

# Impact of the I-66 Active Traffic Management (ATM) System

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# I-66 Active Traffic Management

- System became active on 9/16/15, approx. \$24M cost
- Total of 22 gantries each direction, spaced approximately 0.6 miles apart
- Includes variable speed limits (online in mid-January), dynamic hard shoulder running, and lane use control signals
- Initial analysis focused on Centreville (Exit 52) to I-495 (Exit 64)



# Hard Shoulder Running Usage

- Before ATM, shoulders on I-66 from US 50 to I-495 were open to travel on a fixed schedule:
  - EB: 5:30-11:00 AM weekdays only
  - WB: 2:00-8:00 PM weekdays only
- After ATM, shoulders were also opened as needed based on traffic congestion.
- Average daily duration of shoulder lane sign activation from 9/15 to 2/16:

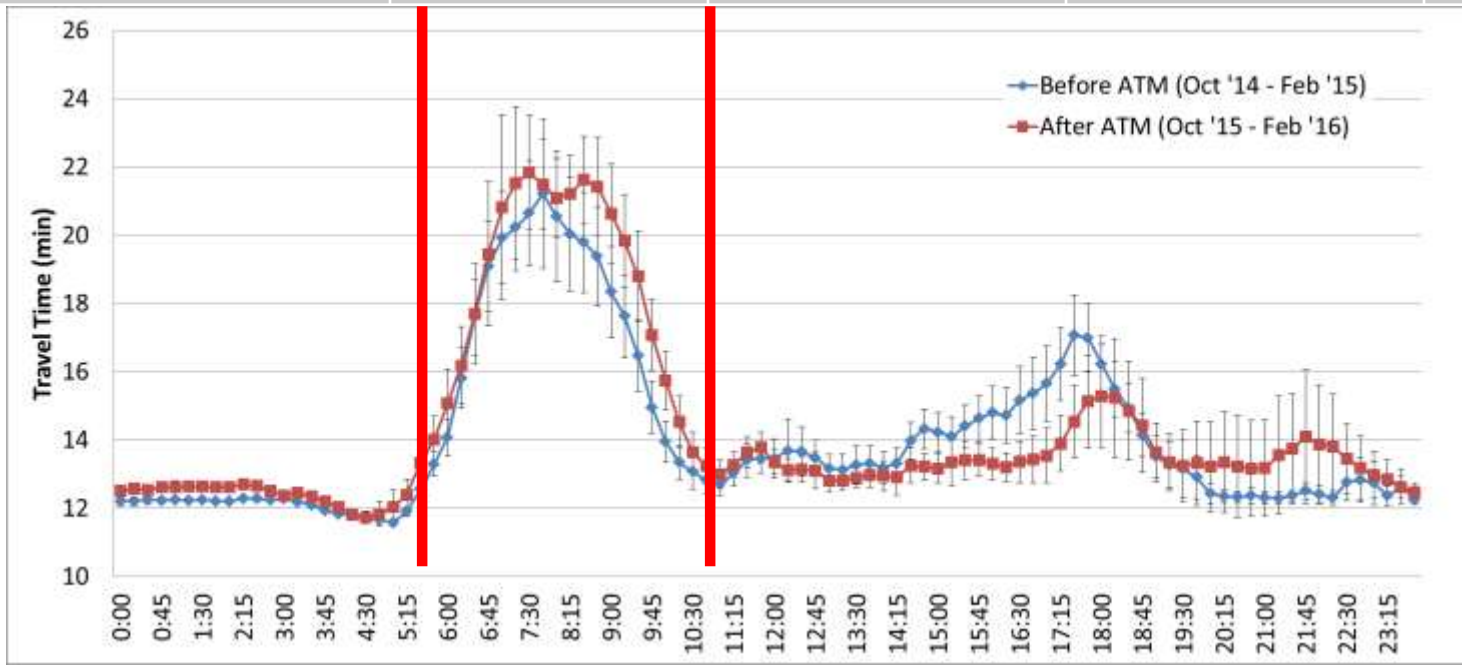
Direction	Weekdays	Weekends
EB	8.0 hrs	2.4 hrs
WB	5.9 hrs	2.0 hrs



