SPRINGDALE ARKANSAS

THOMPSON/71B CORRIDOR

VALIDATION STUDY BRIEF

PROJECT DESCRIPTION

The Thompson/71b corridor is a 3.09 mile long arterial corridor with 8 traffic signals. The arterial previously ran without coordination using video detection. This study compares the operation of the Thompson/71b corridor under its previous operating scheme with its operation under the InSync adaptive traffic control system.

OBJECTIVE

Reduce stops, travel time, delay and fuel consumption along the artery by optimizing traffic signal operations using InSync.

CHALLENGE

A major challenge of coordinating the Thompson/71b corridor was the large outflow of traffic from two nearby large companies: George's and Tyson Foods. Other challenges included the intersection of Highway 412 and the numerous mid-block entrances and exits, as well as traffic from the area high school and two elementary schools.

SOLUTION

Rhythm Engineering deployed the InSync adaptive traffic signal system at 8 signals along the 3.09 mile corridor at the end of March, 2010. By early May, Rhythm Engineering had configured the system, monitored its performance and made the appropriate adjustments to the system to optimize traffic flow.

DATA COLLECTION

Field data were collected along the study corridor during two study periods. The first was conducted March 30, 2010, prior to the installation of the InSync system. The second was conducted May 11, 2010, after InSync was deployed. Both studies were conducted on a Tuesday during normal weekday travel conditions to ensure similar travel patterns between studies. This corridor has > 30,000 ADT (average daily traffic).

The travel time runs were conducted through the corridor in both directions during three time-of-day periods (AM peak, noon and PM peak).

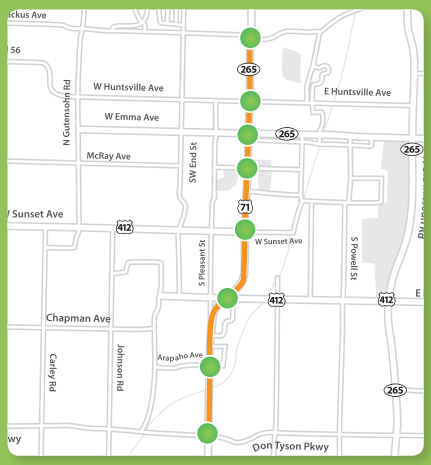
The drivers conducting the travel time study used the "floating car method," in which the drivers attempt to travel with the flow of traffic, changing lanes so as to pass as many cars as they are passed by. This method is used so that the travel times collected are representative of the travel time of the average vehicle traveling through the corridor.

Data were gathered by driving the corridor utilizing GPS equipment and software, collecting data, then processing the data using PC-Travel software.

BENEFITS

Calculations are based on an ADT of 32,987 vehicles and an assumption that the change impacts 50% of the ADT. All calculations are based on normal weekday travel and the results indicate approximate benefits to drivers.

	DAILY BENEFIT	ANNUAL BENEFIT
Vehicle Hours of Travel (reduction)	811 hours	211,400 hours
Fuel Consumption (decrease)	560 gallons	146,117 gallons
Stops (eliminated)	59,335 stops	15,469,578 stops
Total Economic Benefit (fuel • $2.50 + stops • $0.10 + time • $15.00)	**$19,497**	**$5,083,254**



The blue markers indicate the intersections where InSync is deployed. The Thompson/71b corridor is highlighted in orange.

The Rhythm Engineering adaptive solution is a fresh look at how to handle the age-old problem of how to move traffic more efficiently. The City of Springdale is proud to have partnered with Rhythm Engineering in deploying their current technology. We look forward to the continuing development of additional solutions to assist us in the challenges we face in the traffic industry.

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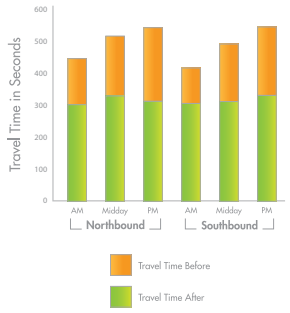
RESULTS

The study evaluates and compares the travel time, number of stops, speed, delay, emissions and fuel consumption before and after the implementation of the InSync system.

