TRANSIT SIGNAL PRIORITY
UNTANGLING THE INTERAGENCY WEB

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Outline

• Transit Signal Priority Primer
• Project Overview (Pace Bus TSP)
• Untangling the Web
  – Key Stakeholders
  – Roles and Responsibilities
  – Coordination Efforts
• Next Steps
  – Proof-of-Concept
  – System Deployment
What is Transit Signal Priority?

“Traffic signal priority is simply the idea of giving special treatment to transit vehicles at signalized intersections” - Federal Transit Authority

“Special Treatments”:

1. Green Extension
2. Early side street green termination
3. Queue Jump
TSP is not Preemption

- TSP will not turn lights green instantly
- TSP will not function all the time
  - Lockout Period
  - Intersection at Capacity
- Following a TSP enabled bus in your car is not advisable (looking at you, traffic engineers…)

[Image of traffic lights]
TSP Architecture Types

• Central
  – Priority Request Server at Traffic Management Center
  – Requires network connection to each signal to be reliable

• Distributed
  – Priority Request Server housed in controller cabinets
  – Requires bus to intersection communication
Distributed System Communication Options

- Optical – IR emitter
- WiFi (802.11a through 802.11 ag)
  - 2.4 Ghz
    - Deployed successfully across the country
    - Wireless range sufficient for TSP
    - Signal interference can be a problem
  - 5.0 GHz
    - Lower interference than 2.4 GHz
    - Shorter range than 2.4 GHz
    - Not currently used for TSP
Pace Bus TSP – Project Overview

• About Pace
  – Pace currently operates 200+ routes
  – Serves ~40,000,000 people a year
  – Service Area is ~3,500 square miles and covers 6 counties

• Need for TSP
  – Increased reliability and on-time service
  – Decreased variability in wait times for customers

• Scope
  – Pace intends to deploy TSP at nearly 300 intersections on 10 corridors in Northeastern Illinois
Milwaukee Avenue Corridor

Limits: Maryland St. to Gale St.
Total Intersections: 52
TSP Intersections: 12
Coordinated Systems: 7

LEGEND
- TRAFFIC SIGNAL – TSP
- TRAFFIC SIGNAL – NO TSP
- TRAFFIC SIGNAL – NOT IN SCOPE
- MASTER TRAFFIC SIGNAL – TSP
- MASTER TRAFFIC SIGNAL – NO TSP
- MASTER TRAFFIC SIGNAL – NOT IN SCOPE
- COORDINATED SYSTEM
- TSP CORRIDOR
Dempster Street Corridor

Limits: Mannheim Rd. to Dodge Ave.

Total Intersections: 87
TSP Intersections: 55
Coordinated Systems: 9

Legend:
- Traffic Signal – TSP
- Traffic Signal – No TSP
- Traffic Signal – Not in Scope
- Master Traffic Signal – TSP
- Master Traffic Signal – No TSP
- Master Traffic Signal – Not in Scope
- Coordinated System
- TSP Corridor
Grand Avenue Corridor

Limits: Dilleys Rd. to Sheridan Rd.

Total Intersections: 10
TSP Intersections: 10

Coordinated Systems: 2
(Centralized Control)
Roosevelt Road Corridor

Limits: Warrenville Rd. to Harlem Ave.

Total Intersections: 61
TSP Intersections: 31
Coordinated Systems: 6
Cermak Road Corridor

Limits: Fairfield Ave. to 54th Ave.

Total Intersections: 79
TSP Intersections: 55
Coordinated Systems: 7
Cicero Avenue Corridor

Limits: 87th St. to 159th St.

Total Intersections: 71
TSP Intersections: 33

Coordinated Systems: 6
95th Street Corridor

Limits: Roberts Rd. to Western Ave.

Total Intersections: 43
TSP Intersections: 23
Coordinated Systems: 4
147th Street Corridor

Limits: Halsted St. to IL Rte 83

Total Intersections: 26
TSP Intersections: 14
Coordinated Systems: 2
159th Street Corridor

Limits: Harlem Ave. to IL Rte 83

Total Intersections: 46
TSP Intersections: 38
Coordinated Systems: 6
Rand Road Corridor

Limits: Wolf Rd. to Winslow Dr.

Total Intersections: 11
TSP Intersections: 9

Coordinated Systems: 2
Identification of Key Stakeholders
Northeastern Illinois Interagency Coordination
Pace Bus TSP Interagency Coordination
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Transit Agency Coordination
CDOT Coordination
Lake County Coordination
Next Steps

• Proof-of-Concept
  – Milwaukee Corridor
  – PRS development currently ongoing
  – March timeframe for construction

• Wide Scale System Deployment
  – Will commence after successful Proof-of-Concept
  – Dempster will follow Milwaukee and be in conjunction with BRT improvements.
  – Other corridors to follow in a priority order to be determined by Pace
Lessons Learned in Design

1. Coordinate early and often

2. Apply for permits when all pieces are in place

3. Not all issues are resolved in a single meeting

4. Be flexible, but continue moving forward
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Questions, Comments, Snide Remarks?

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