# 2014-2015 vs. 2015-2016

## Avg EB Weekday Travel Times

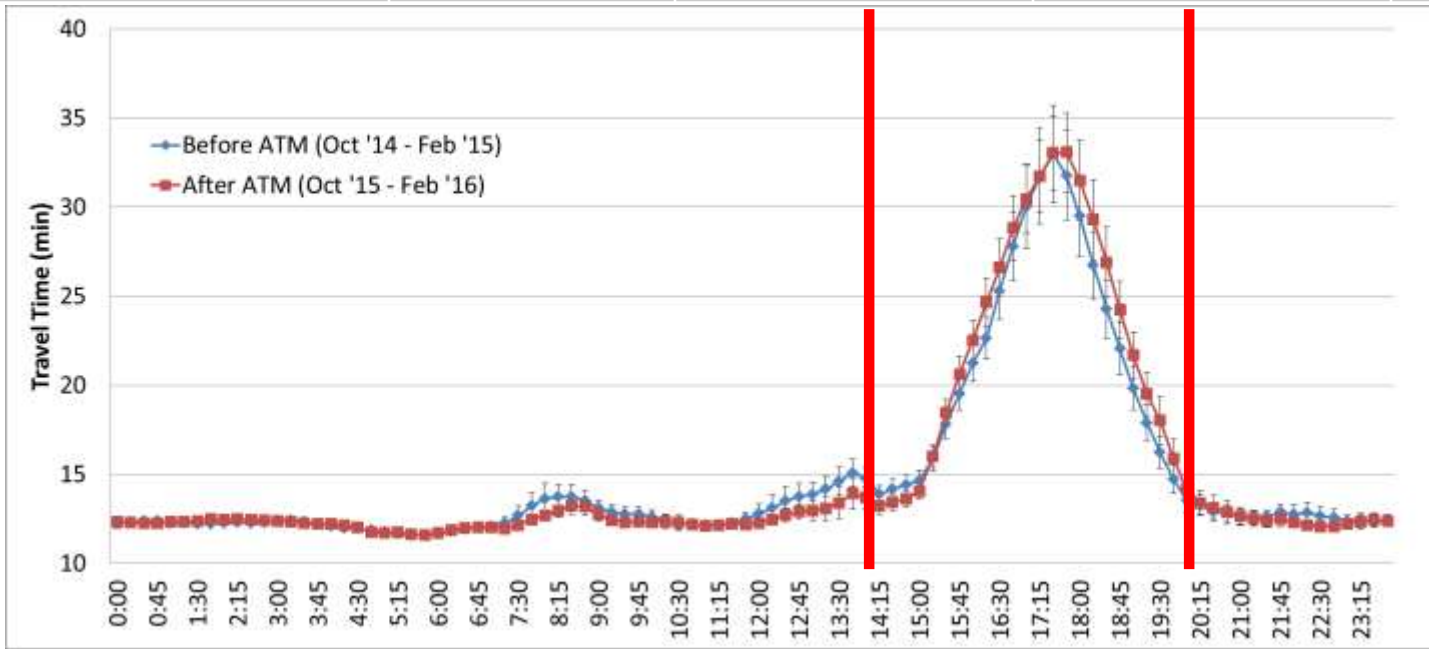
Time Period	Oct 2014 - Feb 2015	Oct 2015 - Feb 2016	Change	Statistically Significant?
AM Peak (5:30AM - 11AM)	17.0 min	18.2 min	+1.2 (+7%)	Yes
Midday (11AM - 2PM)	13.3 min	13.2 min	-0.1 (-1%)	Yes
PM Peak (2PM - 8PM)	14.7 min	13.7 min	-1.0 (-6%)	Yes



