

Project Definition

TECHNICAL MEMORANDUM Executive Summary

Pulse Cermak Line

August 2024



Executive Summary

Through Pace's strategic vision plan, [Driving Innovation](#), Pace is committed to advancing the Pulse arterial bus rapid transit (BRT) program to provide fast, frequent, and reliable bus service on heavily traveled corridors in northeastern Illinois. With two Pulse lines in service (Milwaukee Line and Dempster Line) and two more entering final design (95th Street Line and Halsted Line), the Pulse Cermak Line will be Pace's fifth branded Pulse line.

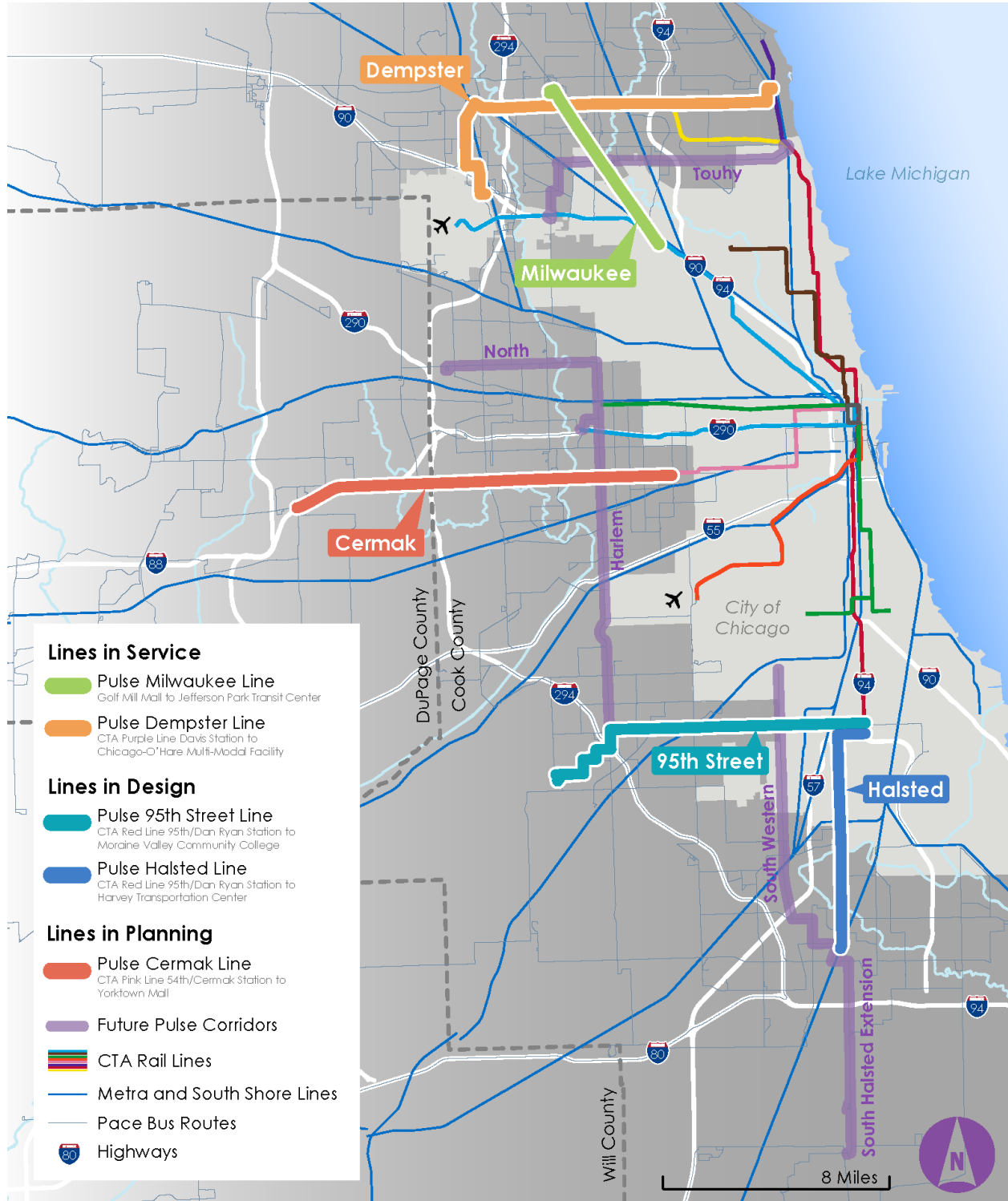
Pulse Program Overview

Pace's arterial bus rapid transit program, later branded as Pulse, was initially defined in a 2009 study¹ that proposed a network of high-frequency, limited-stop services on heavily traveled corridors in Pace's service area. Since then, Pace has implemented two Pulse lines, on Milwaukee Avenue in 2019 and on Dempster Street in 2023. Two more lines on Halsted Street and 95th Street are being designed and are expected to enter service in 2028-29. The Pulse Cermak Line will be Pace's fifth Pulse line, and future corridors have been identified for further study, as shown in Figure ES-1. Pulse enhances the transit experience by offering high quality service and amenities, and includes the following features:

- Frequency of every 15 minutes or better at most hours, seven days per week;
- Limited stops and bus priority features through innovations such as transit signal priority (TSP) that make service more reliable and direct;
- Pulse-branded buses with Wi-Fi and interior digital information screens; and
