

Broward County Traffic Engineering Programs



Broward County Traffic Engineering Programs

- Traffic Signal Coordination
- Hardware and Software Technologies



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- [Traffic Signal Coordination](#)
- Hardware and Software Technologies



County's Traffic Signal Network

- 1,400+ signalized intersections
- 100's miles of underground copper and fiber-optic communications



Traffic Signal Cycle

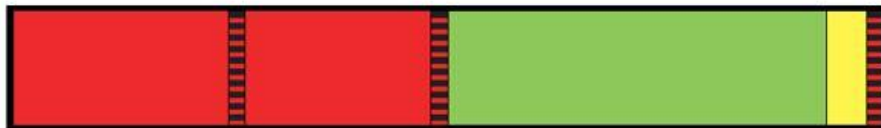
Red-Yellow-Green Phases



Minor Street



Major Street Left Turns

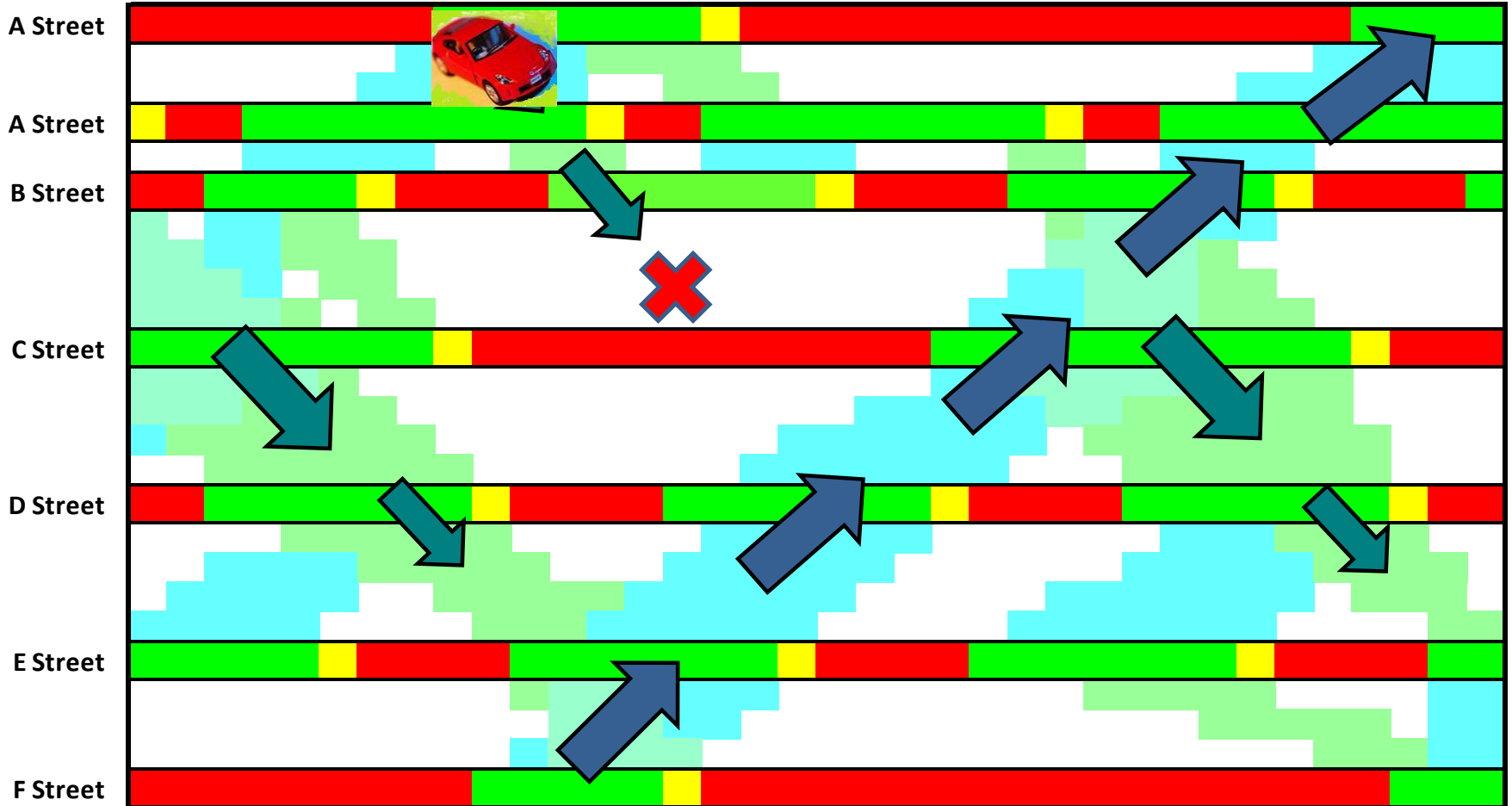


Major Street



Typical Signal Progression

[NORTH]



