Pace Pulse and regular fixed-route bus service and passengers benefit from Traffic Signal Priority (TSP) technology, helping to reduce travel times.

T-1   Current Technology Programs

Initiative: Expand and build upon the success of Pace's current technology-based initiatives to augment infrastructure and service development initiatives.

IMPLEMENT NOW | implement later | further investigate

Supports Goals:
Accessibility, Equity, Productivity, Responsiveness, Safety, Adaptability, Collaboration, Diversity, Fiscal Solvency, and Integrity

ACTION ITEM 1   Intelligent Transportation Systems (ITS) Programs

Pace will continue to deploy Transit Signal Priority (TSP) solutions in the region, in collaboration with partner agencies, and explore further options for advancing traffic management and communications. Currently, Pace has deployed TSP along Milwaukee Avenue in Niles and Chicago. An additional 10 corridors along roadways served by Pace fixed-route bus services are programmed, with plans for additional corridors under development.

The overall approach to TSP is to provide Pace and CTA buses the longest possible green lights and shortest possible red lights at traffic signals of all major intersections. Both Pace passengers and general motorized traffic along Milwaukee and future TSP corridors unknowingly benefit from improved travel times due to TSP technology. That's partly because buses nearing an intersection will automatically request a longer green or shorter red if they are falling behind schedule, which means all nearby vehicles also benefit from favorable signal timings.

Additionally, TSP projects include optimizing the progression of all traffic signals along a corridor for all traffic. That means all motorists traveling along Milwaukee Avenue are much more likely to move through several consecutive intersections without stopping, whether or not a CTA or Pace bus is nearby triggering a change to the traffic signal.

TSP has also evolved significantly since it was first introduced more than a decade ago using infrared and wireless local area network equipment. Pace is working with regional partners to upgrade more than 300 signals with modern equipment that employs an integrated system-to-system approach.

ACTION ITEM 2   Upgraded Fare Collection System

The Ventra fare collection system features seamless fare integration between CTA and Pace, with Metra tickets available through a common mobile application. Introduced in September 2020, a new version of the mobile app allows riders to plan trips among scheduled train and bus services, as well as Chicago's popular Divvy bike-share service. Riders can also use their smartphones as a virtual Ventra card to pay for these services, without having to carry a plastic transit card.

Pace has also implemented a first-in-the-nation system interface between the Ventra and Paratransit systems that allows touchless payment for ADA paratransit customers. This comes in conjunction with the improvements to online and real-time trip booking, vehicle tracking, trip cancellation, and itinerary reviews being implemented through the Rebuild Illinois project.

Pace will continue to innovate new ways of providing flexible, fast, and convenient trip planning and fare payment options to both improve customer ease of use and speed up boarding and alighting processes.

The new Ventra mobile application

The Ventra fare collection system features seamless fare integration between CTA and Pace, with Metra tickets available through a common mobile application.

TRANSIT SIGNAL PRIORITY

UP TO **15%** REDUCTION IN BUS TRAVEL TIMES

FEWER RED LIGHTS FEWER DELAYS

TSP

LESS CO_2

GET THERE ON TIME

SAVES FUEL

500 SIGNALIZED INTERSECTIONS across MULTIPLE JURISDICTIONS

100 MILES OF ROADWAY

13 PRIORITY CORRIDORS

1 REGIONAL TSP SYSTEM

Transit Signal Priority (TSP) utilizes existing vehicle location and wireless communication technologies to advance or extend green times at signalized intersections. When a TSP-equipped bus is late, it automatically requests extra green time so it can proceed through the intersection. The result: reduced delays at traffic signals, and increased service reliability and travel speeds for bus riders.
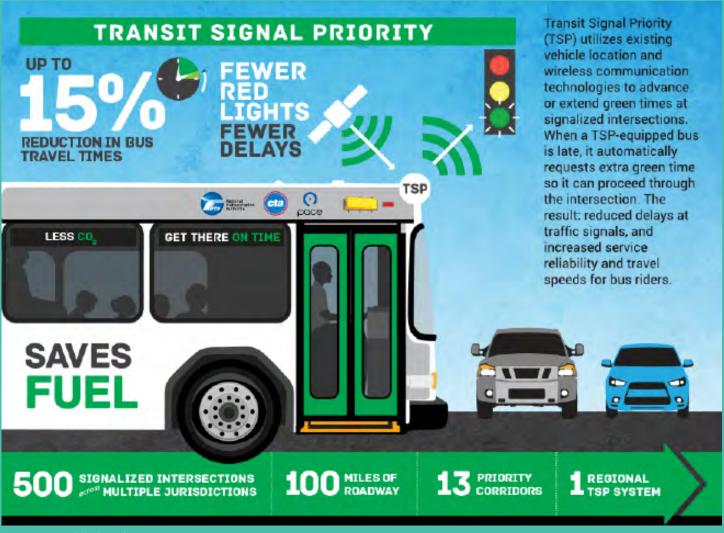
Image source: RTA (2021).