- Modern, easy-to-identify stations with improved ADA accessibility, heated shelters designed with community expression, pavement snowmelt systems, benches, bike racks, trash receptacles, real-time bus tracker information, and near-level boarding platforms to make it easier to get on and off the bus.

¹ Pace Suburban Bus (2009). Arterial Rapid Transit Study. https://www.pacebus.com/sites/default/files/2020-06/STV-2009_1_PaceART-FinalReport.pdf

FIGURE ES-1 PACE PULSE PROGRAM, CURRENT AND FUTURE LINES



Source: Pace, PMO

Defining the Project

This report defines the features and characteristics of the Pulse Cermak Line. The Cermak Road / 22nd Street corridor was identified in 2001 as a potential location for rapid transit service in Pace's previous strategic plan, *Vision 2020*. Since then, Pace, along with regional and local entities, has studied the corridor for rapid transit service through various efforts.

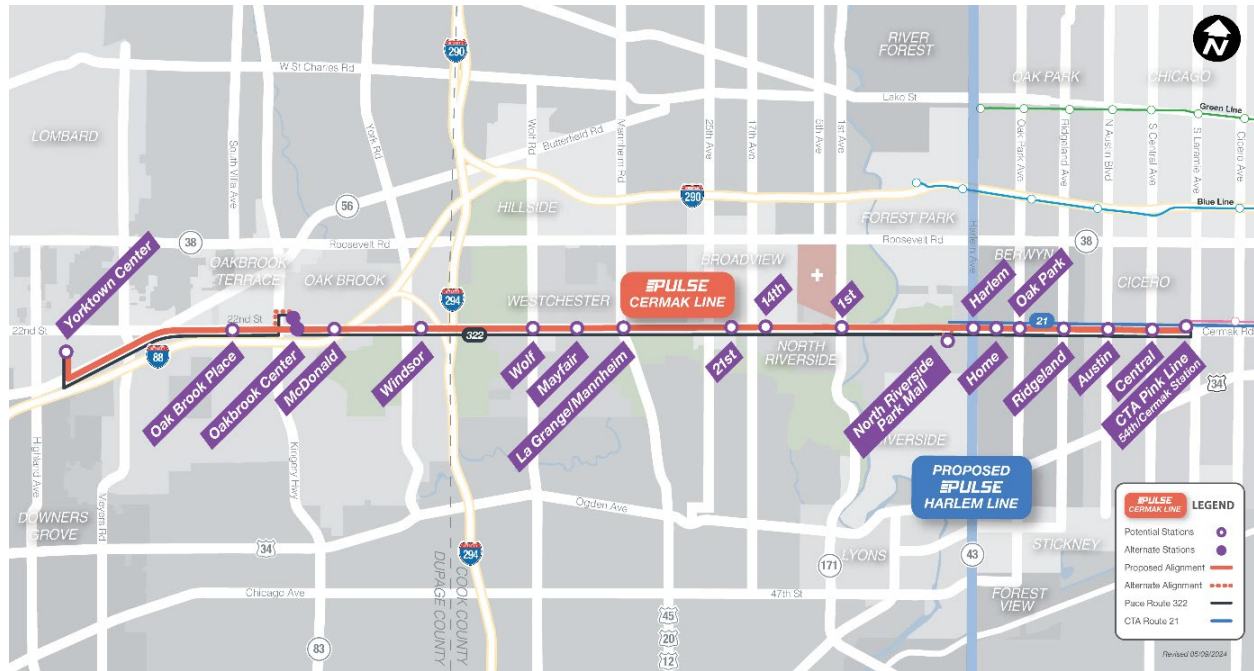
An integral east-west mobility option for Chicago's western suburbs, the corridor traverses a wide range of communities and connects to the regional rail network via the terminus of the CTA Pink Line in Cicero. It remains a vital daily pathway for thousands of residents and workers to access employment, education, shopping, health care, regional trails, hotels, and restaurants. By investing in this corridor, Pace is committed to advancing equity and opportunity for its riders. The goal of this Project Definition study is to describe the Pulse Cermak Line in a level of detail sufficient to begin the federally required National Environmental Policy Act (NEPA) documentation during the Environmental Review phase and make the project eligible for federal funding. Pace aims to apply for federal grants for design and construction with service planned to begin by 2030.