 TIME

 = GREEN PHASE MAJOR STREET

 = RED PHASE MAJOR STREET

Well-Synchronized (Goal)

[NORTH]

A Street

A Street

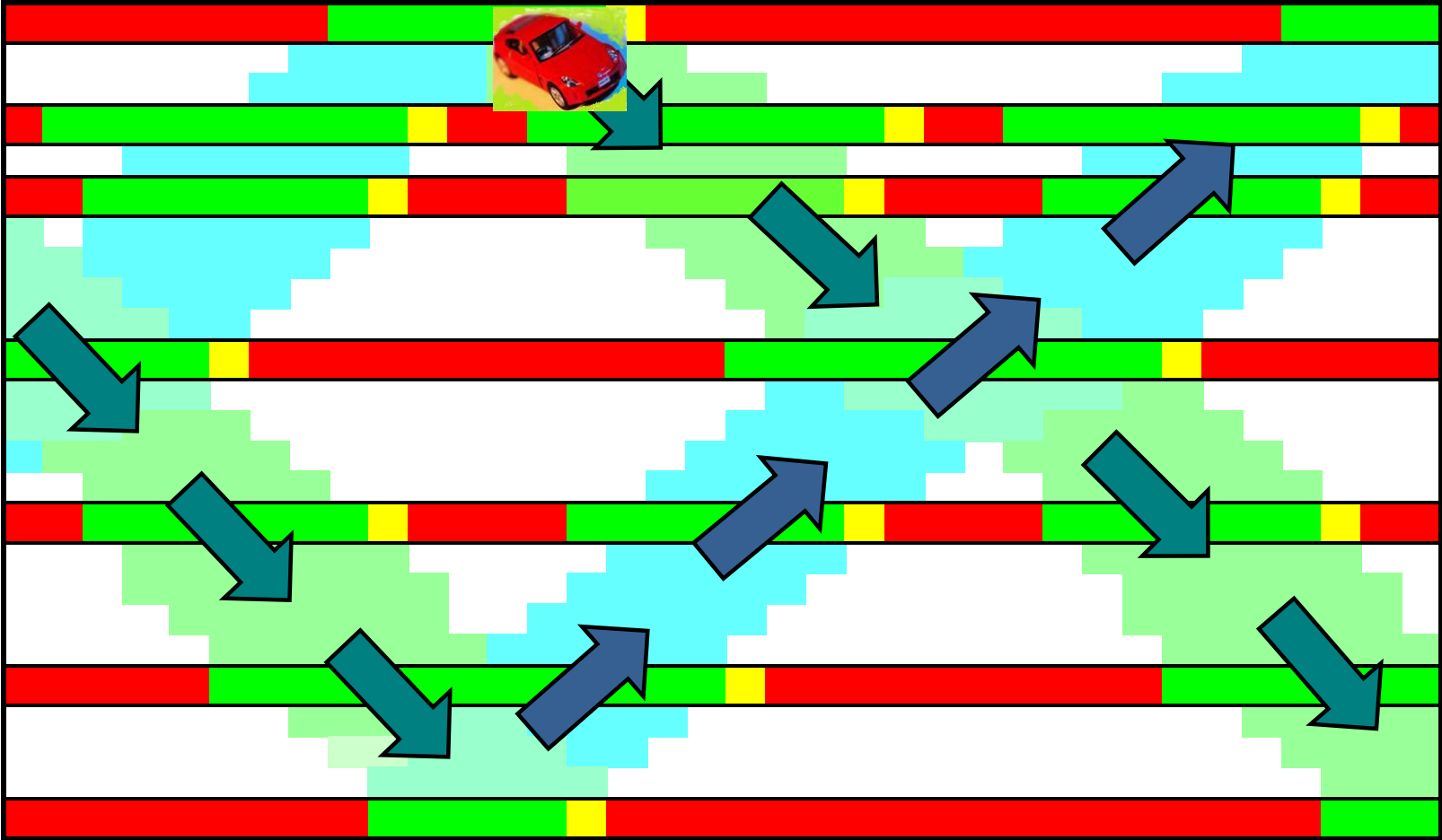
B Street


C Street