# 2014-2015 vs. 2015-2016

## Avg WB Weekday Travel Times

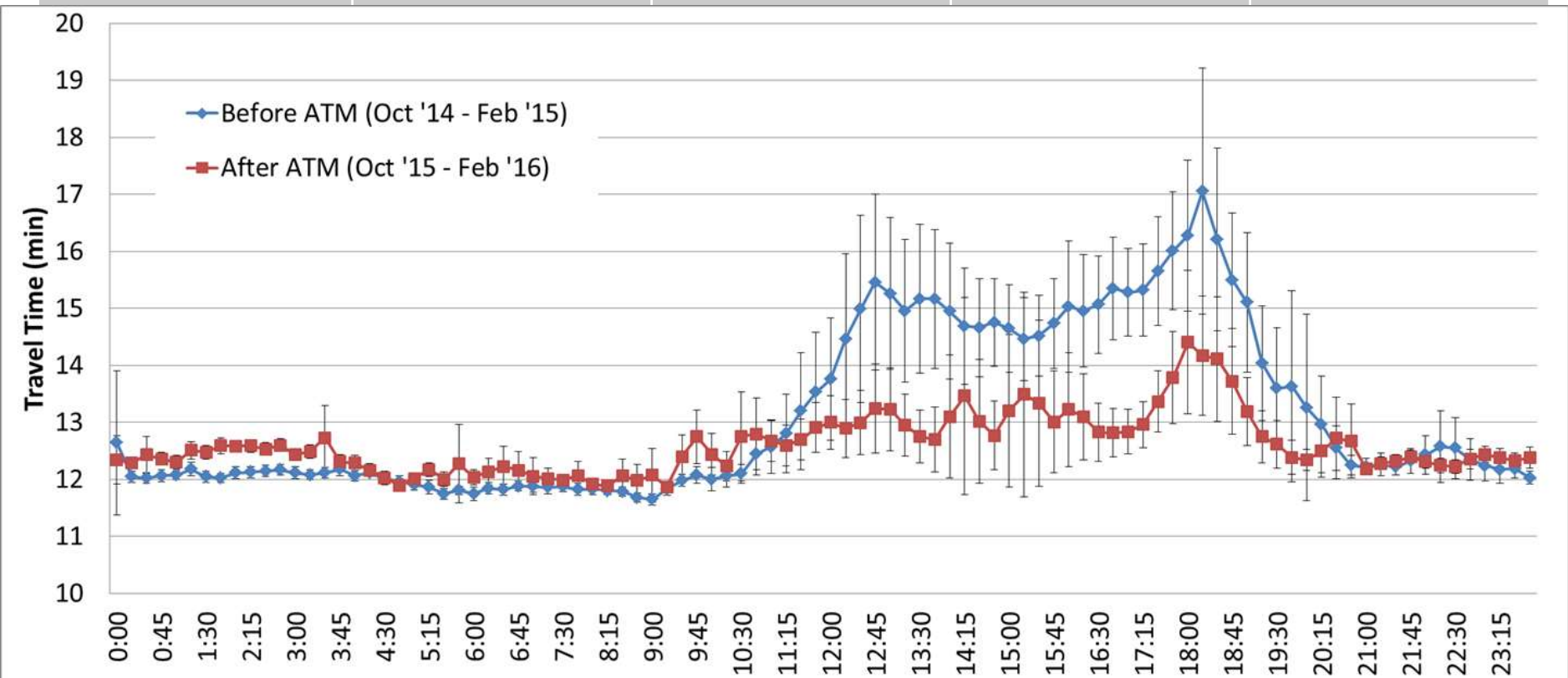
Time Period	Oct 2014 - Feb 2015	Oct 2015 - Feb 2016	Change	Statistically Significant?
AM Peak (5:30AM - 11AM)	12.6 min	12.3 min	-0.3 (-2%)	Yes
Midday (11AM - 2PM)	13.3 min	12.7 min	-0.6 (-5%)	Yes
PM Peak (2PM - 8PM)	21.7 min	22.5 min	+0.8 (+4%)	Yes