Through Project Definition, Pace is applying the Pulse program features to the corridor, analyzing and incorporating input from key stakeholders to reach conclusions on the following:

- Recommended stations and amenities at various locations, with conceptual design drawings;
- Desired service and operating plan;
- Potential locations for bus priority treatments; and
- Capital cost estimates.

The Project Definition study serves as a reference and resource for Pace, project stakeholders, and the public. Figure ES-2 depicts an overview of the Pulse Cermak Line's potential service alignment and station locations.

FIGURE ES-2 PULSE CERMAK LINE POTENTIAL ALIGNMENT AND STATIONS



Source: Pace, PMO

As documented in this report, the Pulse Cermak Line is defined by the following characteristics, all of which will be refined during the Environmental Review phase of the project:

- Extends approximately 14 miles in length, operating east-west along Cermak Road, 22nd Street, and Butterfield Road between the CTA Pink Line 54th/Cermak station in the Town of Cicero and the Yorktown Center area in the Village of Lombard. The line will traverse ten municipalities including Cicero, Berwyn, Forest Park, North Riverside, Broadview, Westchester, Hillside, Oak Brook, Oakbrook Terrace, and Lombard.
- Serves 19 station locations, including two termini; two intermediate, off-street single platform stations; and 15 intermediate on-street station pairs, where stations are on opposite sides of the street. One of the off-street intermediate stations is in the Village of Oak Brook at Oakbrook Center, where two options will continue to be studied into the Environmental Review phase.
- Connects the CTA Pink Line 54th/Cermak station to numerous Pace and CTA current and planned bus services in Cook and DuPage counties, including the existing Pace Route 322 and CTA Route 21, as well as the future Pulse Harlem Line and express bus service on I-294.
- Serves major destinations near the Cermak / 22nd Street corridor. These include the CTA Pink Line 54th/Cermak station, Unity Junior High School, commercial and

retail centers in Cicero and Berwyn, Morton East and West High Schools, North Riverside Park Mall, Loyola University Medical Center, Hines Veterans Affairs (VA) Hospital, numerous Cook County Forest Preserve sites (including the Salt Creek Trail, Miller Meadow, and Westchester Woods), Broadview Village Square, Oakbrook Center, and Yorktown Center.

- Provides frequency of at least every 15 minutes for most hours of operation, which would be approximately 5 a.m. to 1 a.m. with slight variation between weekday, Saturday, and Sunday/Holiday service. Pulse would complement hourly local Pace Route 322 service and also existing CTA Route 21 service on the eastern portion of the corridor.
- Benefits from transit signal priority (TSP) technology, which Pace intends to deploy at more than 40 intersections on the corridor. TSP enables buses to communicate automatically with traffic signals and catch up when running behind schedule.
- Other treatments, such as queue jumps and bus priority lanes, will continue to be studied. They are intended to be included in the project where feasible.