D Street

E Street

F Street



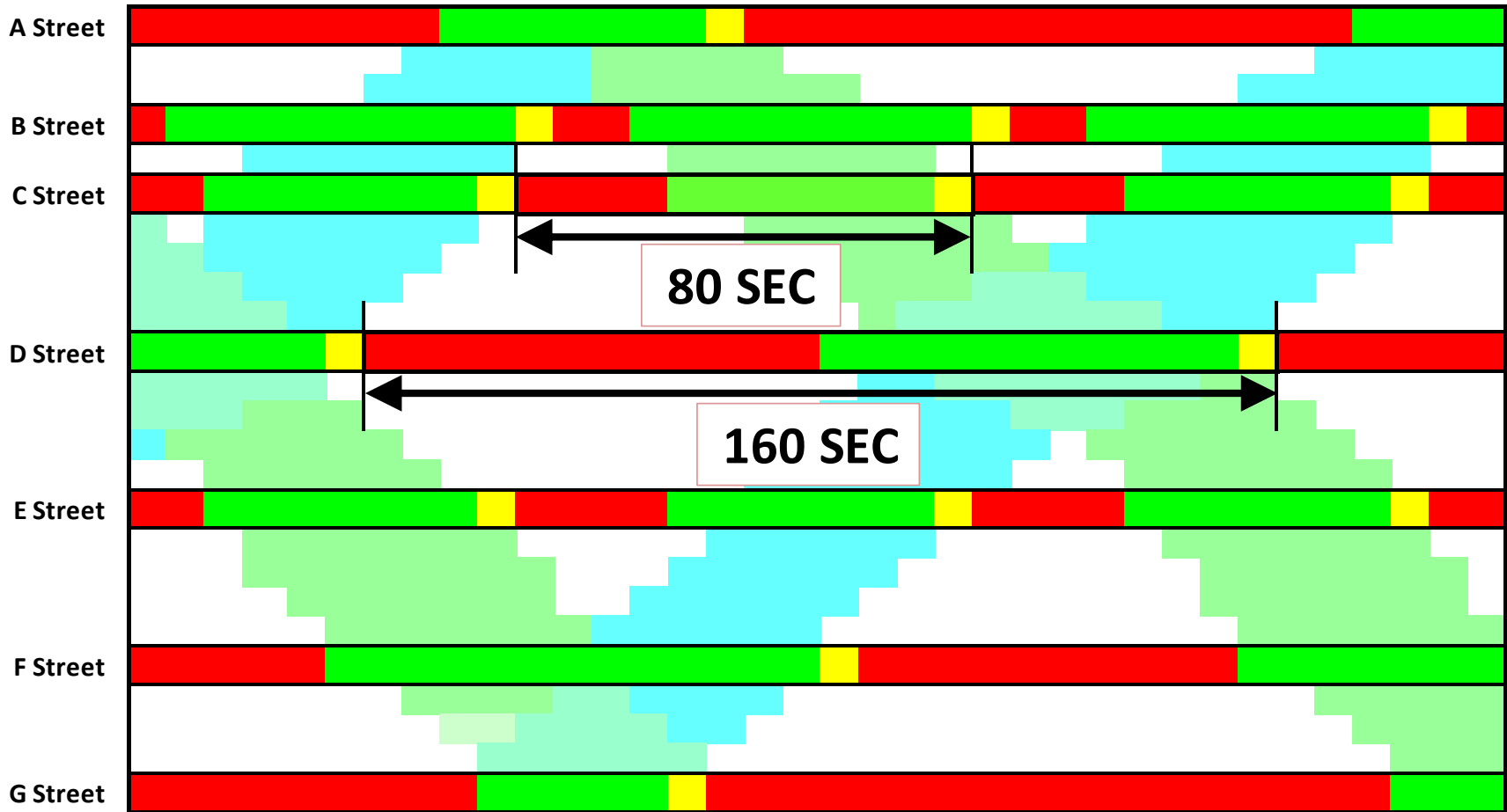
 TIME

 = GREEN PHASE MAJOR STREET

 = RED PHASE MAJOR STREET

Half-Cycling Concept in Downtown Areas

[NORTH]



