

OPPORTUNITIES AND OUTCOMES OF JOINT AGENCY COLLABORATION

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REGIONAL TSP PROGRAM



- **Builds on previous TSP Demos in the region:**
 - Cermak Road (IDOT, CTA, Pace) in 1997
 - Western Avenue (RTA, CTA, CDOT) in 2008-2010
 - Harvey Transp. Center (RTA, Pace, IDOT) in 2010-2011
 - Washington Street (Pace, Lake Co.) in 2014
 - Jeffrey Jump (CTA, CDOT) in 2014
- **Need to develop & implement a regional program**
- **\$40 million CMAQ grant (90% federal, 10% RTA)**
- **Plus other federal and local grants**



GUIDING PRINCIPLES



- **Interoperable System**

- Different transit and highway jurisdictions
- Any bus, any traffic signal (properly equipped)

- **Open Architecture**

- Industry standard communication protocols
- Vendor neutral, off-the-shelf equipment

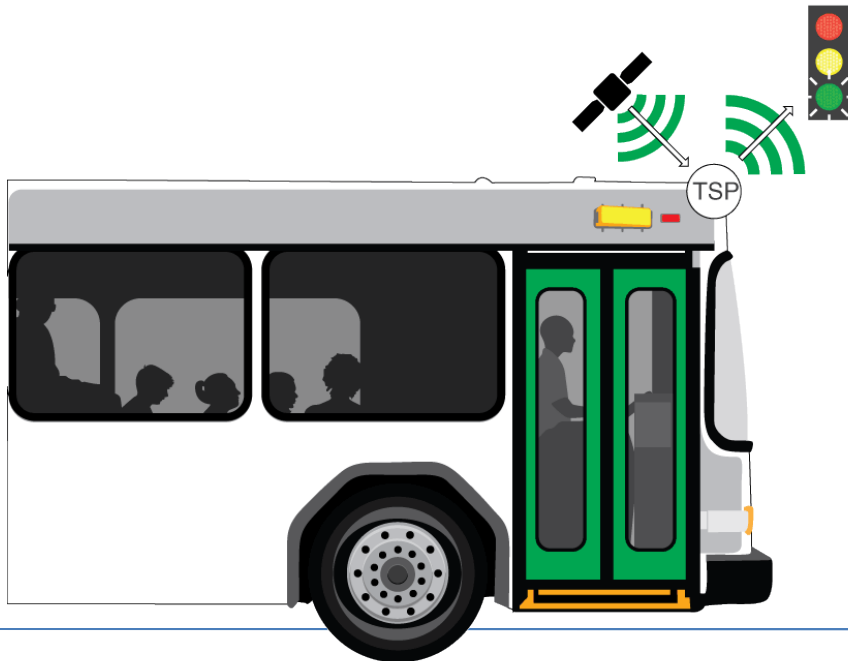
- **Use Existing Equipment if possible**

- Bus Automatic Vehicle Location (AVL) systems
- Traffic Signal Controllers
- V-2-I, I-2-I and I-2-C Communication



