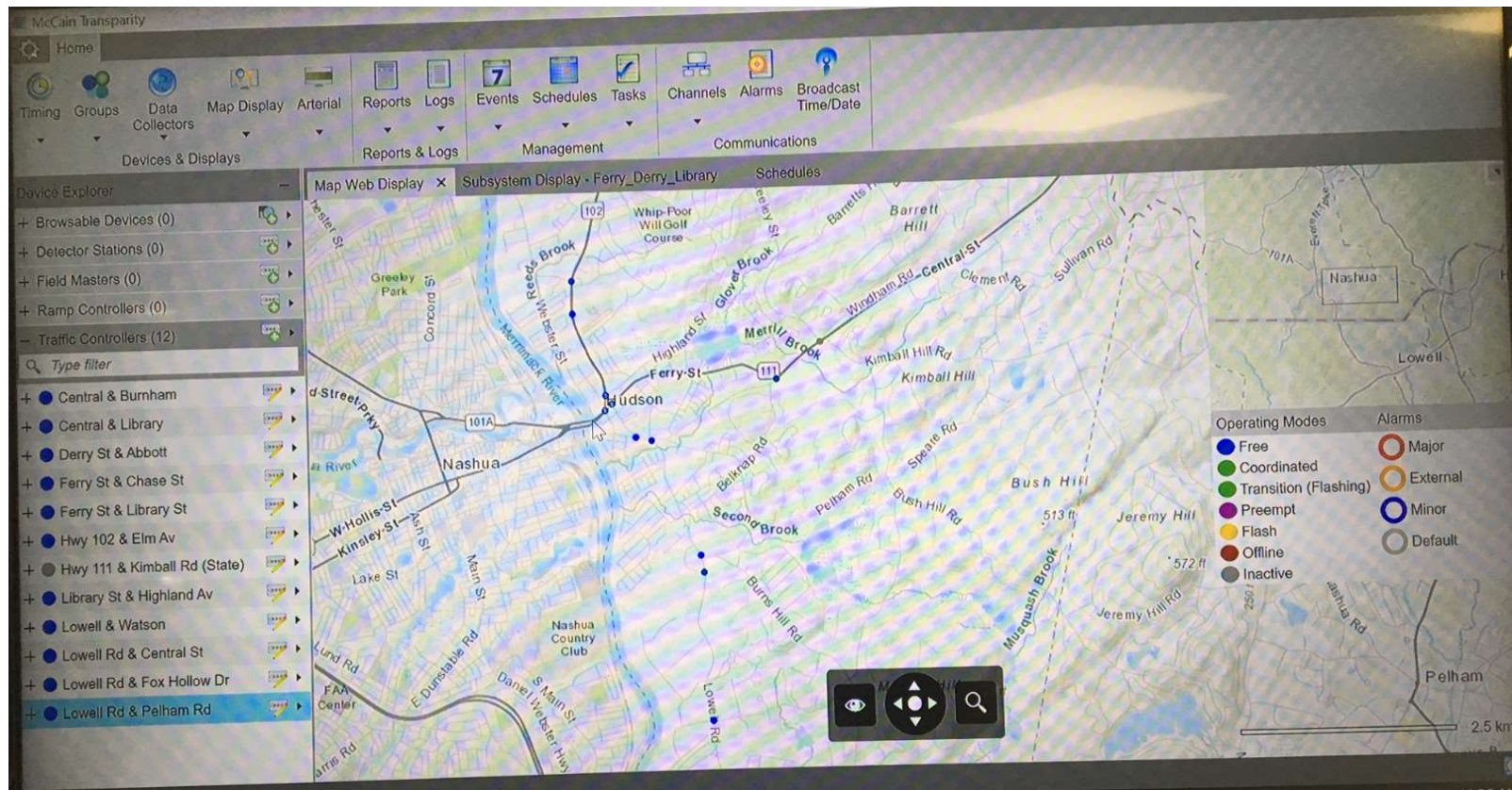


Traffic Signal Operations in Hudson, NH

Presented by Elvis Dhima, P.E. Town Engineer



Traffic Lights Inventory

- 14 Town Owned and Operated
- 11 State Owned and Operated



What Does a Traffic Light Consist of:

- Traffic Cabinet
- Detection
- Engineering

1. Traffic Cabinet

- Contains Traffic Controller & Detection Processor
- Eagle or McCain Controller in Hudson
- Hudson switching to 100% McCain



2. Detection

- a. Loops on the ground
- b. First Generation Cameras
- c. Second generation Cameras
- d. Radar

- Hudson Uses GRIDSMART



Traffic Light is NOT a Rotisserie Chicken:

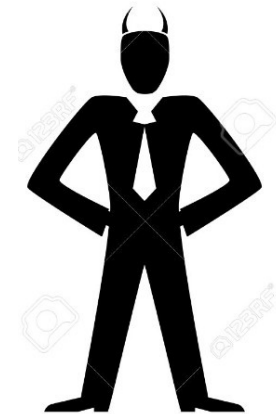


GOAL: Keep the traffic moving=> Increase Capacity + Reduce Delays



Main Complaints:

1. Too Much Traffic
2. Green Light Not Long Enough
3. My Turn Got Skipped
4. I Want to Talk to Your Manager

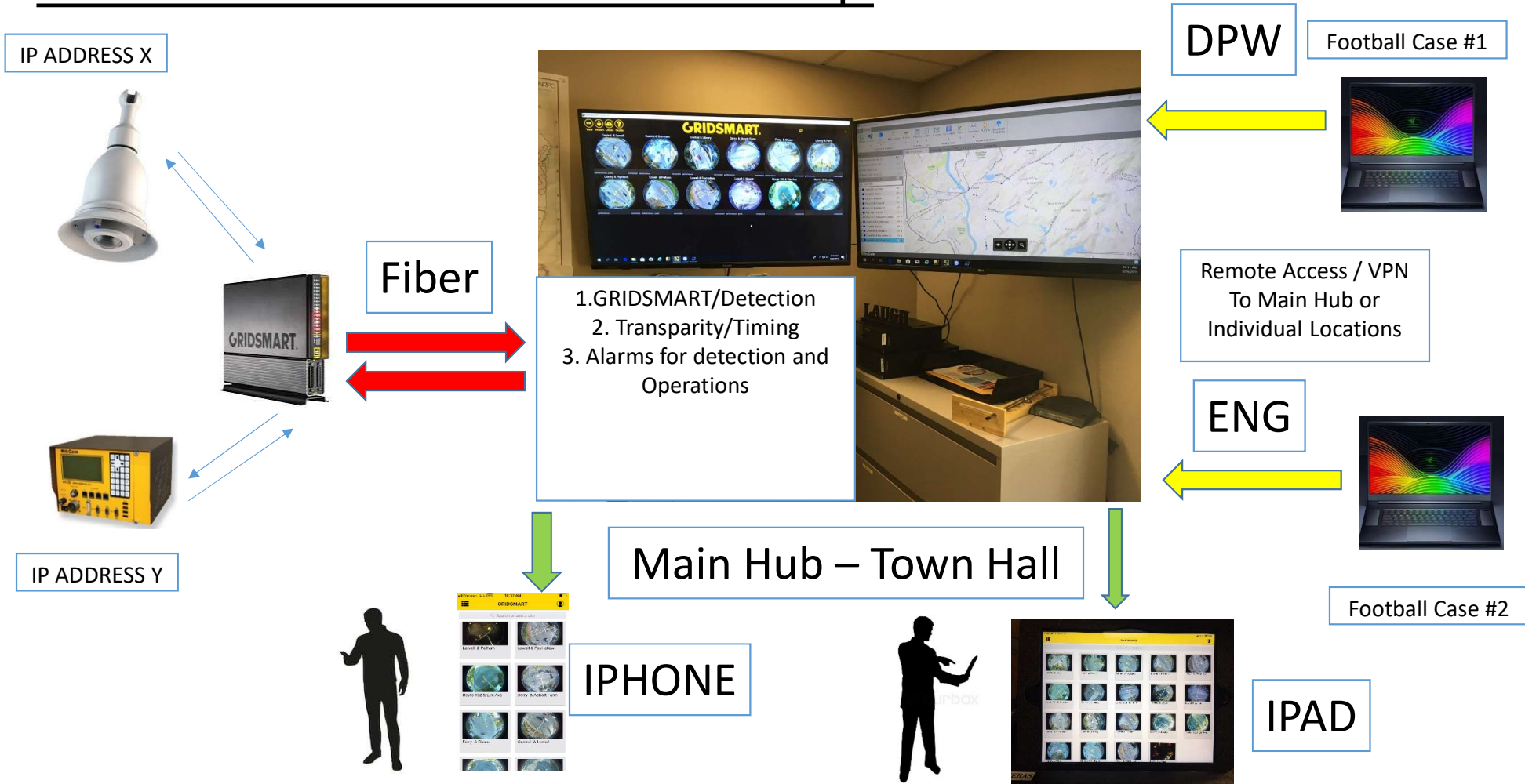


Typical Issues With Traffic Lights

- Increase in Traffic Volume
- Need for Timing Adjustments
- Issues with Detection
- Max Recall Set Up
- People on the Phone while Driving



Hudson Traffic M&O Set Up



GRIDSMART Camera Performance

Performance Packets Provides

1. Turning Movement Count
2. Daily Volumes
3. Vehicle Length Classification
4. Red Light Violations Counts
5. Green Arrivals
6. Red Arrivals
7. Speed