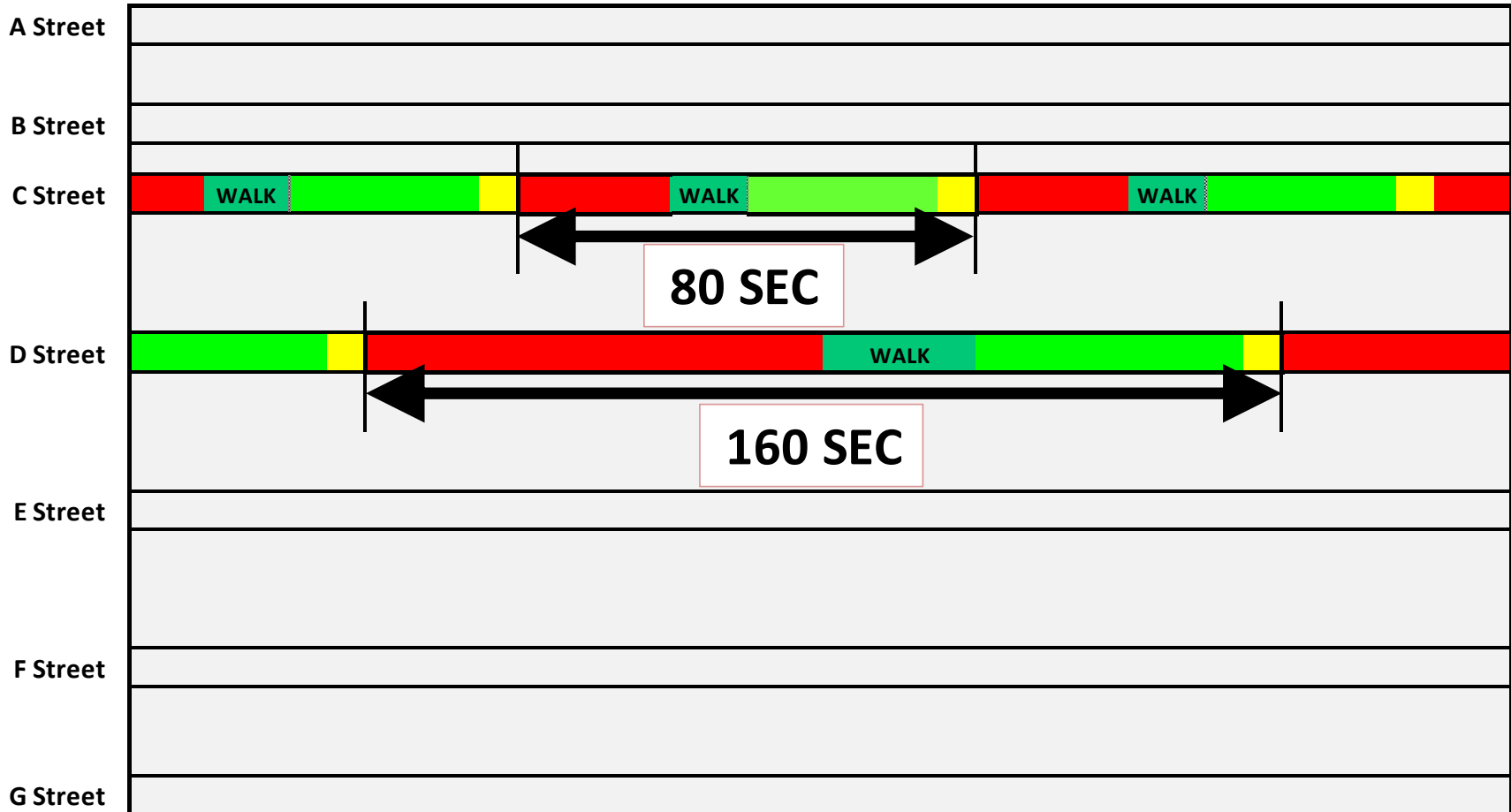
➔ TIME

■ = GREEN PHASE MAJOR STREET

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Half-Cycling Concept in Downtown Areas

[NORTH]



