



UPPER MERION

ROUTE 202 CORRIDOR PENNSYLVANIA

VALIDATION STUDY BRIEF

PROJECT DESCRIPTION

InSync is installed in Upper Merion Township, Pennsylvania along a 1,800 foot portion of an arterial corridor with two traffic signals on Route 202 at Gulph Road and Mall Boulevard. This study compares the operation of the Route 202 corridor under its previous timing schemes with its operation using the InSync adaptive traffic control system.

OBJECTIVE

Reduce saturation—and coordination—induced congestion, high travel times and high delay negatively impacting local businesses and residents.

CHALLENGE

The major challenges of coordinating the signals on Route 202 are the high traffic volume from nearby King Of Prussia Mall, heavy commuter traffic from Interstates 76 and 276, as well as unexpected fluctuations in traffic volume. The corridor was previously coordinated by a fixed timing plan installed in 2008.

SOLUTION

Rhythm Engineering deployed the InSync adaptive traffic signal system at two intersections along the 1,800 foot corridor in April 2010. Immediately thereafter, Rhythm Engineering configured the system, monitored its performance and made the appropriate adjustments to the system to optimize traffic flow.

DATA COLLECTION

Data was collected in May 2010 after the InSync system was installed and had been in operation for several weeks. Field data was collected again along the study corridor in June 2010 after the InSync system was temporarily reverted to the previous timing plans. The data collected during this period was used as the baseline for comparing measures of effectiveness.

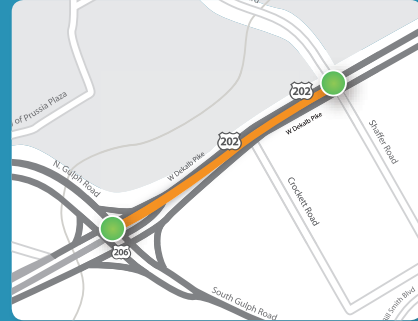
The travel time runs were conducted through the corridor in both directions during three time-of-day periods (AM Peak, Midday Peak, PM Peak). The drivers conducting the travel time study used the “floating car method,” which the drivers attempt to travel with the flow of traffic, changing lanes so as 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 was gathered by driving the corridor utilizing GPS equipment and software, collecting data, then processing the data using PC-Travel software.

BENEFITS

Estimated benefit calculations are based on an ADT of 47,000 vehicles and an assumption that the change impacts 34% of the ADT. The 34% multiplier was used as that portion of the ADT is present on the corridor during the days and times studied; actual benefits are likely far greater as more than 34% of motorists experience the benefits of InSync.

	PEAK-TIME DAILY BENEFIT	PEAK-TIME ANNUAL BENEFIT
Vehicle Hours of Travel(reduction)	142 hours	36,900 hours
Fuel Consumption (decrease)	106 gallons	27,563 gallons
Stops (eliminated)	6,246 stops	1,623,870 stops
Total Economic Benefit (fuel • \$2.89 + stops • \$0.10 + time • \$15.00)	\$3,059	\$795,405



The green markers indicate the intersections where InSync is deployed. The Route 202 corridor is highlighted in orange.

InSync is a traffic engineer’s dream... the intersection works fully actuated and accommodates all movements in an efficient manner while also maintaining progression along the corridor, it’s the best of both worlds.

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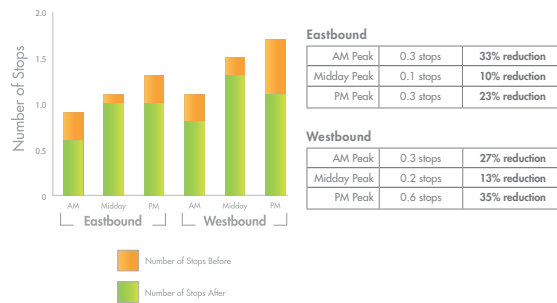
RESULTS

The study evaluates and compares the travel time, number of stops, speed, delay, hydrocarbon emissions, and fuel usage before and after the implementation of the InSync system. The full independent study is also available.

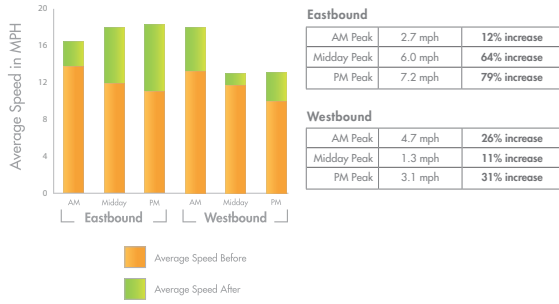
Travel Time Reduction



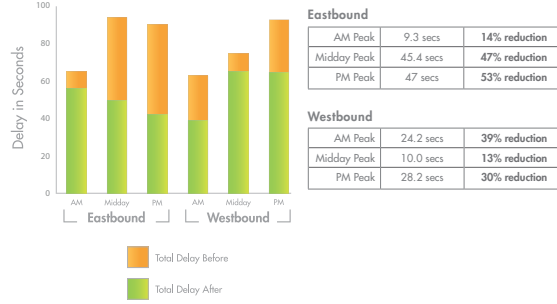
Stop Reduction



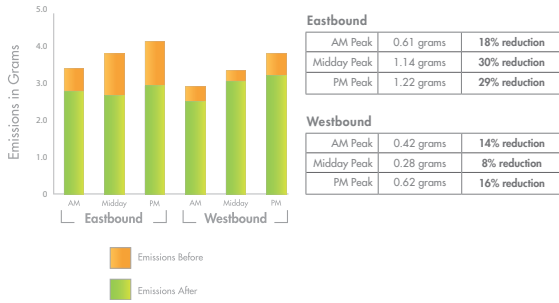
Average Speed Increase



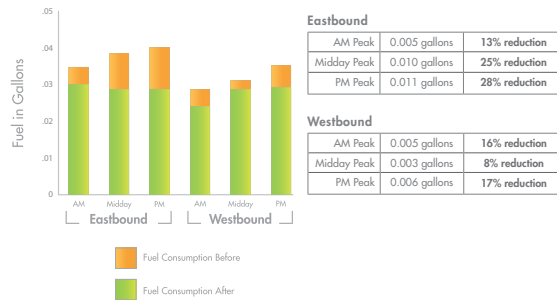
Delay Reduction



Hydrocarbon Emissions Reduction



Fuel Usage Reduction



Data collected by Pennoni Associates Inc, King of Prussia, PA, 2010.

MOST NOTEWORTHY IMPROVEMENTS:

- 86% reduction in stops
- 76% reduction in delay
- 35% increase in average speed
- 30% reduction in emissions
- 28% reduction in fuel usage
- 26% reduction in travel time