Report Type

Volume

Turning Movement Count

Volume

Seven Day Volume

Length Classification

Incident

Green Occupancy

Red Occupancy

Percent Arrivals on Green

Percent Arrivals on Red

Speed

Raw Export

McCain Transparency

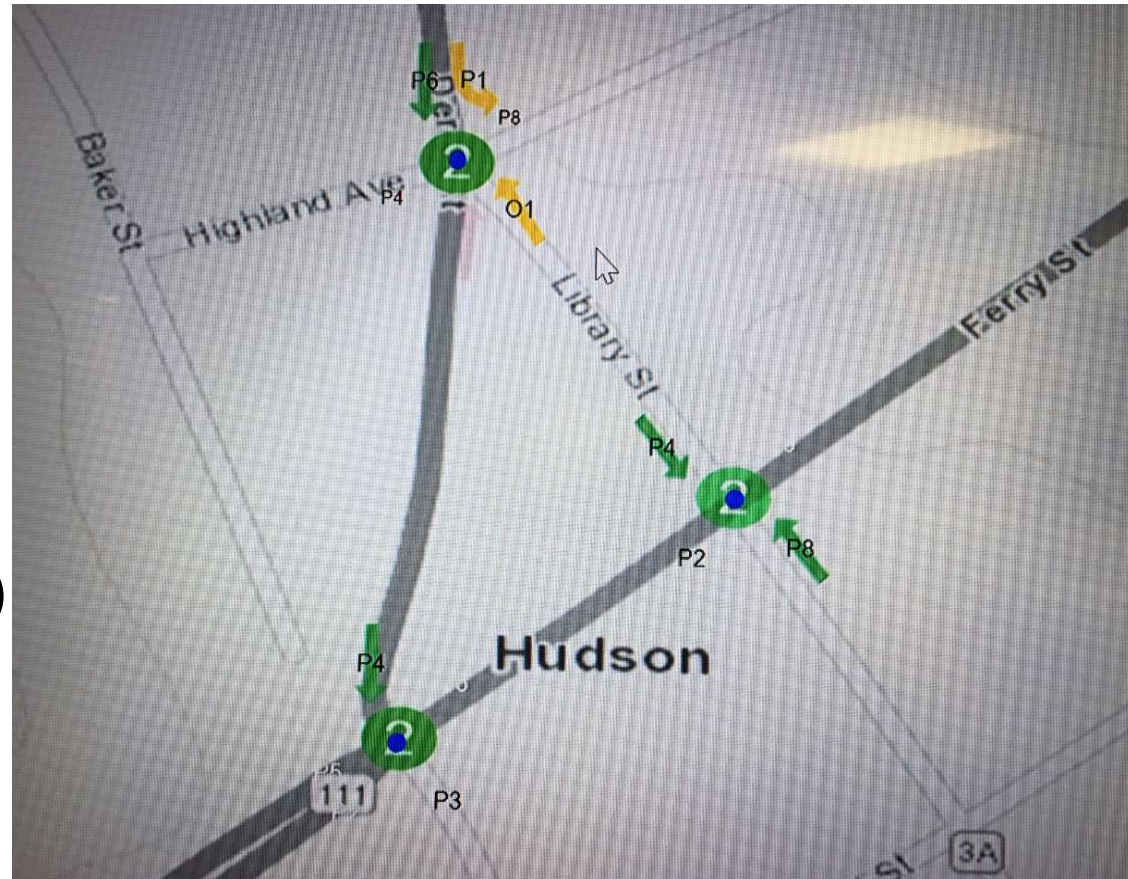
- Provides friendly platform for traffic timing adjustments
- Alarms
- Operation Modes (Free/Coordination/Transition/Preempt/Flash)
- Provides Broadcasting Time/Dates for all connected controllers
- Provides Schedules and Events adjustments
- Backups and ability to provide reloads on new controllers (cloud)
- Pier to Pier Progression Set up between intersections

Benefits of Current System in Place

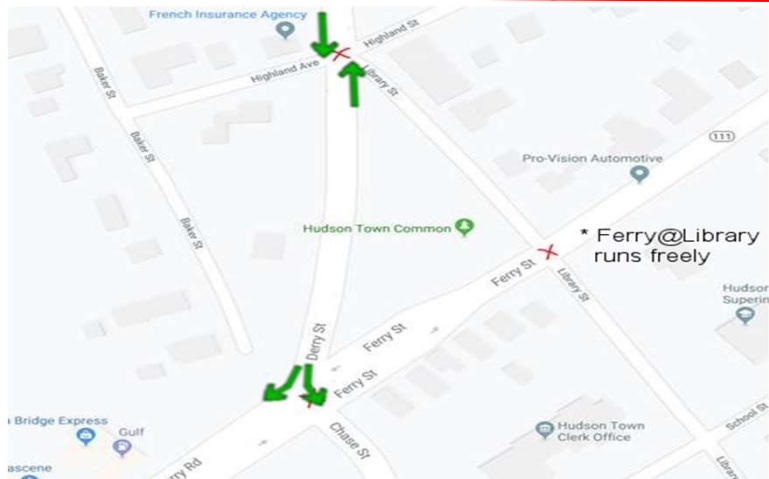
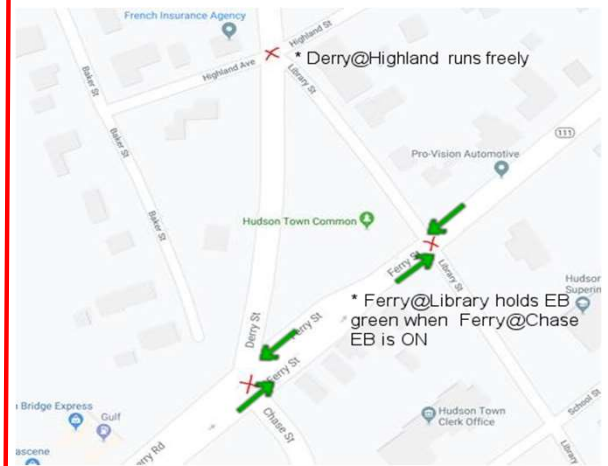
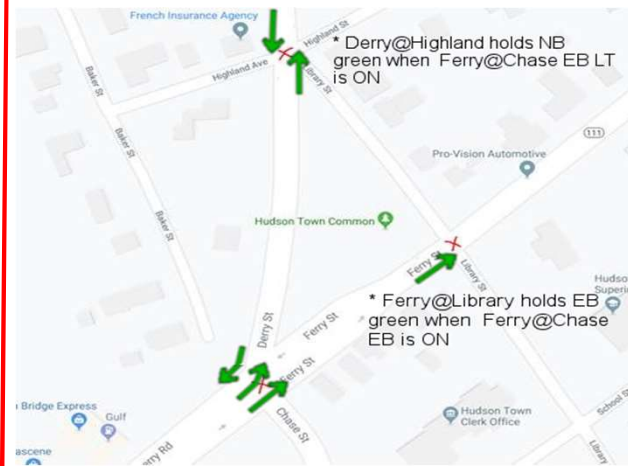
- 24/7 Access for monitoring / adjustments and data collection
- Better operations and measurable improvements through the system
- Better tools for staff to make necessary adjustments
- Cost benefit / remote access for staff, consultants and contractors
- One universal platform for all the traffic lights in Town
- Provides ability to update equipment and software (every 4-6 months)