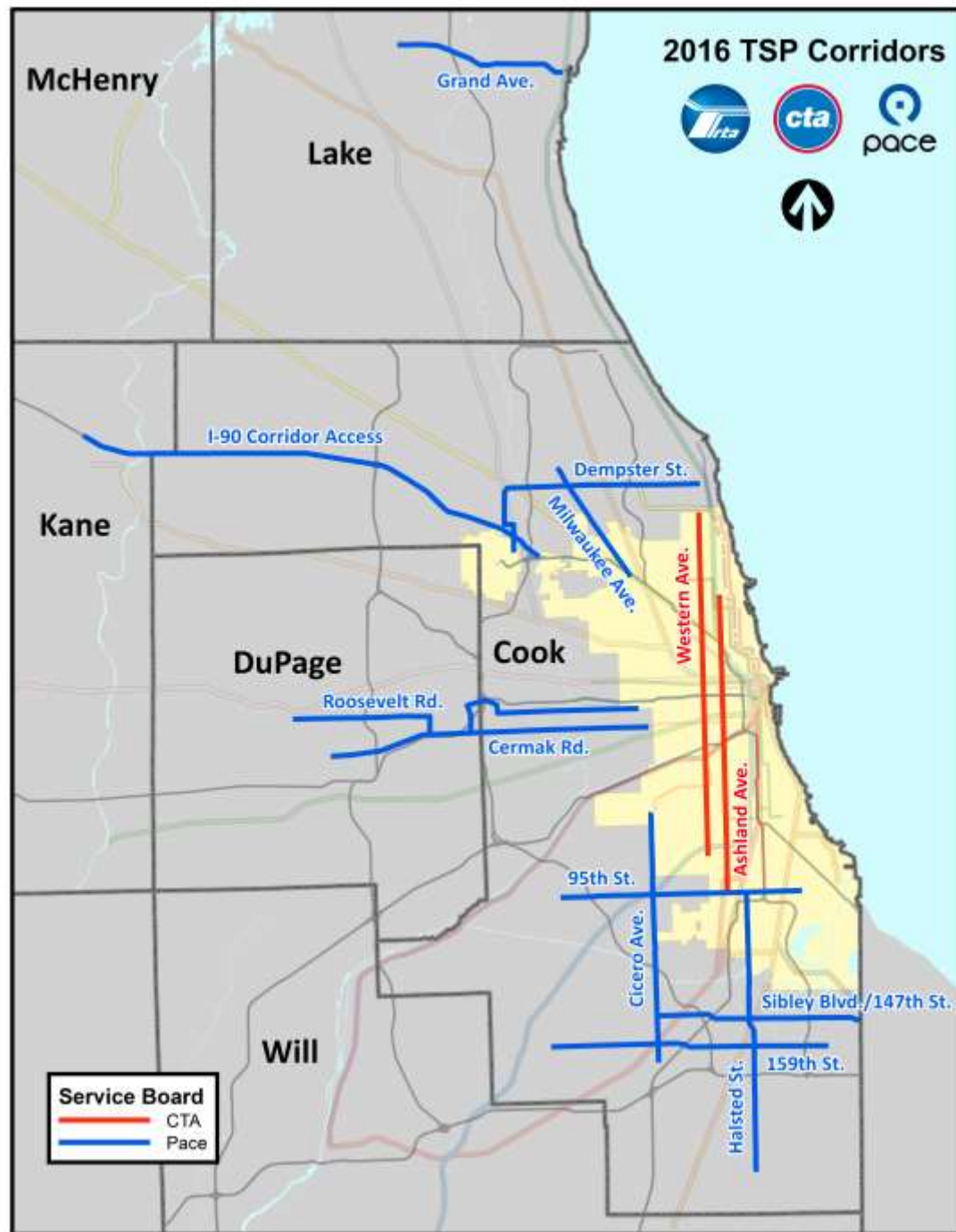
REGIONAL TSP STANDARDS

- **Vehicle-to-Intersection TSP Message Set**
 - Defines the information communicated between the bus and the traffic signal controller
- **5.0 GHz Wi-Fi**



WHERE?

- 500 Intersections
- 100 Miles of Roads
- 13 Corridors
- 1 TSP System



TSP PRIORITY CORRIDORS

- **CTA TSP Corridors (≈ 200 signals)**

- Ashland Avenue
- Western Avenue

- **Pace TSP Corridors (≈ 300 signals)**

- Milwaukee Avenue
 - Cicero Avenue
- Dempster Street
 - Halsted Street
- Roosevelt Road
 - 95th Street
- Cermak Road
 - Sibley Blvd./147th St.
- Grand Ave. (Lake Co.)
 - 159th Street
- I-90 Corridor Access



INTEROPERABILITY

- **CTA and Pace, in conjunction with RTA, are transitioning TSP in the region is to be interoperable between CTA/Pace so TSP-equipped intersections can respond to TSP calls from either agency.**
 - Pilot intersection will be Milwaukee/Gale by Jefferson Park Transit Center