# 2014-2015 vs. 2015-2016

## Avg EB Weekend Travel Times

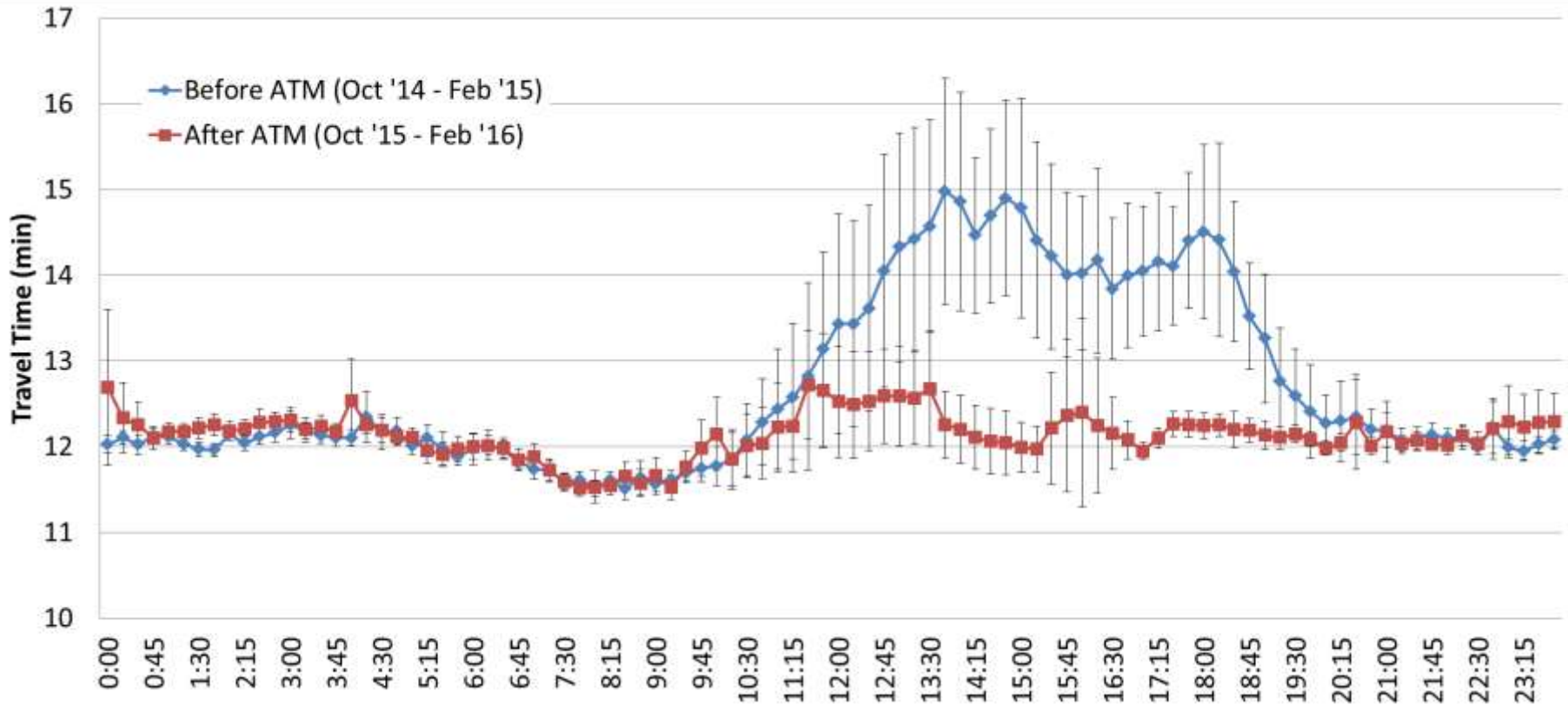
Time Period	Oct 2014 - Feb 2015	Oct 2015 - Feb 2016	Change	Statistically Significant?
Daytime Peak (10AM - 8PM)	14.5 min	13.1 min	-1.4 (-10%)	Yes