Success Stories (Bermuda Triangle) (P-P)

- Derry-Ferry-Chase (80,000-85,000 VPD)
- Pier to Pier implemented on 9/2/2019
- Comparison Data with 9/19/2019
- Pattern is a combination of free and coordination
- Pattern implemented 6 AM to 6 PM (M-F)
- Ferry and Chase (30,000 VPH)
(Control Intersection)



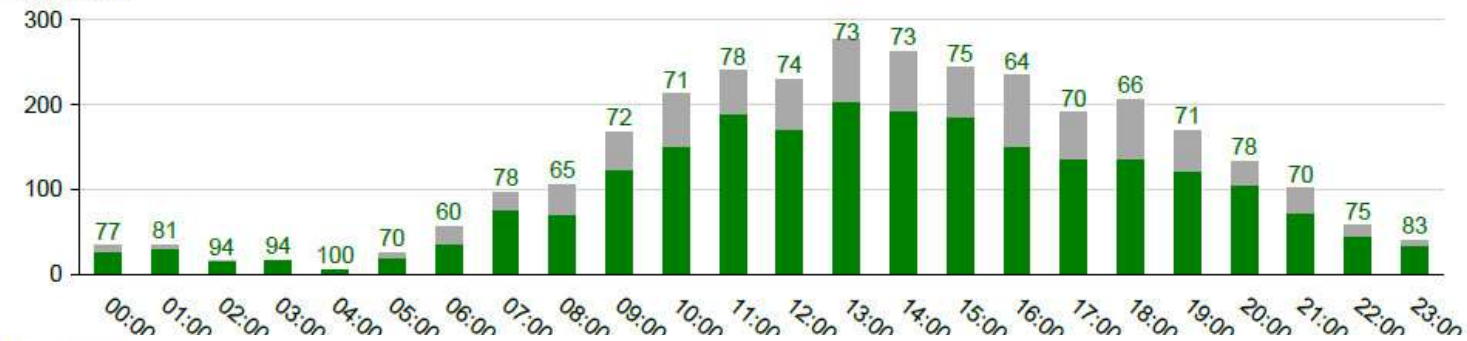
Bermuda Triangle Operations Breakdown



Before and After Green Arrivals

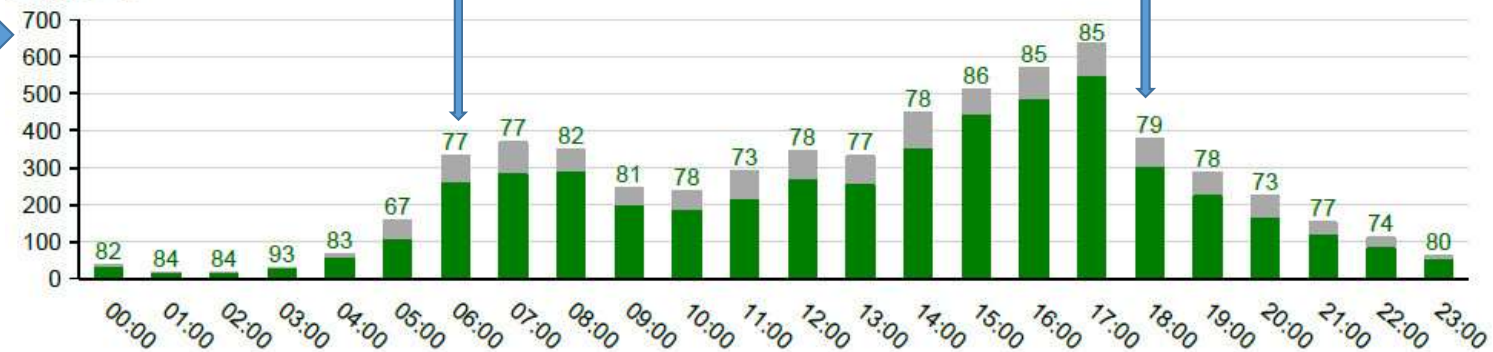
- Nashua Traffic to Hudson (Phase 2 Straight)