Project Features and Characteristics

Stations

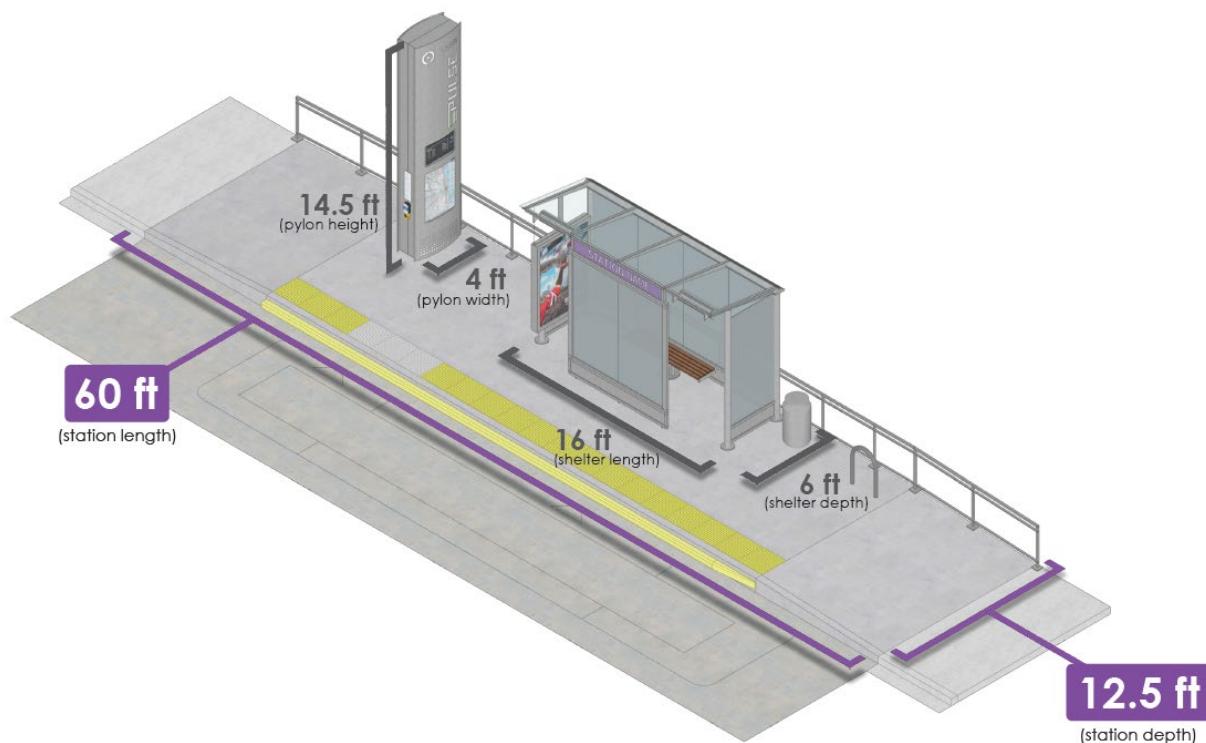
Station pairs (i.e. eastbound and westbound at intersections), as well as four bidirectional stations, were explored at 24 locations at the outset of Project Definition. The Pulse project team, including Pace staff and the program management and oversight consultant (PMO), collaborated with the Corridor Advisory Group (CAG) to analyze existing conditions, consider future development along with roadway infrastructure projects, and identify 19 preferred station locations.

The Pulse Cermak Line service will primarily operate in public right-of-way (ROW) with up to three station locations entirely on private property. The eastern terminus will utilize the existing bus facility at the CTA Pink Line 54th/Cermak station – no further improvements are currently recommended at that location. The western terminus is planned to be integrated into a private drive adjacent to Yorktown Center in Lombard and will include a single, longer platform design to accommodate Pulse and local buses. The intermediate stations at the North Riverside Park Mall and Oakbrook Center (alternate location) are also planned to be on private property. The North Riverside Park Mall and alternate Oakbrook station will feature a single, longer platform design to accommodate multiple routes traveling in both directions, including the Pulse Cermak Line, Pace Route 322, and CTA Route 21. The remaining intermediate stations will be designed to accommodate standard Pulse station layouts developed for previous Pulse lines. On-street station locations will consist of a pair of station sites — one in each

direction — and will use available public ROW where possible, though private easements may be required.

Figure ES-3 illustrates the Pulse standard station design. It has a 12.5-foot by 60-foot footprint, featuring a 12-inch near-level boarding platform with Americans with Disabilities Act (ADA) compliant ramps at both ends connecting the station to the surrounding sidewalk network. Smaller, more compact stations with a modified feature set will be used where necessary to accommodate constrained ROW conditions while still maintaining ADA compliance. All stations will accommodate Pace's fleet of 40-foot buses. Stations between the North Riverside Park Mall in North Riverside and Central Avenue in Cicero will also be shared with CTA; they will have 11-inch platforms and will be lengthened to accommodate the 60-foot articulated buses used on CTA Route 21.