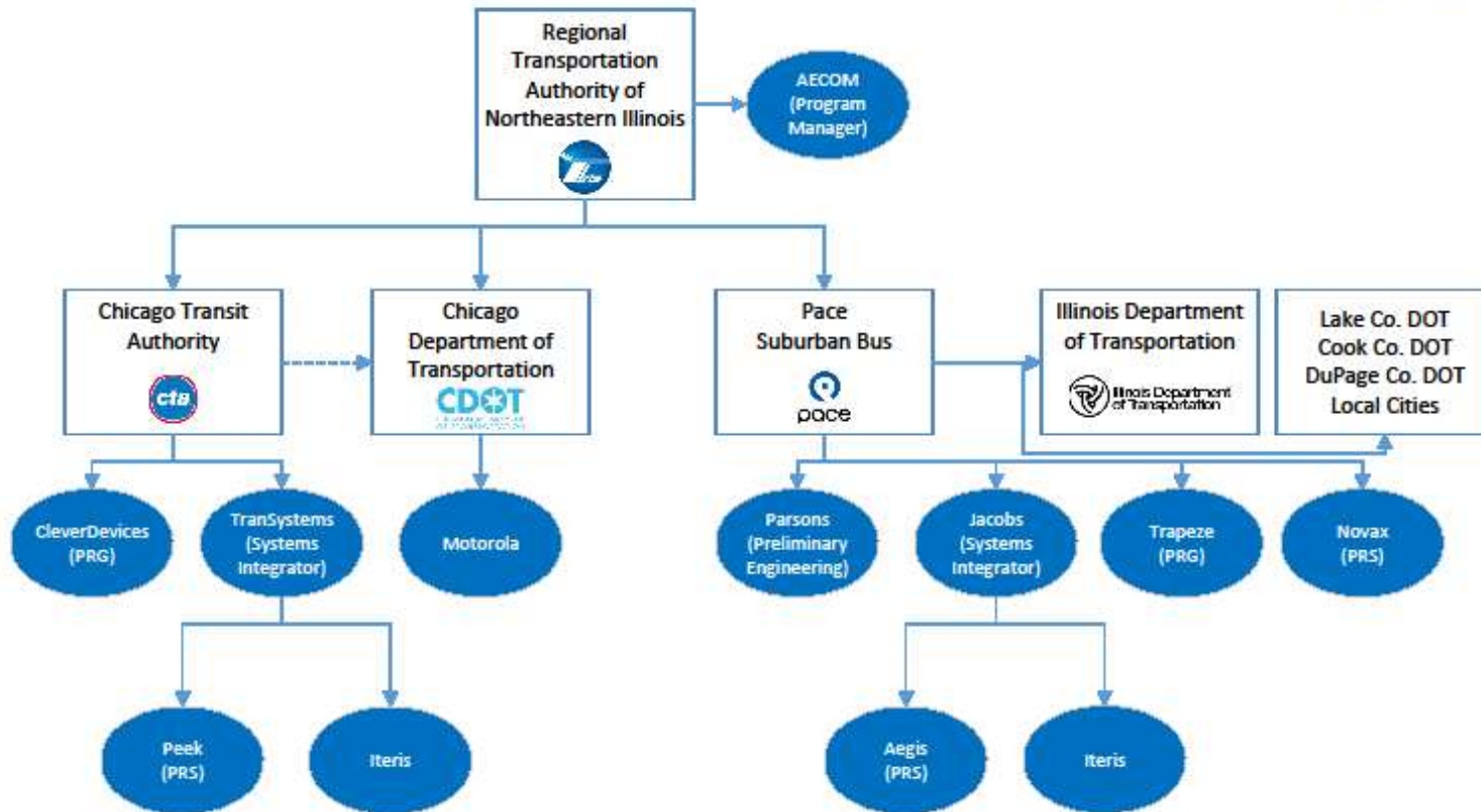


COLLABORATION

- **The main challenge is coordinating and collaborating between many agencies including CTA, Pace, RTA, CDOT, and OEMC.**
- **There are many moving parts managed by many different agencies, so although some of the implementation tasks can be time consuming, the overarching theme is that all parties are working together to achieve a common goal.**



Northeast Illinois Regional Transit Signal Priority Integration Program



PRG- Priority Request Generator (bus)
 PRS- Priority Request Server (traffic controller)

March 2018 RTA (xds)