In partnership with the RTA, CTA, IDOT, CDOT, and other local county transportation agencies, Pace is implementing TSP technology on 11 corridors:

- 159th Street
- 147th Street/Sibley Boulevard
- 95th Street
- Cermak Road
- Cicero Avenue
- Dempster Street
- Grand Avenue (in Lake County)
- Milwaukee Avenue (completed)
- Roosevelt Road
- Halsted Street/Harvey
- I-90 Transit Corridor Access

ACTION ITEM 3   Integrated Data Systems and Analytics

Since adopting the *Vision 2020* Plan in 2002, Pace has implemented several major data reporting systems, hardware and other technologies to allow automatic vehicle location (AVL), electronic fare payment, and automated passenger counting (APC). Mobile ticketing and contactless payments via pay apps are also being realized. Provided by multiple vendors, these systems result in complex data flows that support a variety of administrative uses including bus operations, performance analysis, planning, scheduling, and reporting to external partners.

As more sophisticated data collection applications are continually upgraded and implemented across Pace's fleet and administrative facilities, the quality and quantity of data will continue to grow. To control costs and complexities, and to effectively analyze and benefit from the data it collects, Pace will continue to integrate current and future systems, foster institutional structures, and grow staff capacity.

Two important goals of *Driving Innovation* are Adaptability and Collaboration. In that spirit, Pace will continue its commitment to providing high-quality, accurate and complete performance data to the National Transit Database (NTD), CMAP, Regional Transportation Authority Mapping and Statistics (RTAMS) portal, municipalities, and many other organizations.

Pace is also a participant in the RTA- and IDOT-led initiative that is currently building a state-wide digital travel model, which will provide a robust and dynamic interface for accurately simulating origin and destination data which can be filtered by travel mode, season, day of week, time of day and other metrics.

With so many new and exciting joint partnership ventures, Pace will purposefully explore new and innovative data management practices, and appropriately share such data in the public domain. At the same time, Pace will continue to vigilantly protect passenger privacy and uphold stringent data anonymity standards.

Pace will continue its commitment to providing high-quality, accurate and complete performance data.

ACTION ITEM 4   On-Demand and Paratransit Scheduling Systems

Demand-responsive transportation options are gaining national attention as valuable new additions to support transit, however Pace has been operating similar services for years. To this end, Pace has upgraded its public On Demand services to support computerized scheduling and online booking, and agency Paratransit scheduling software has been customized to optimize operations. Pace will continue deploying this innovative technology to support both On Demand and Paratransit scheduling (see S-3 Paratransit Upgrades initiative for further details).

ACTION ITEM 5   Expand Real-Time Next Bus Information

Pace makes real-time information available to customers about bus locations and predicted arrival/departure times. This information is shared through many platforms, including real-time digital information signs at transit centers, CTA and Metra stations, park-n-ride lots, Pulse stations, Pulse vehicles, and regular bus stops. The information is also available through Bus Tracker on Pace's website, the Ventra mobile application, and an online feed that utilizes the GTFS.

Digital real-time information screens are a relatively simple yet effective passenger convenience that helps reduce the need to use paper bus schedules and mobile phone applications to check bus arrival and departure times. Pace will continue to deploy real-time information signs at key locations throughout the service area.

Real-time next bus digital information is displayed at a Pace bus stop in Naperville, Illinois.

On-board digital information displays depict current and upcoming Pulse stations while in transit on Pace's Pulse Milwaukee Line.