FIGURE ES-3 STANDARD STATION LAYOUT



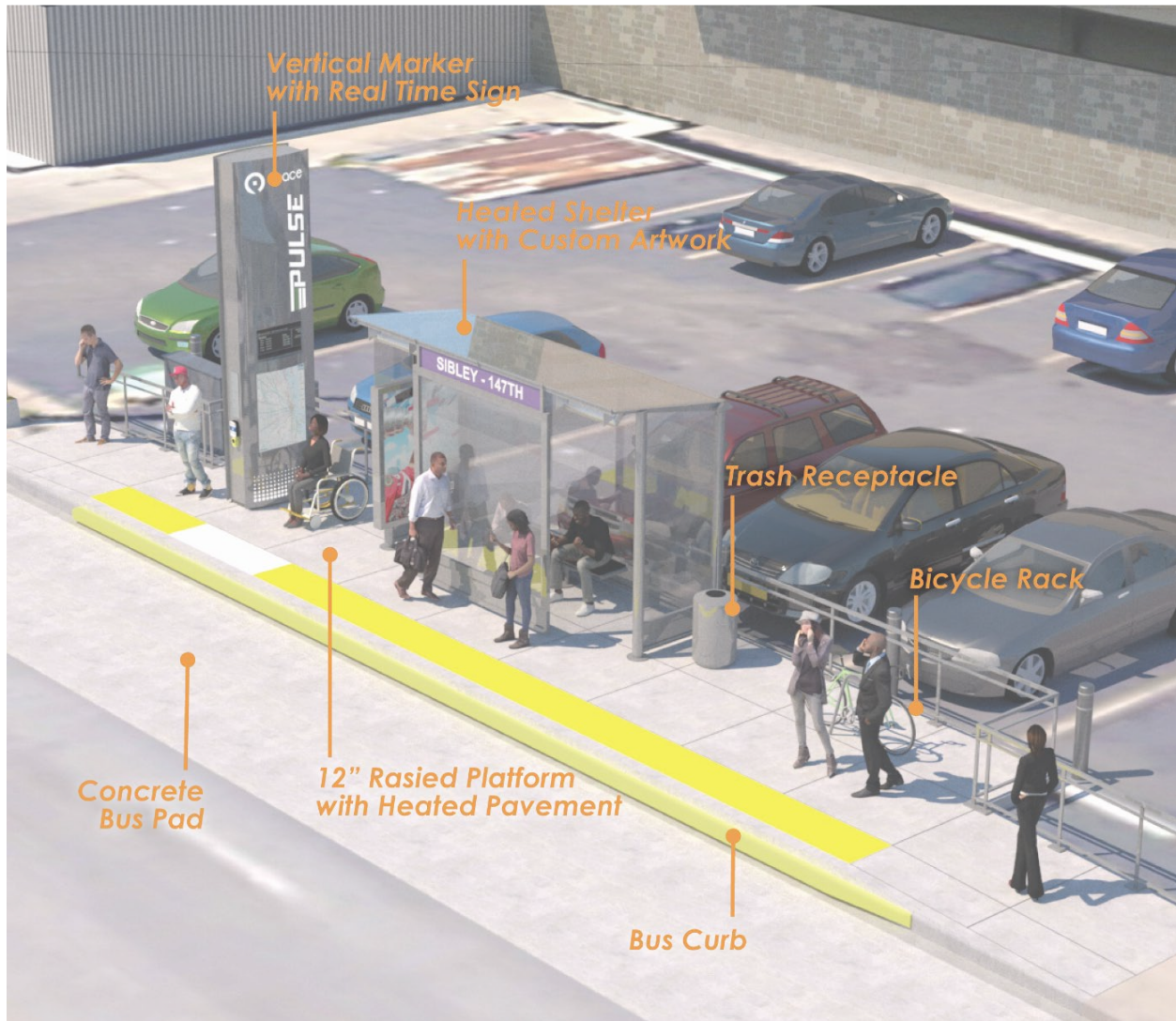
Source: Pace, PMO

Planned station amenities include the following features, as shown in Figure ES-4:

- Raised platform for near level and expedited boarding and alighting;
- Branded shelters with overhead heat and customizable panels;
- Benches, trash receptacles, and bicycle racks;

- Branded vertical marker featuring real-time, next-bus signage, Pulse route, and local wayfinding information;
- Electric pavement snow-melt system;
- Railings along the back of the platform and along the access ramps;
- Concrete bus pad in roadway to reinforce area where buses are frequently stopped.

