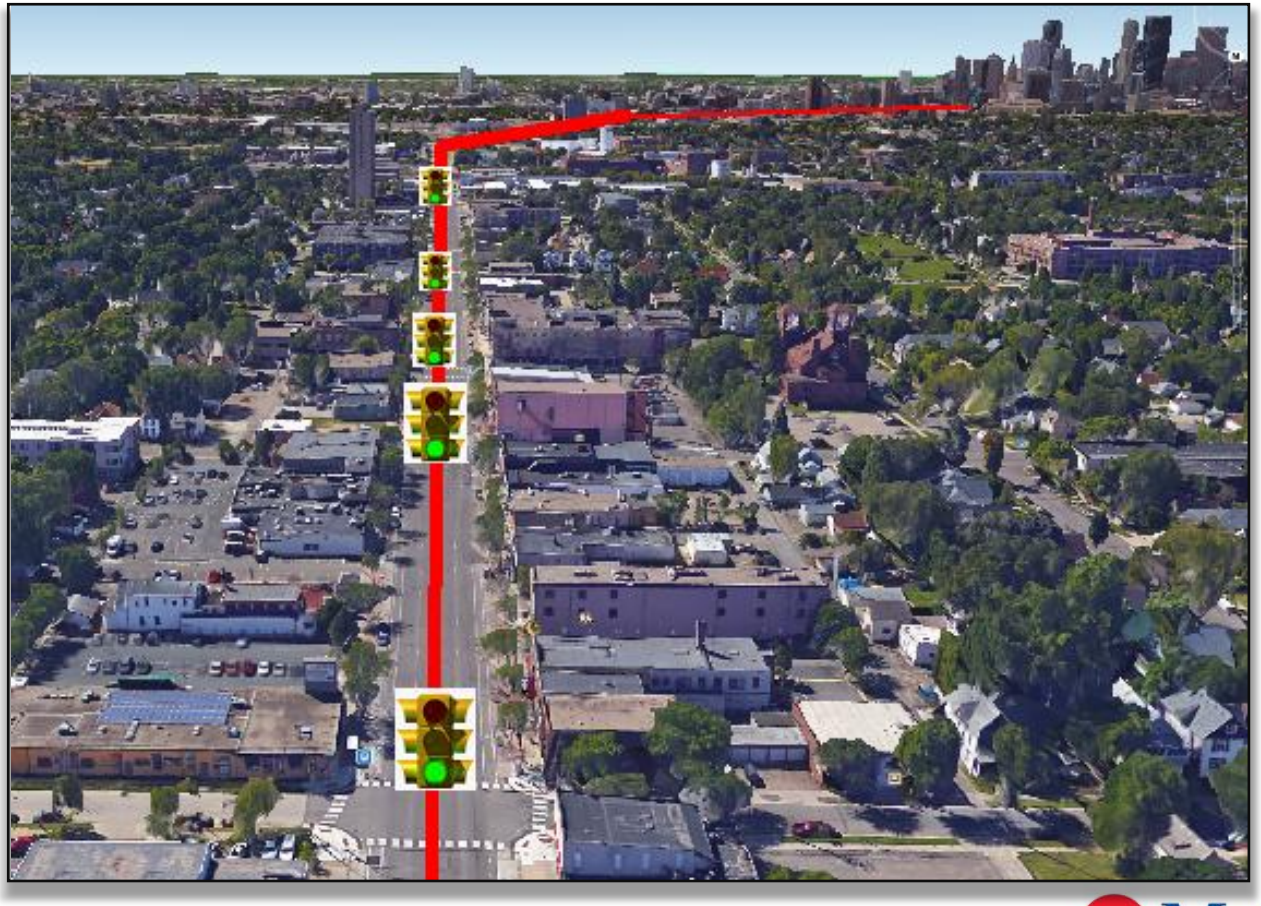
Central Ave Traffic Signal Priority (TSP)