# 2014-2015 vs. 2015-2016

## Avg WB Weekend Travel Times

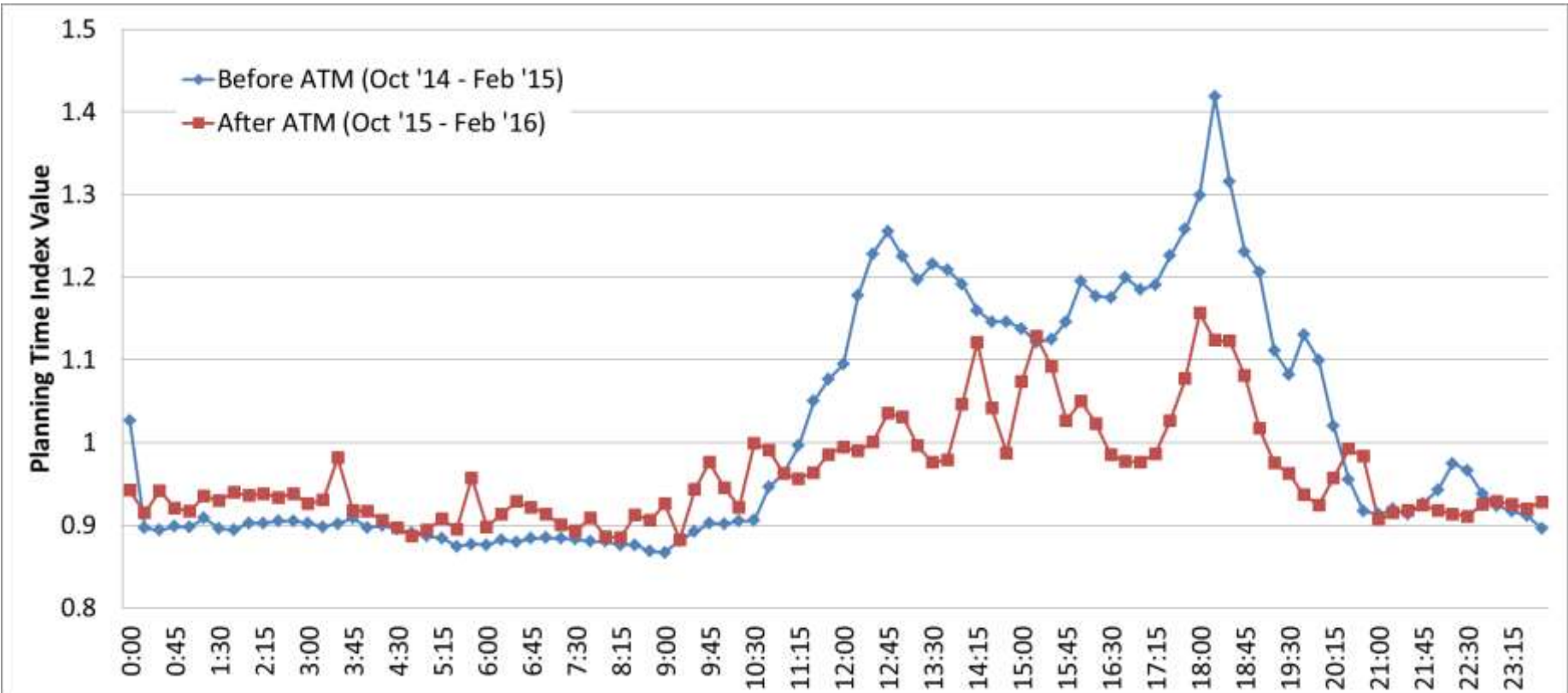
Time Period	Oct 2014 - Feb 2015	Oct 2015 - Feb 2016	Change	Statistically Significant?
Daytime Peak (10AM - 8PM)	13.7 min	12.2 min	-1.5 (-11%)	Yes