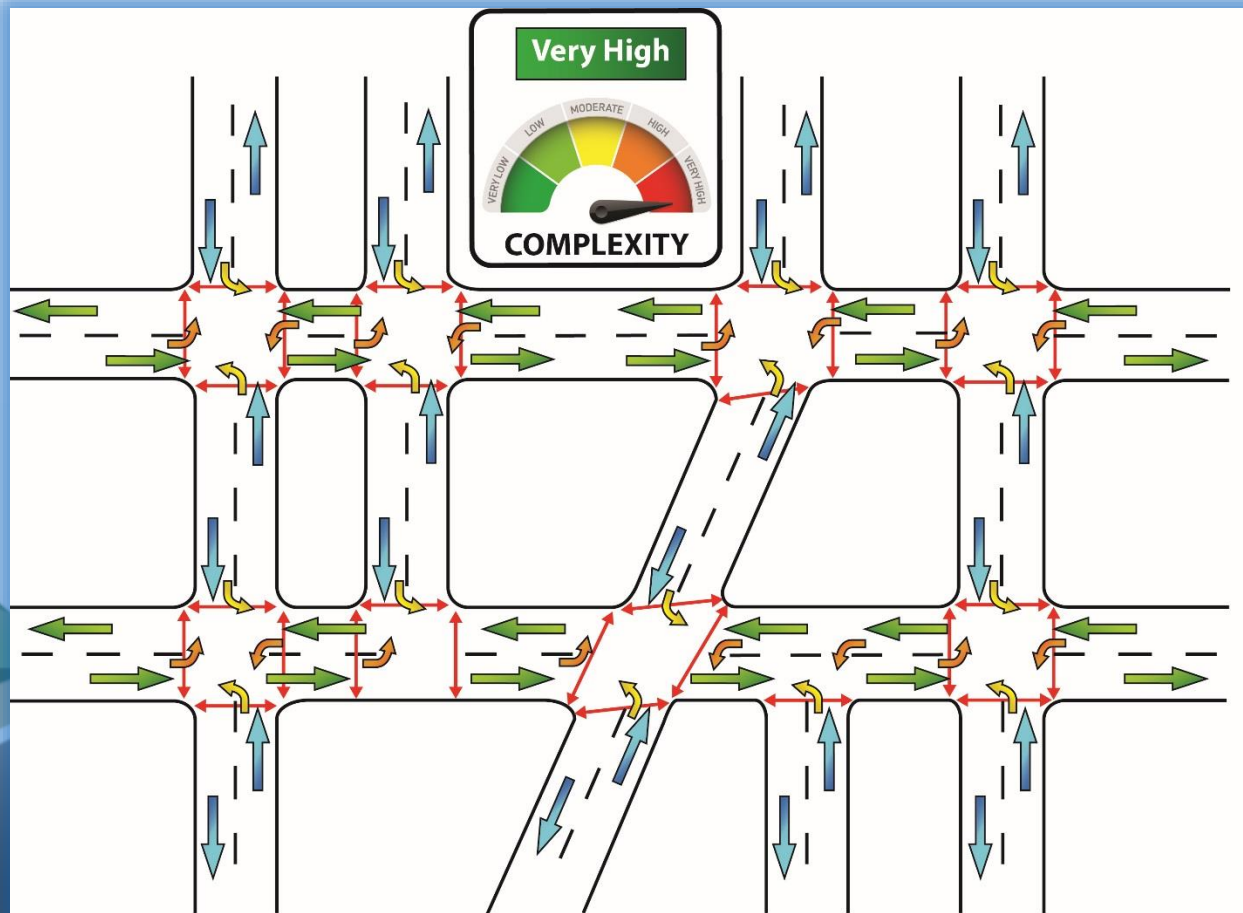
 = GREEN PHASE MAJOR STREET

 TIME

 = RED PHASE MAJOR STREET

Complex Cross-Coordination

Thousands of movements (17,000+), a very large grid, optimized in all directions



Ongoing Signal Coordination Program



August 2010 – May 2012
Green Lights Phase 1
All Major Corridors Retimed

June 2012 – April 2014
Green Lights Phase 2
All Major Corridors Refined
N/S and E/W Better Integrated



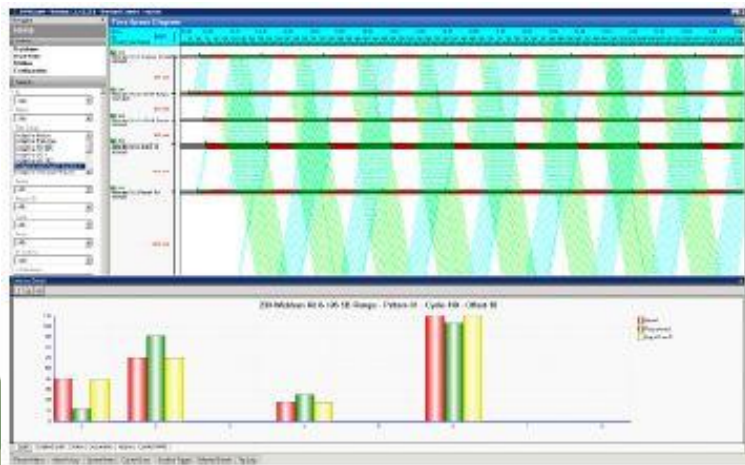
Signal Coordination Benefits

- Fuel Saved: \$31 Million/Year
- Carbon Emissions Reduced: 660,000 Metric Tons/Year
 - = 7% Reduction of Transportation Emissions
 - = 3% Reduction of Total Emissions