Before/After Analysis of System Enhancements



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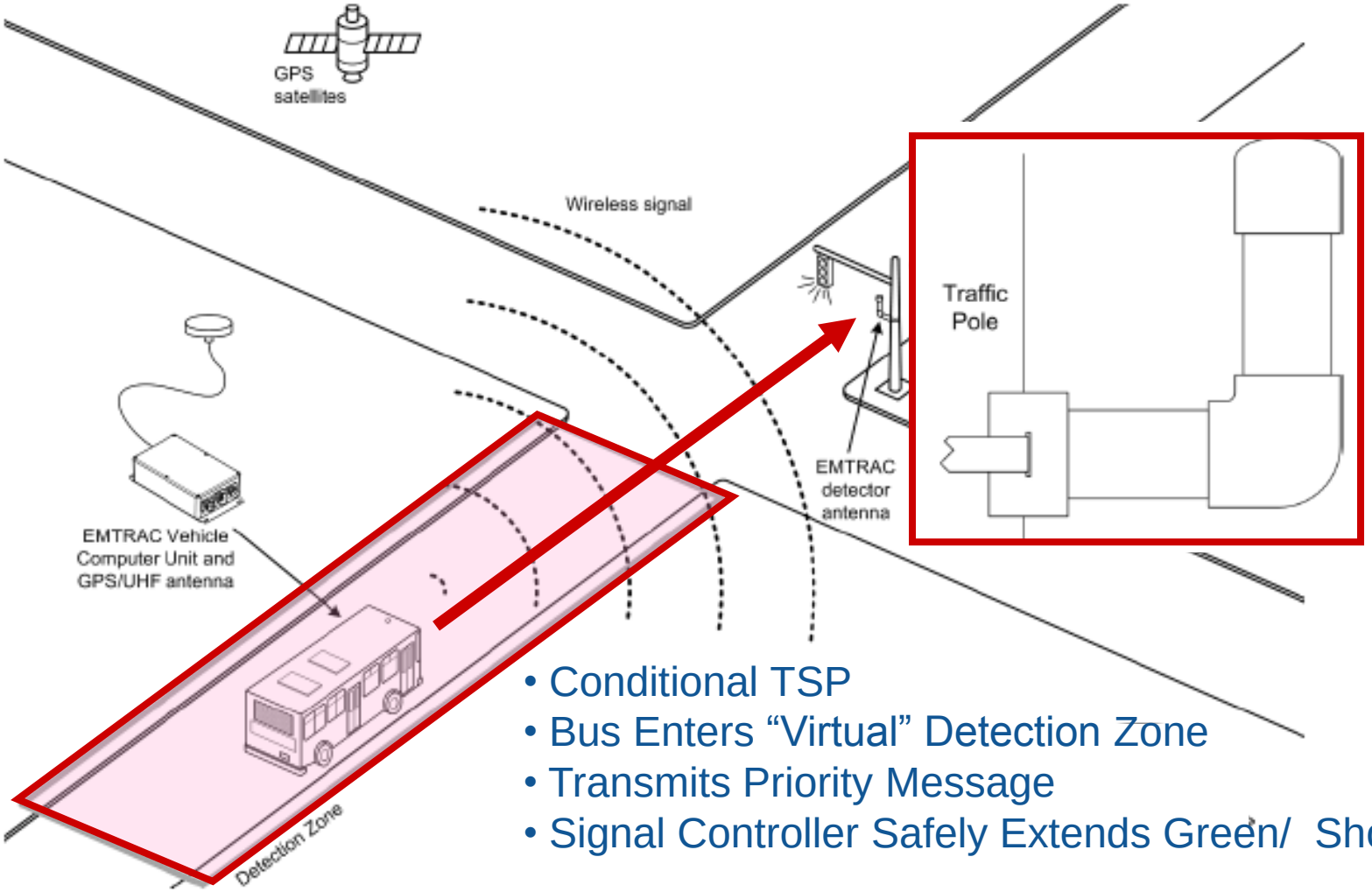
How does TSP work?



- Conditional TSP
- Bus Enters “Virtual” Detection Zone
- Transmits Priority Message
- Signal Controller Safely Extends Green/ Shortens Red

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Central Avenue Corridor

- Mississippi River to 53rd Avenue N
  - 5.6 Mile Corridor
  - 31 Traffic Signals; 27 of them have TSP installed
  - 82 Bus Stops; 45 of which are at TSP signalized intersections
  - Daily boardings at bus stops in the corridor area
    - Weekday 4,454
    - Saturday 3,003
    - Sunday 1,944

Background

- TSP Implementation Began on Central Avenue in 2010
  - Bus requesting TSP if > 3 mins. Late
  - To keep traffic signals in coordination, restricted only to one TSP request every 10 minutes, truncated red lights only
- Summer 2013 - City replacement/ upgrades of Traffic Signal Controllers
- Enhancement Implementation Begins Fall 2014
  - Bus requests TSP when bus >= 1 minute late
  - Early green lights/truncated red lights & Extended green lights
  - 10 minute request restriction eliminated

Study Objectives

- Compare April 2014 with March 2015 weekday service
  - Focus on Local Route 10 and Limited Stop Route 59
  - Before and After Analysis Themes
    - On Time Performance
    - Travel Time
    - Speed
    - Variability