# 2014-2015 vs. 2015-2016 Avg EB Weekend Planning Time Index

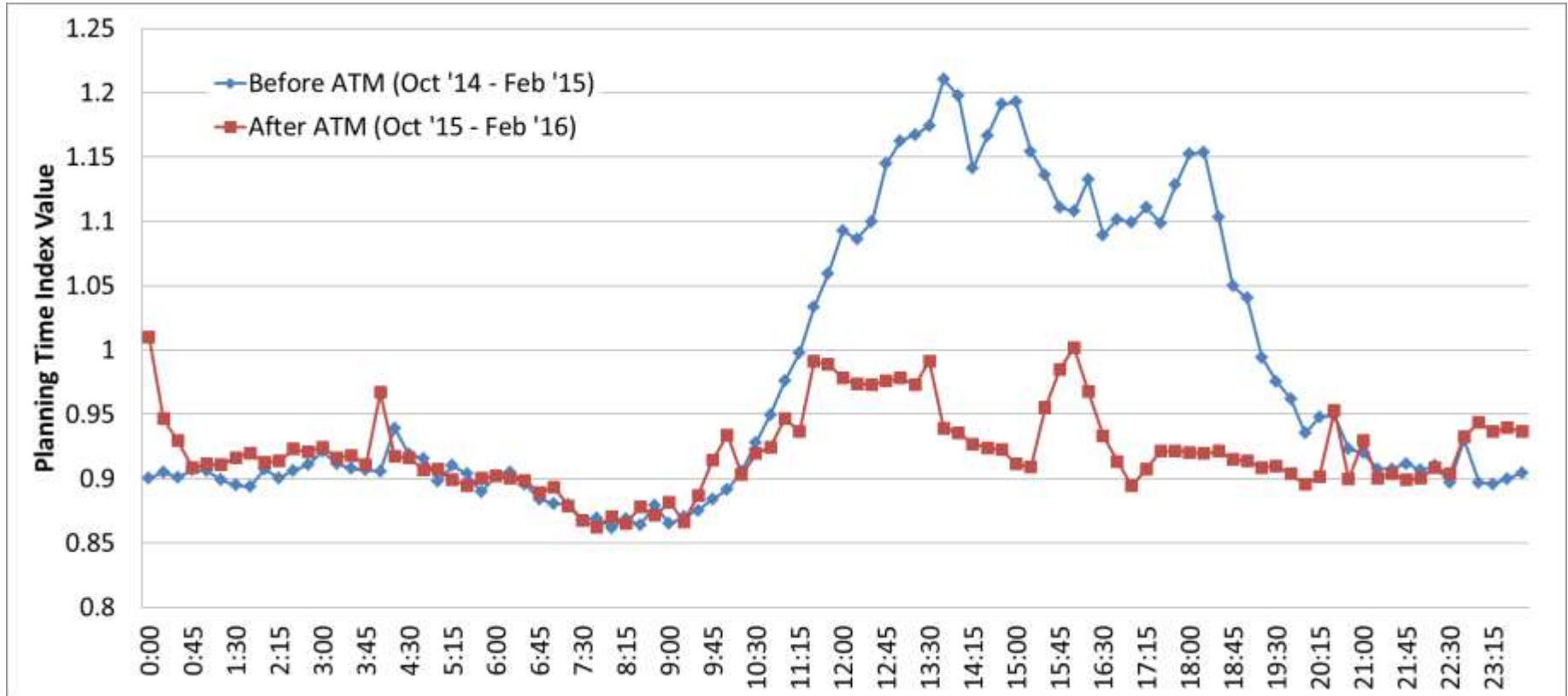
Time Period	Oct 2014 - Feb 2015	Oct 2015 - Feb 2016	Change	Statistically Significant?
Daytime Peak (10AM - 8PM)	1.15	1.02	-0.13 (-11%)	Yes





# 2014-2015 vs. 2015-2016 Avg WB Weekend Planning Time Index

Time Period	Oct 2014 - Feb 2015	Oct 2015 - Feb 2016	Change	Statistically Significant?
Daytime Peak (10AM - 8PM)	1.09	0.94	-0.15 (-14%)	Yes



# Conclusions

- The ATM system had minimal effect on travel times during weekday peak periods, since shoulders were already in use before installation.
- Small benefits were observed in the off peak direction and during midday periods during the week.
- Flow improved substantially during the weekends. Both mean travel time and travel time reliability improved by a statistically significant amount.
- Most improvements appear to be attributable to shoulder lane usage.
- Currently examining crash data, but early results appear to show some reductions in crashes.

