th St to 3rd St	80	90/60[1]	90	80/60[1]	90	100/50[1]
	Perry St to Gilbert St	80	90	Free	80	90	100
	Woodlands Blvd	65	60	Free (No Change)		Free (No Change)	
Other Timing Parameters		--	Revised	--	Revised	--	Revised

[1] A 60-second cycle length is operating at 3rd Street during the Morning and Midday peaks while a 50-second cycle length is operating for the Evening Peak.



Overall Improvements

The value to motorists, in terms of weekday time and fuel savings, is calculated to be approximately $2,000 daily or about $500,000 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.

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