Travel Time Reductions



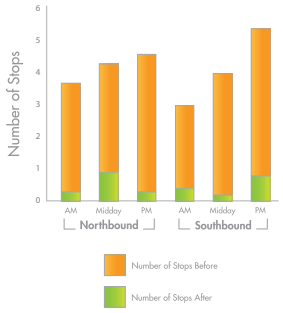
Northbound

AM Peak	144.1 secs	**32% reduction**
Noon	187.5 secs	**36% reduction**
PM Peak	230.6 secs	**42% reduction**

Southbound

AM Peak	111.2 secs	**27% reduction**
Noon	180.3 secs	**36% reduction**
PM Peak	214.5 secs	**39% reduction**

Stop Reductions



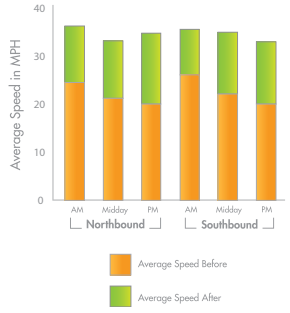
Northbound

AM Peak	3.4 stops	**92% reduction**
Noon	3.4 stops	**79% reduction**
PM Peak	4.3 stops	**93% reduction**

Southbound

AM Peak	2.6 stops	**87% reduction**
Noon	3.8 stops	**95% reduction**
PM Peak	4.6 stops	**85% reduction**

Average Speed Increases



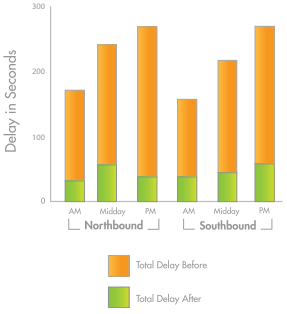
Northbound

AM Peak	11.8 mph	**48% increase**
Noon	12.0 mph	**56% increase**
PM Peak	14.8 mph	**73% increase**

Southbound

AM Peak	9.5 mph	**36% increase**
Noon	12.9 mph	**58% increase**
PM Peak	13.0 mph	**64% increase**

Delay Reductions



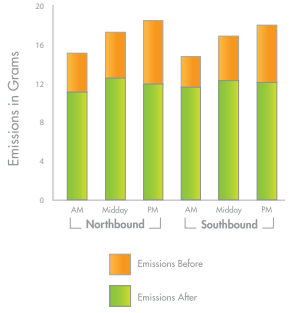
Northbound

AM Peak	139.0 secs	**81% reduction**
Noon	184.0 secs	**76% reduction**
PM Peak	230.0 secs	**86% reduction**

Southbound

AM Peak	118.9 secs	**76% reduction**
Noon	172.2 secs	**79% reduction**
PM Peak	210.8 secs	**78% reduction**

Hydrocarbon Emission Reductions



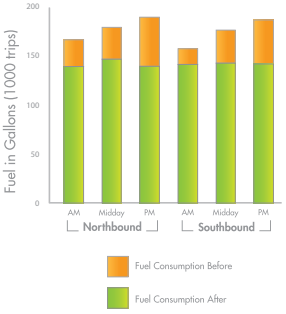
Northbound

AM Peak	4.0 grams	**26% reduction**
Noon	4.7 grams	**27% reduction**
PM Peak	6.5 grams	**35% reduction**

Southbound

AM Peak	3.1 grams	**21% reduction**
Noon	4.6 grams	**27% reduction**
PM Peak	5.9 grams	**33% reduction**

Fuel Reductions



Northbound

AM Peak	0.03 gallons	**16% reduction**
Noon	0.03 gallons	**18% reduction**
PM Peak	0.05 gallons	**26% reduction**

Southbound

AM Peak	0.02 gallons	**10% reduction**
Noon	0.03 gallons	**19% reduction**
PM Peak	0.04 gallons	**24% reduction**

MOST NOTEWORTHY IMPROVEMENTS:

- 95% reduction in stops
- 86% reduction in delay
- 73% increase in average speed
- 26% reduction in fuel consumption
- 42% reduction in travel time
- 35% reduction in emissions

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