Phase 2



Before

Phase 2

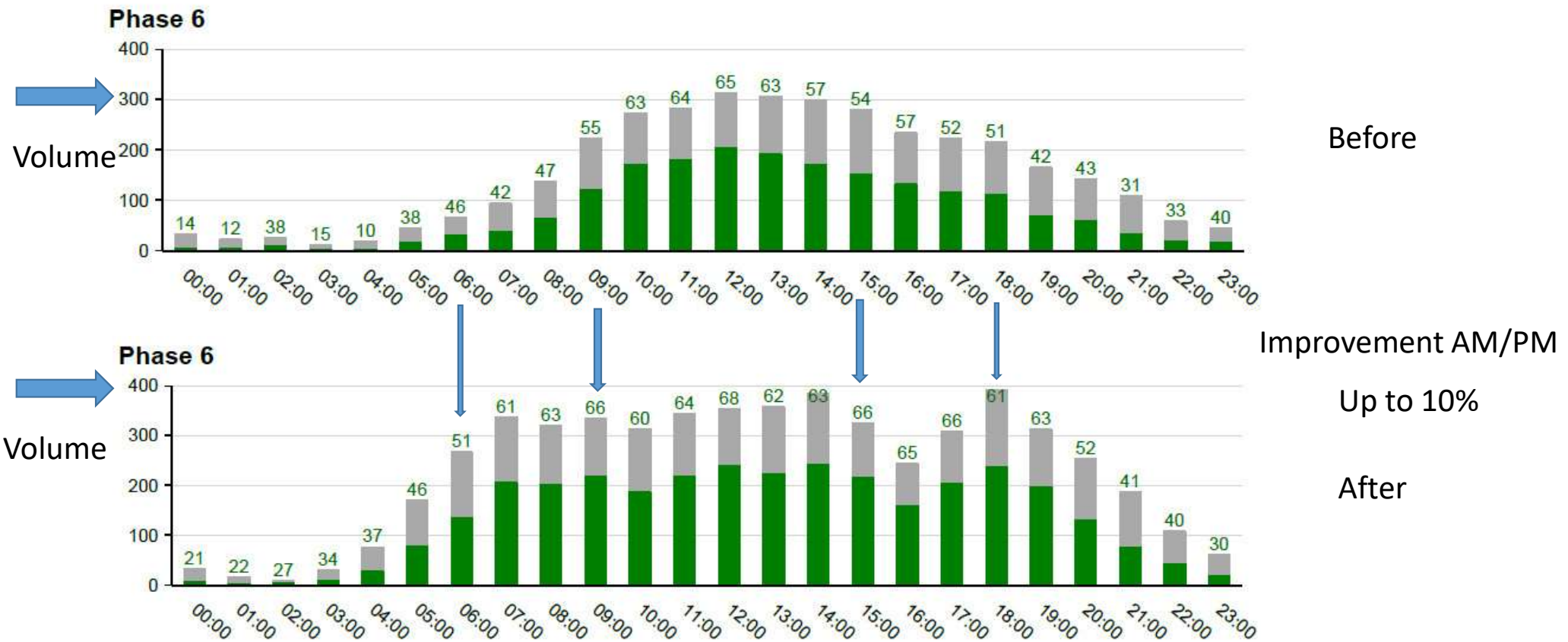


Improvement up to 17%

After

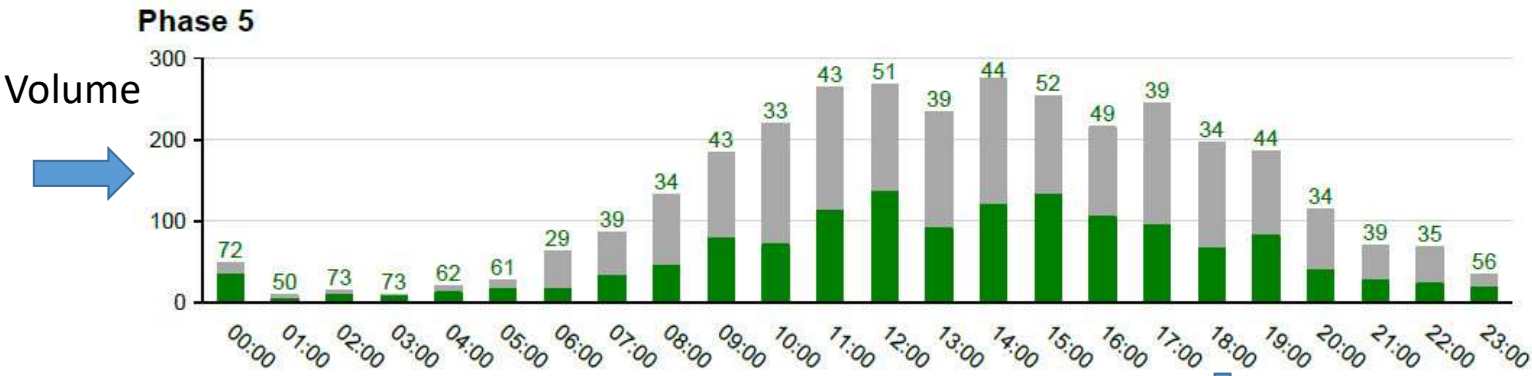
Before and After Green Arrivals

- Nashua Traffic to Hudson (Phase 6 Left on Rt. 102)