Transit Signal Priority Program

Regional TSP Requirements and Interoperable Standards Development

Technology: Wi-Fi (802.11n) & 5.0 GHz
Features: Interoperable, NTCIP 1211 message set, open standards, non-proprietary
Status: Completed

Regional Signal Timing Optimization Implementation and TSP Strategies

Scope: 400 Signals – Milwaukee Ave
 Cicero Ave, Sibley/147th, Roosevelt Rd, 95th St,
 Dempster St, Cermak Rd, 159th St
 Grand Ave and Rand Road, 159th street
Status : Completed

Trapeze AVL Software Development (Completed)

PRS Software ATC Signal Controllers (Completed)

Milwaukee Ave TSP Prototype (On Going)

Deployment :2018-19

- ✓ Cermak Rd
- ✓ Cicero Ave
- ✓ Sibley/147th
- ✓ Roosevelt Rd
- ✓ 159th St
- ✓ 95th St
- ✓ Grand Ave
- ✓ Rand Rd
- ✓ Dempster St
- ✓ Halsted St (Programmed)
- ✓ I-90 Access (Programmed)

PRS Product (Testing) & Central Software Development (On-Going)

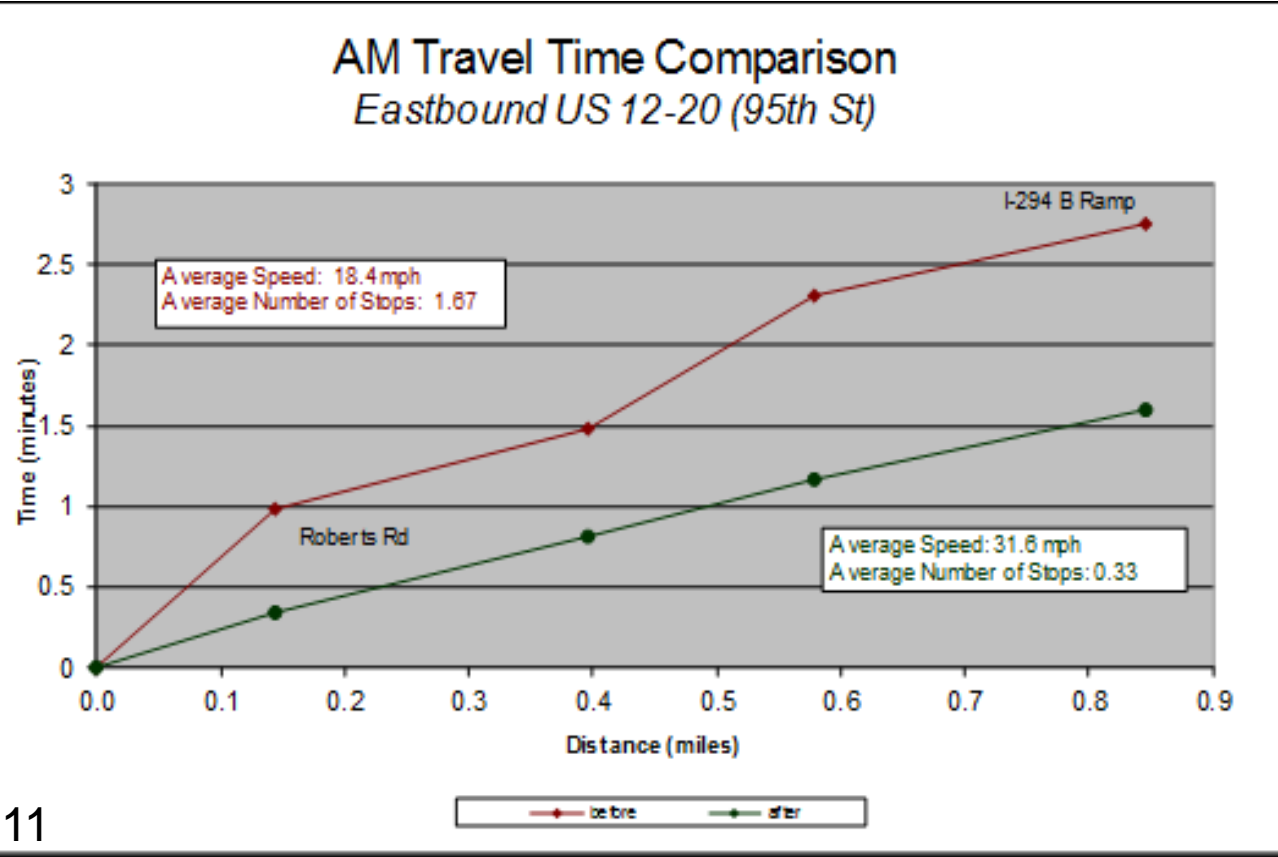
Design, PS&E (Completed). Permits, Systems Integration for 10 Corridors (Under Procurement)