Ongoing Signal Coordination Program

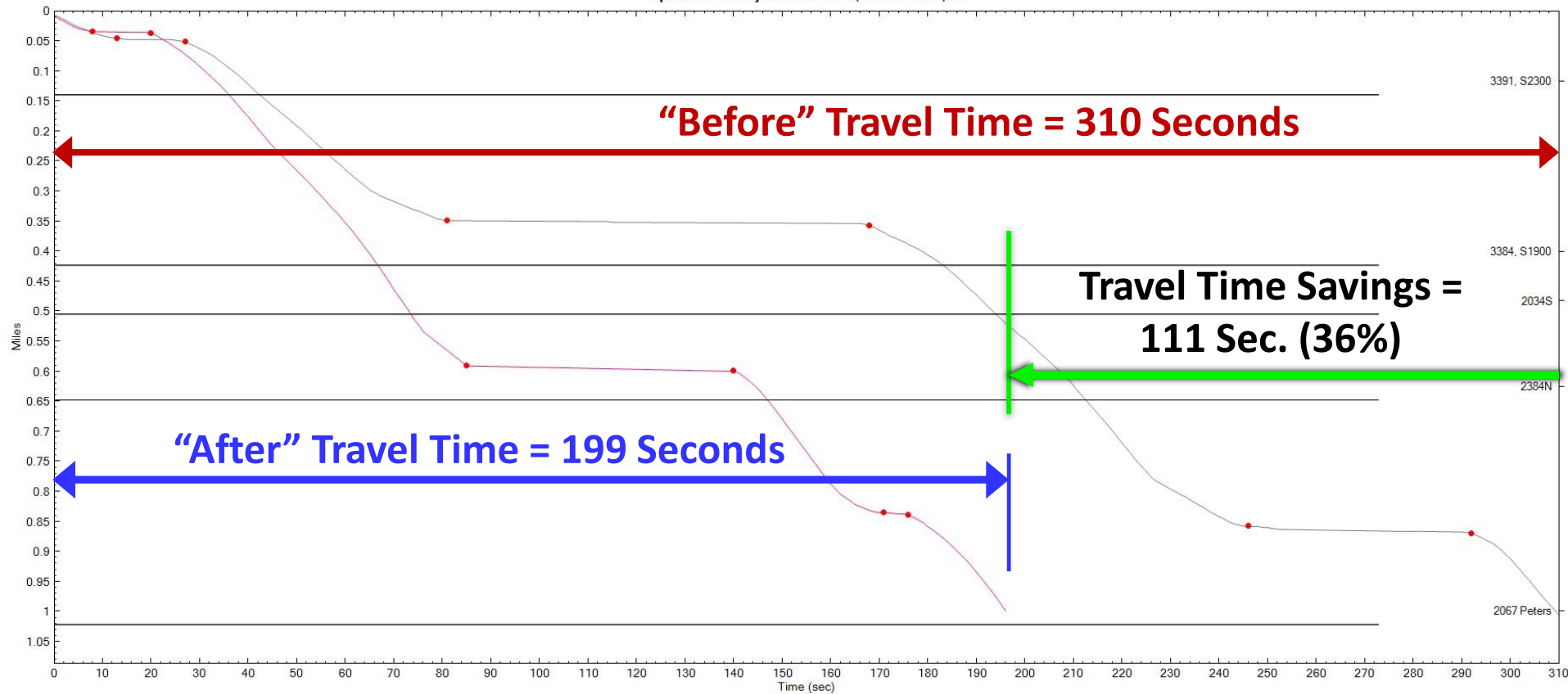
Regularly update, test, refine and adjust signal timing to address changing traffic volumes and patterns



Ongoing Signal Coordination Program

Synchronization Adjustments Using GPS Recordings

Space/Time Trajectories - Univ, Nova-Peters,NB



Signal Coordination is Impacted by:

- Railroad crossings and bridge openings
- Emergency vehicle preemptions
- Construction
- School zones
- Crashes



Inflow > Outflow = Storage (or Overspill)