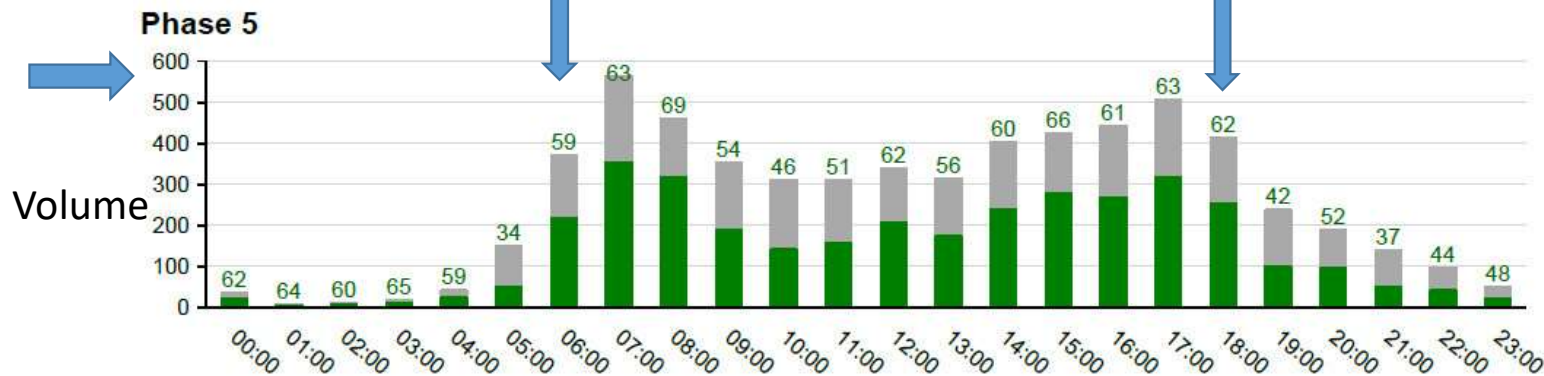


Before and After Green Arrivals

- Hudson Traffic to Nashua (Phase 5 Straight)