Improvement In On Time Performance

- Improvement in Late Service

	Late		
	April 2014	March 2015	Change
Route 10	14.7%	11.7%	-3.1%
Route 59	11.7%	3.5%	-8.2%

- Improvement in On Time Performance

	On Time		
	April 2014	March 2015	Change
Route 10	82.0%	84.1%	2.1%
Route 59	85.9%	93.7%	7.8%

Travel Time Savings

- Travel Time Seconds Saved Per Trip in Study Corridor

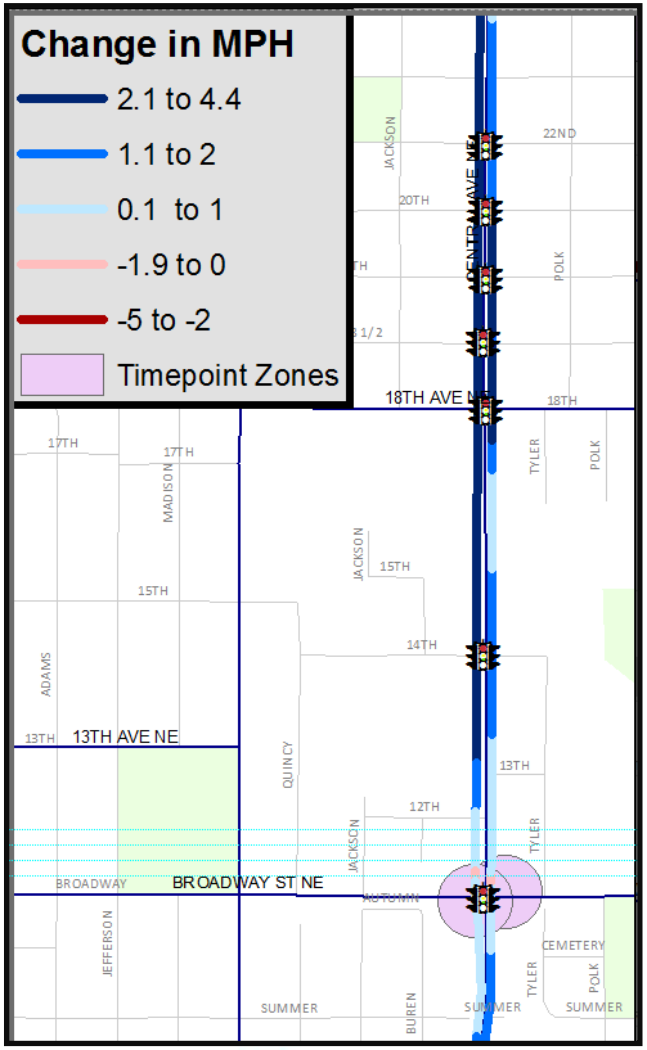
Route	Direction	Seconds Saved
10	NB	43
	SB	51
59	NB	92
	SB	57

- Daily Travel Time Savings = Approximately 3 Hours

Route	Direction	Daily Trips	Daily Minutes Saved
10	NB	98	70
	SB	94	79
59	NB	11	17
	SB	10	10

Improvement In Average Speed

- Route 10 average increased 1.3 mph from 17.5 to 18.8 mph
- Route 59 average increased 4.8 mph from 21.2 to 26.0 mph



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Improvement In Travel Time Variability

			Variability in Minutes from Average Travel Time		
Route	Direction	Time of Day	April 2014	March 2015	Change in Minutes
10	SB	AM Peak	4.7	4.5	-0.2
		Midday	4.6	3.9	-0.7
		PM Peak	5.2	5.3	0.1
		Evening	5.6	3.9	-1.7
		Night	7.2	2.9	-4.4
	NB	AM Peak	7.0	4.1	-2.9
		Midday	5.0	4.2	-0.8
		PM Peak	3.2	5.5	2.3
		Evening	5.0	4.6	-0.4
		Night	5.3	2.9	-2.4
59	SB	AM Peak	3.3	2.7	-0.6
	NB	PM Peak	1.8	3.3	1.4

- Less variability in travel times result in
  - More consistent running time
  - Development of accurate schedules

Next Steps

- Discuss potential future corridors with cities
- Perform detailed traffic engineering for signalized intersections along selected routes
- Determine technical approach
- Review Settings to ensure TSP Requests are not cancelled for far side bus stops.
- Review bus stop location sighting for opportunities to improve TSP benefits

Questions?

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