Overcapacity = Congestion

Cannot be overcome by signal timing adjustments



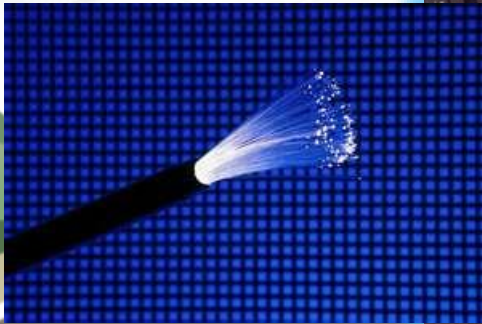
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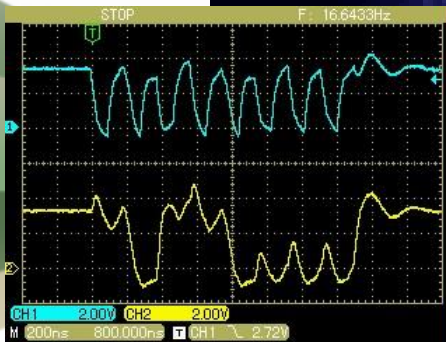
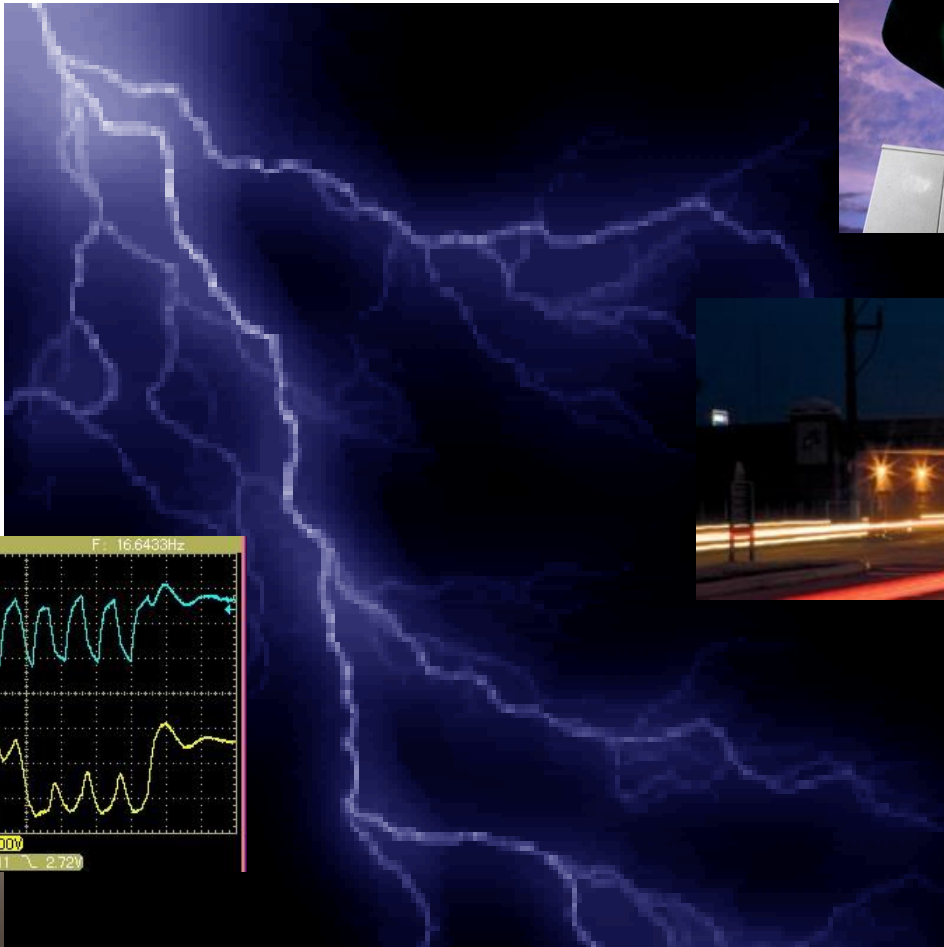