Before

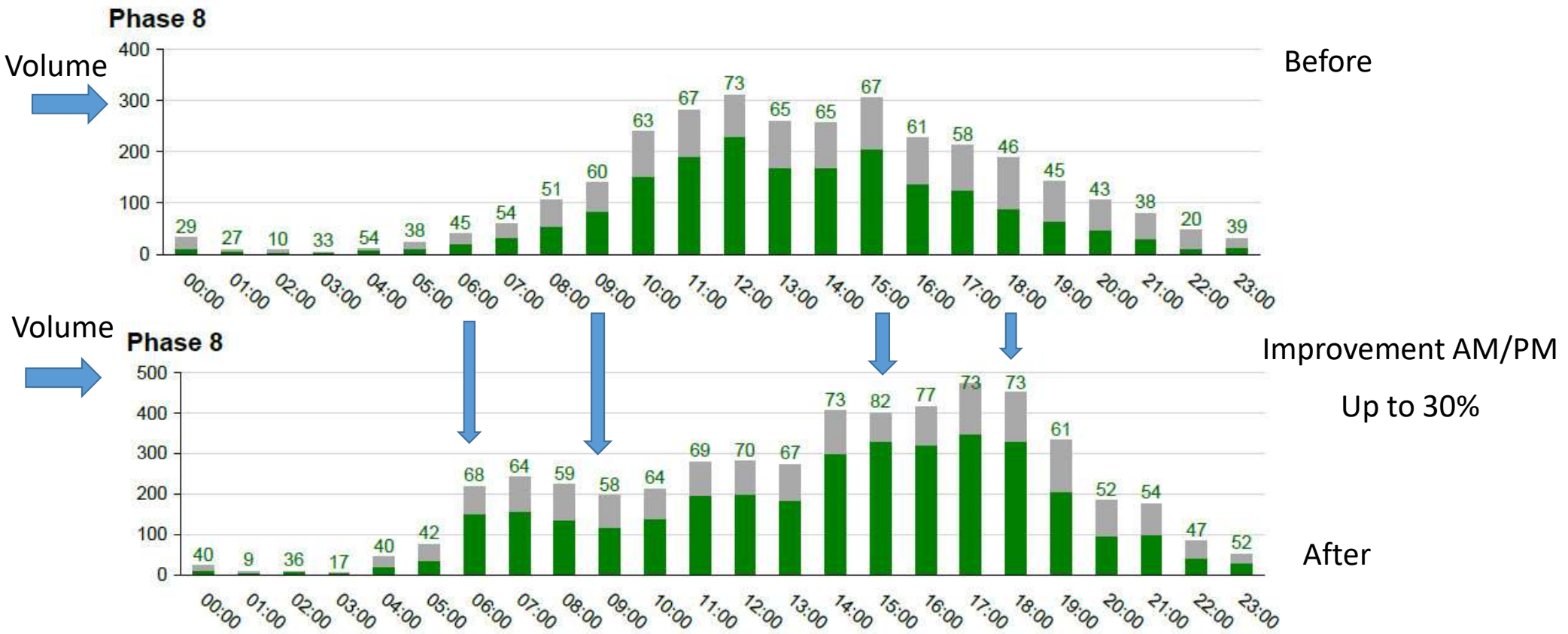


Improvement up to 30%

After

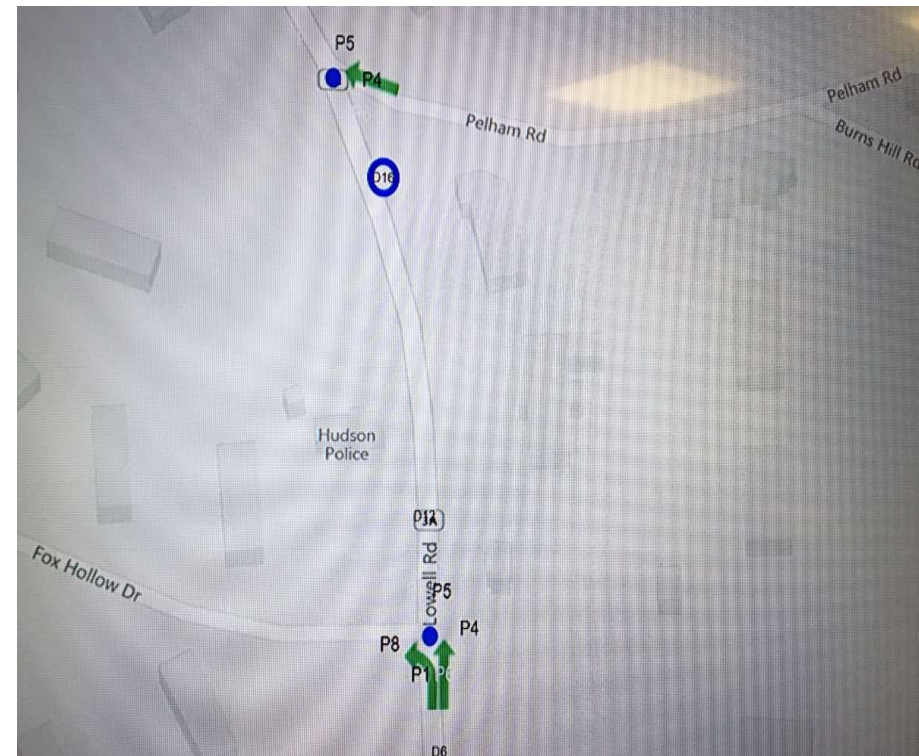
Before and After Green Arrivals

- Hudson Traffic Library Street(Phase 8 Straight)



Before / After Green Arrivals (Lowell/Pelham)

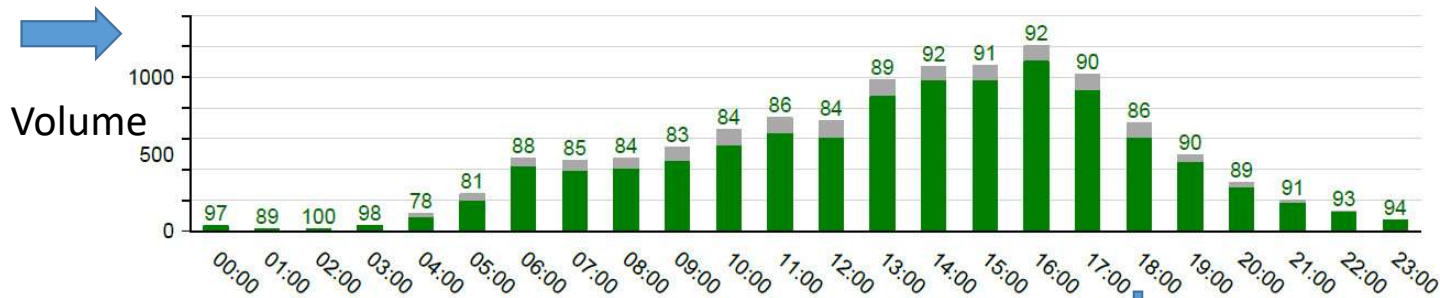
- Daily Volume (28,000-30,000 VPD)
- Pier to Pier implemented on 9/26/2019
- Comparison Data with 9/23/2019
- Pattern is a combination of free/cord mode
- Control point is Lowell & Fox
- Pattern implemented 6 AM to 6 PM (M-F)
- Issues on Pelham Road (volume& delays)



Before / After Green Arrivals (Lowell/Pelham)

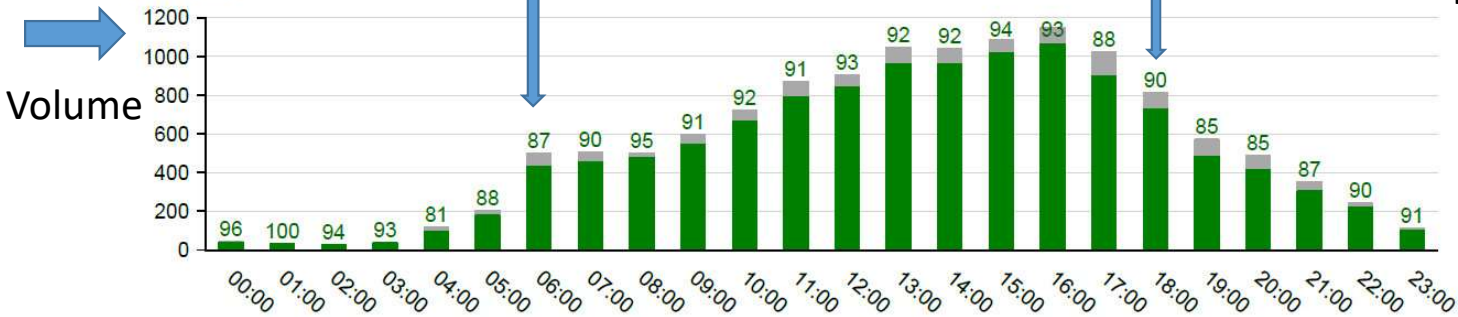
- Lowell Traffic (Phase 6 Straight)

