Indiana SR-9 Deployment: Traffic Signal Performance Measures Case Study
Lucy M. Richardson¹, Tom Platte², Darcy M. Bullock¹

1: Purdue University; 2: Indiana Department of Transportation

Abstract
As part of ongoing maintenance, INDOT annually identifies several signalized corridors for equipment upgrades and updating of traffic signal timings. The first phase of these efforts is detector maintenance and deployment of upgraded controllers and communication. Traffic signal performance measures collected using the upgraded equipment can then be used to identify signal timing improvements. This poster illustrates the steps followed and outcomes from the traffic signal modernization work on State Road 9 (SR-9) in Anderson, Indiana.

Field Equipment Upgrades

Quantities

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Controllers

- SR-9 @ 12th St

Detector Mapping

- SR-9 @ 12th St

Communication

- Data In
- Data Out

Time in Cycle

- 0:00
- 6:00
- 9:00
- 15:00
- 19:00
- 22:00

Sample Progression Optimization

Existing Flow Profiles:
- SB: 08:00 - 09:00
- NB: 08:00 - 09:00

Optimized Flow Profiles:
- SB: 08:00 - 09:00
- NB: 08:00 - 09:00

Outcome Assessment

- Probability of Green
- Vehicle Arivals

Optimized using Link-Pivot Algorithm; implementation & results TBD.

Field Equipment Upgrades

- Existing Split Failures: 0
- Change in Split Failures: +3

Lessons Learned

- Need for centralized detector channel mapping
- Importance of asset management
- Detector channels & phases changing during modernization projects
- Managing impact of modernization projects
- Loss of detection, communication
- Identifying milestones for successful implementation
- Equipment upgrades, communication status
- Differences in high-resolution data implementation between controller vendors