Outdated System Has Been Upgraded

Fully Modernized - July 2015



Coordinated Even With Network Interruptions



Remote Troubleshooting



Quicker Response Times



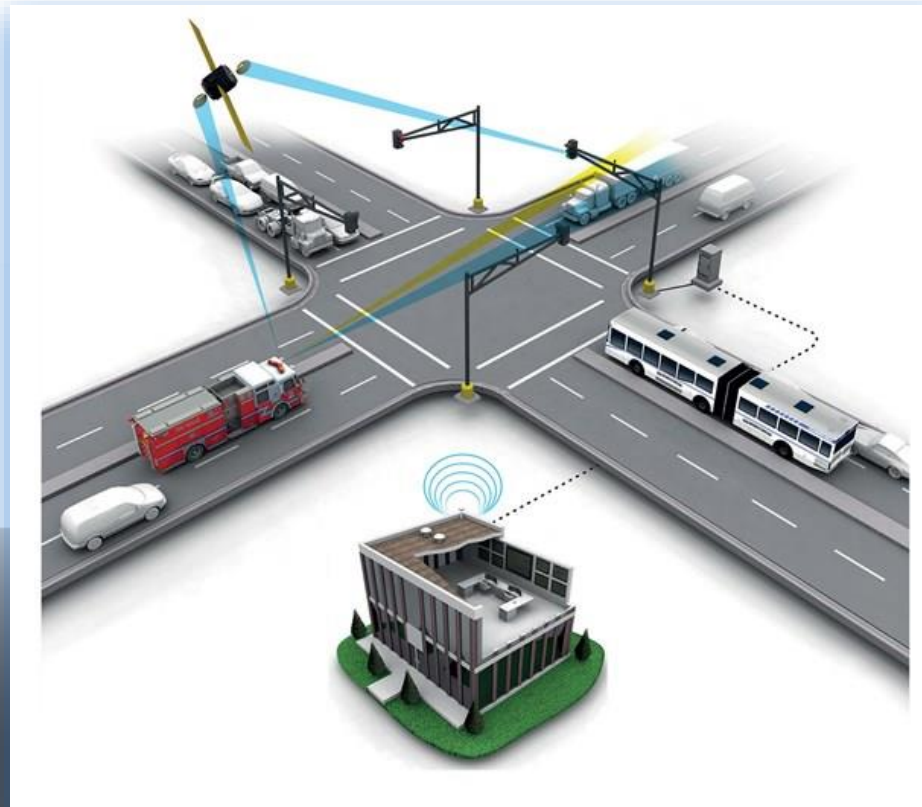
Assists Buses to Maintain Schedules

Transit signal priority at 650+ intersections



Transit Signal Priority (TSP)

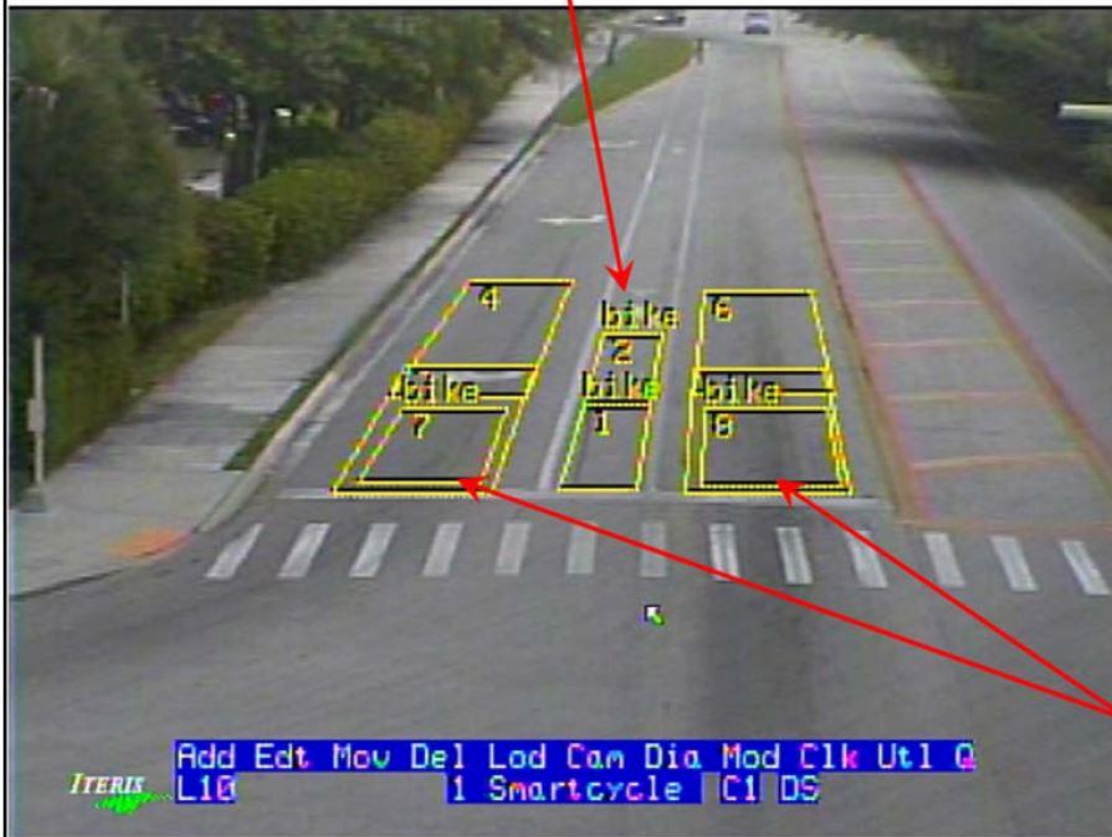
- Buses are tracked using GPS (satellite)
- Bus requests “green extension” or “early green return” of traffic signal to stay on schedule



Bike Safety Enhancements

New Technology – Video Bike Detection

Bike Zones drawn in the bike only lane



Bike Zones drawn in vehicle lanes. The bike zones are inside the vehicle zone.

Bike Safety Enhancements

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Bike Safety Enhancements

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Bike Safety Enhancements

New Technology – Video Bike Detection



Bike Safety Enhancements

Bike Traffic Signal Indications



Questions?

Contact us at:

TRAFFIC@Broward.org