Pace's Innovative Signal Timing Optimization

Increased Corridor SPEED:

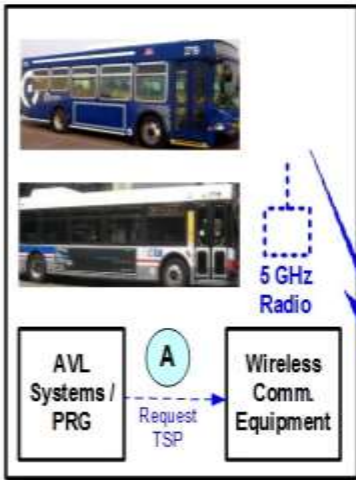
- Pace Connected Signal Interconnects for continuous Green
- Optimized Signal Timing along 10 Transit Corridors and Approximately 400 Intersections



- Revised IDOT approach and introduced Pace's Green Band Progression for entire Corridor

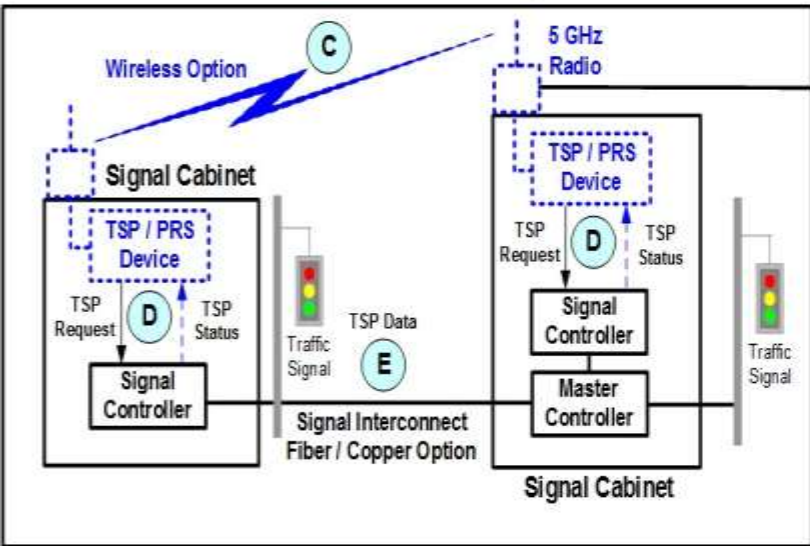


TSP Systems Architecture



V-2-I Data Elements:
 Critical:
 PRO-2 -- PRO-5
 Additional: PRO-6 -- PRO-21

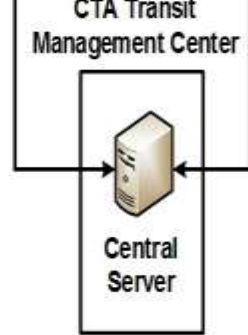
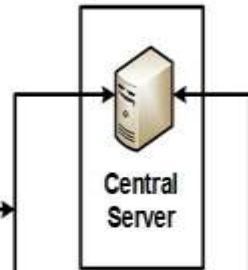
TSP Corridor Roadside



I-2-C and Health Monitoring of Radio Equipment

I-2-C Data Elements:
 PRS-3 -- PRS-11;
 PRO-2 -- PRO-21
 PRS Equipment and Radio Health Monitoring System Information

Pace Transit Management Center



CTA / Pace Transit Management Centers ; IDOT / CDOT / County DOTs