FIGURE ES-4 STANDARD STATION LAYOUT RENDERING



Source: Pace, PMO and Google Maps

Conceptual station designs were adapted to accommodate unique station site characteristics and ROW limitations. Improvements to the adjacent pedestrian environment, such as the addition of curb extensions and pedestrian crossing enhancements, were also considered to improve passenger safety and station access.

Bus Priority Features

The existing service in the corridor experiences significant delays throughout the day due to traffic congestion. This impacts reliability and public perception of transit across the entire corridor. Improvements to service reliability through bus priority treatments is critical for enhancing transit in the corridor and making the future Pulse Cermak Line faster and more reliable.

In consultation with the Illinois Department of Transportation (IDOT), corridor stakeholders, and local municipalities, the project team preliminarily identified and considered opportunities for bus priority treatments, mostly within existing ROW, to improve travel times and reliability. The following priority treatments were considered:

- **Transit Signal Priority (TSP)** enables the bus's on-board computer to communicate with the traffic signal system without any action taken by the bus driver. When a bus is running behind schedule TSP technology requests to shorten red lights or extend green lights giving buses an advantage to stay on a reliable schedule. The treatment is planned to be implemented on the Cermak Road corridor as a part of the Regional Transit Signal Priority Implementation Program (RTSPIP) led by the Regional Transportation Authority (RTA), in advance of Pulse Cermak Line construction and operation. TSP is utilized by local bus services (Pace and CTA) in addition to Pulse. It is anticipated to be active at most intersections throughout the corridor.
- **Bus priority lanes** allow buses to travel through and between intersections with less interference from congestion or needing to merge in and out of traffic. They may be exclusive or semi-exclusive (such as when a bus lane is shared with right-turning vehicles accessing local businesses).
- **Queue jumps** allow buses to bypass most intersection-related congestion, usually with a short, dedicated bus lane and, if needed, a bus-specific signal phase.

The initial bus priority locations are documented in Section 3.4.5. These locations are preliminary, requiring additional analysis and coordination with local and regional stakeholders during future phases of the project to determine feasibility.

Financial Plan

A preliminary capital cost estimate based on the station and corridor improvements described in the Project Definition was developed. These capital cost consists primarily of station construction and associated corridor improvements. It is based on (i) the costs of Pulse stations from previous projects, (ii) the proposed station types (i.e., standard, depth-constrained, etc.), and (iii) accompanying ROW and infrastructure changes, such as expanded curb and pedestrian areas. Station designs also vary slightly between the eastern and western portions of the corridor to accommodate CTA

articulated (60-foot) buses. Stations that are served by both Pace and CTA are typically more expensive as they include longer platforms and also need additional pavement and modifications to connect to the surrounding environment. Additionally, several stations include custom designs on privately owned properties and carry higher costs than those in the public ROW. Including soft costs for professional services and an appropriate contingency given the conceptual level of design, the estimated total capital cost for stations and supporting roadway work is approximately \$32.2 million².

The locations and designs of bus priority features along the corridor are still being evaluated but will ultimately require additional investment and close coordination with municipalities along the corridor and with IDOT. Additional costs for features, such as bus priority lanes and queue jumps, will be estimated in future phases as feasibility is assessed. With minimal roadway and traffic signal changes, queue jumps and business access and transit (BAT) lanes within the existing ROW could be added to the project for less than \$10M. There is also a larger opportunity for a more transformative project on the east end of the corridor, east of Home Avenue, but this project would be significantly more costly and require extensive coordination with IDOT and the municipalities to define and advance.

TSP costs are not included in the capital cost estimate for the Pulse Cermak Line as it will be implemented through a separate program (i.e., RTSPIP).

Pace intends to fund the Pulse Cermak Line with local, state, and federal sources. To date, Pace has secured more than \$70 million in discretionary federal and local grants to develop and implement the Pulse Milwaukee, Dempster, Halsted, and 95th Street Lines. The Pulse Cermak Line has also received a \$500,000 Invest in Cook (IIC) grant from Cook County for the upcoming Environmental Review phase. As Pace has not yet sought funding for design and construction, additional sources will be required to complete the project. Potential preliminary funding sources under consideration at the local, state, and federal levels are described in Section 5.