Phase 6



Before

Phase 6



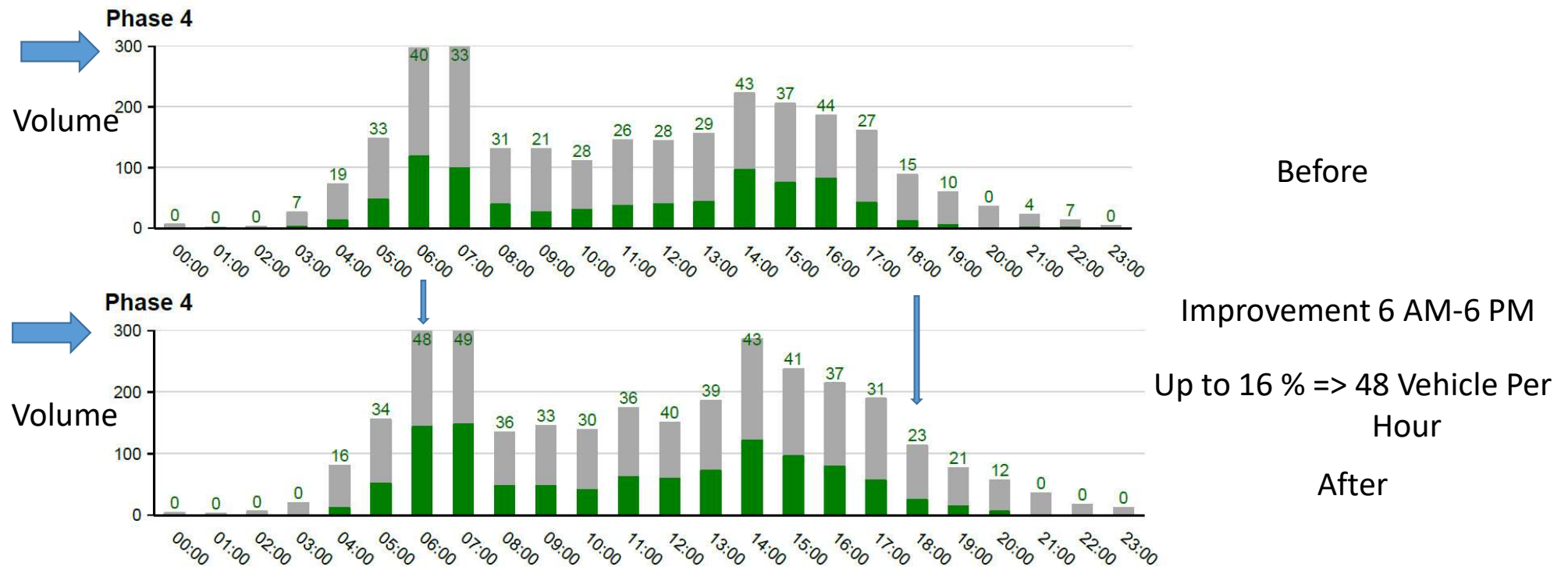
Minor Improvement 6 AM-6 PM

5% of 800 = 40 Vehicle Per Hour

After

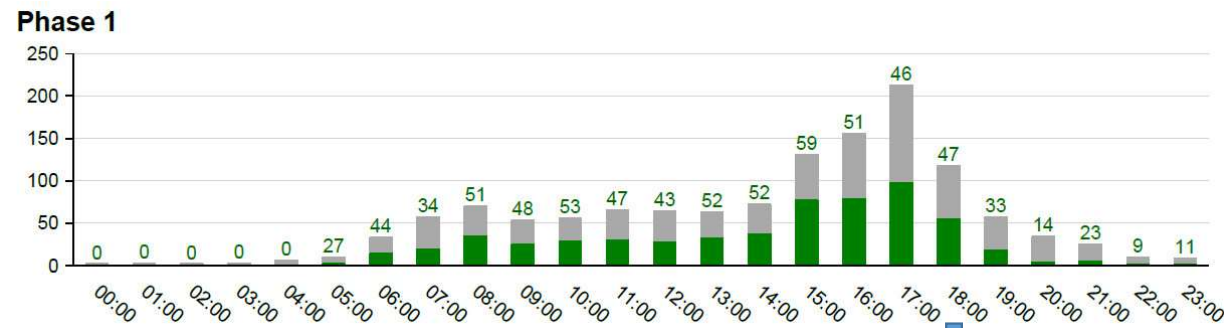
Before / After Green Arrivals (Lowell/Pelham)

- Pelham Traffic (Phase 4) (Left & Right Turns to Lowell)

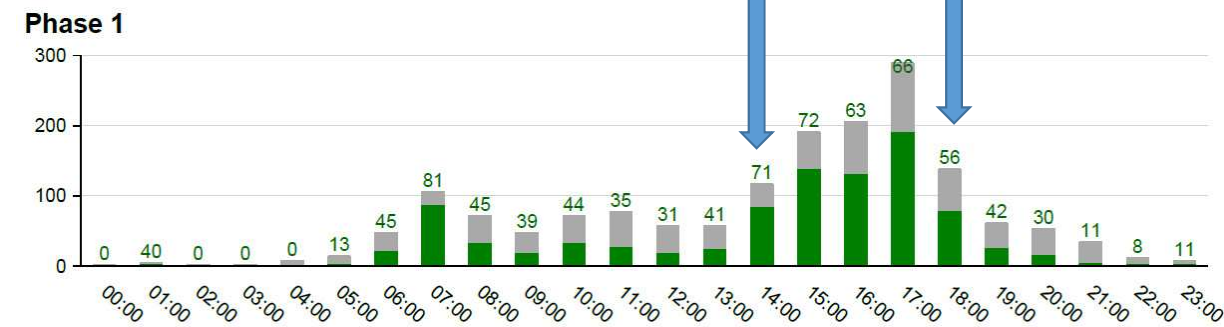


Before and After Green Arrivals

- Central & Lowell (26,000 VPD) (Revision of timing after camera observation) (free operation 24/7) (issues with safe left turns)



Before



Improvement PM up to 20%

After