Operating Plan

A preliminary operating plan, based on running time and ridership analyses, reflects implementation of the new Pulse service and corresponding changes to local Route 322 service. The preliminary operating plan requires 17 Pulse vehicles (14 for peak service plus three spares). Reducing the number of intermediate stops and adding TSP technology enables time savings compared to the existing Route 322 while providing improved reliability and frequencies to nearly all existing riders and improved traffic flow. The potential addition of bus priority lanes and queue jumps will also support faster travel times and ensure reliability of transit service in the corridor. More than 90% of all

² 2024 dollars

Route 322 ridership³ is captured within approximately a quarter mile (i.e., walking distance) of a Pulse station. The operating plan is summarized in Table ES-1.

TABLE ES-1 PRELIMINARY OPERATING PLAN

	Pace Route 322 (Existing)	CTA Route 21 (Existing)*	Pulse Cermak Line (Proposed)	Pace Route 322 (Proposed)
Span of Service				
Weekday	4:30am – 1am	4am – 12:30am	4:30am - 1am	5:30am – 10pm
Saturday	5am – 1am	4am – 12am	5am – 1am	6am – 10pm
Sunday	6am – 10:30pm	6am – 12am	5:30am – 1am	6am – 10pm
Frequency (weekdays only)				
Peak	20 min	12-15 min	15 min	60 min
Off-Peak	30-60 min	20 min	15 - 20 min	60 min

*No changes are proposed for CTA Route 21.
Source: Pace, PMO

For the purposes of this analysis, it was assumed the Pulse Cermak Line and Route 322 will operate along identical alignments, although future routing changes are possible. Operations and maintenance (O&M) costs are estimated based on annual vehicle hours of service. The collective service changes will require approximately 86,400 annual vehicle hours, or an increase in almost 44,000 annual vehicle hours (104% increase over existing Route 322) of transit service to the corridor. The O&M costs for the Pulse Cermak Line and proposed Route 322 will add approximately \$4.01 million.⁴

Stakeholder Engagement

Pace is committed to a collaborative process where a diverse group of stakeholders are actively involved and providing input that will directly shape the project from planning to implementation. Involvement activities during the Project Definition phase are focused on coordination with government agencies at the local, state, and federal levels, as well as other local organizations, property owners, and schools.

The CAG includes representatives from municipalities, agencies, schools, property owners, and community groups. Two CAG meetings were held during the Project Definition phase. The first meeting in December 2023 was attended by 39 CAG members. During the meeting, the project team introduced the study and presented an overview of the Pulse Program, existing conditions and transit needs within the

³ Source: Pace APC Ridership, Fall 2022

⁴ 2024 dollars

project corridor, preliminary station concepts, and proposed station locations and bus priority features. They also held a breakout session and hosted an online comment period for feedback on the project features, as well as initial station locations.

At the second CAG meeting in April 2024, 40 CAG members attended. The project team presented project updates related to the proposed alignment, station locations, and bus priority treatments. They also introduced the proposed operating plan and draft conceptual station designs. An additional breakout session and online comment period for feedback on the project updates and conceptual station designs was held to assist the project team with future refinements. Throughout the Project Definition phase, the project team also met with many CAG members and other key stakeholders individually and in small groups to solicit feedback on community needs and proposed project elements.

As the Project Definition phase concludes and the project advances into the Environmental Review phase, stakeholder involvement and outreach efforts will be a priority as the NEPA documentation is prepared. Coordination with communities, government officials, public agencies, and individual interest groups will continue. The project team also will continue to emphasize public involvement and broad community outreach. Guided by established plans, Pace will connect with its customers, the public, affected property owners, and business groups through outreach. Those outreach efforts include a project website, project newsletters, public meetings, and one-on-one stakeholder meetings.

Next Steps

Pace anticipates pursuing federal funding for the Pulse Cermak Line; therefore, the next phase of the project will be the Environmental Review as required by NEPA. In preparation for this process, the project team has surveyed historic resources near the corridor and station locations and found 22 resources within a quarter mile. These properties and historic districts will be further evaluated in the Environmental Review phase, which is anticipated to begin in late 2024.