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1. Overall Project Summary and Approach

Zero-emissions public transit is the strongest tool in reducing driving, lowering emissions, and building a more sustainable transportation network in the Chicago area and regions across country. In the U.S. and the State of Illinois, exhaust from cars, trucks, and planes is the single biggest source of carbon dioxide emissions – the largest contributing factor to climate change. Even before electrifying fleets, public transportation already reduces carbon emissions by providing millions of residents with alternatives to driving. Transit moves people much more efficiently: bus emissions per passenger mile are 33 percent lower than cars and passenger trains are 76 percent lower.

The **Transforming Transit: Accelerating a Zero Emission Fleet in the Chicago Region** project would strengthen the positive impact of the transit system and unlock transformative investments in the fight against climate change through the purchase of \$375 million in cutting edge zero-emission buses, trainsets, and associated charging infrastructure.

The Regional Transportation Authority of Northeastern Illinois (RTA), the lead applicant for this project, is the unit of local government that oversees finances, secures and distributes funding, and coordinates transit planning and capital investments in the six-county Chicago Metropolitan region – the second largest transit network in the country. The three service providers in the RTA region include the Chicago Transit Authority (CTA), Metra (Commuter/Regional Rail), and Pace Suburban Bus, encompassing more than 3,700 square miles of service area. This funding would be transformative for such a large and diverse region and will buy a mix of electric buses and electric commuter rail trainsets along with the associated charging infrastructure:

- The Chicago Transit Authority (CTA), which operates bus and heavy rail services in the Chicago region primarily serving the City of Chicago and surrounding 35 suburbs, would replace 50 60' articulated diesel buses with new zero emission buses, accelerating the agency's plans to fully electrify its fleet by 2040. Most rides on CTA are taken by bus. The CTA bus system consists of 128 routes. Buses make over 25,000 trips daily and serve nearly 12,000 bus stops throughout the region.
- Metra, which is the busiest commuter rail system in the United States outside of New York City, would purchase 32 trailer cars to make 16 complete zero emission trainsets, building off an already planned purchase and allowing Metra to become the first U.S. passenger rail provider to introduce battery-electric trains.
- Pace, the suburban bus and paratransit provider for the six-county region would replace 83 buses with new zero emission busses, accelerating the agency's plans to fully electrify its fleet by 2040.

All three providers plan to deploy this state-of-the-art green technology in parts of the Chicago region suffering from historic disinvestment and where residents are most overburdened by poor air quality and related health effects. The new buses and trains will allow providers to deliver service that is not only cleaner but also more reliable and useful for trips throughout the day.



Today, the Chicago region's transit system provides enormous benefits to the region's health, mobility, and economic development. In 2022, transit in the Chicago region was estimated to reduce automobile use by 1.7 billion vehicle miles, reduce greenhouse gas emissions by 375,000 tons, and save a half-billion dollars in costs. This funding would allow the region to amplify the extraordinary impact of public transit and set the system up for continued growth and success.

This application is strongly supported by our congressional delegation, state legislators, regional elected and agency officials, community organizations, and nonprofit advocates from across the region. Their letters of support can be downloaded from this webpage: www.rtachicago.org/grant-support-letters.

Description of GHG Reduction Measures

The RTA proposes to take action on Green House Gas (GHG) Reduction Measure DT.7, “Decarbonize Transportation” by transitioning transit trains, buses, and related service equipment to low and zero-emission operation through equipment replacement and clean fueling infrastructure investments, as detailed in the [Metropolitan Mayors’ Caucus’ Priority Climate Action Plan](#). The project includes the replacement of fifty (50) of CTA’s diesel 60’ articulated buses with electric articulated buses, eighty-three (83) of Pace’s diesel 40’ buses with electric buses, and the Metra purchase of 32 trailer cars and 8 express charging docks to create 16 full battery electric trainsets, an addition to Metra’s existing fleet capacity. The Project will leverage the already-strong benefits of the existing transit system by improving the transit experience with new, modern vehicles which are quieter, smoother, and faster. The Project will directly benefit 10 million annual transit trips which currently use the services where the new vehicles will be deployed. Accelerating the transition of moving to a zero-emission fleet, the Project will add to regional initiatives underway such as Pace’s Pulse express bus service and CTA’s Better Streets for Buses program. Metra’s innovative component of the Program will bring the benefits of electric traction power to commuter rail on its legacy diesel locomotive hauled routes.

CTA’s purchase of 50 buses will be assigned to the 103rd Street Garage, which is located on the far South Side of Chicago and supports 25 standard routes and seven express routes. Selected routes for these zero emissions buses are the #29 State, which runs from 95th Street Red Line station to Navy Pier terminal, and #95 (95th), which runs Damen/87th and ends at 92nd/Buffalo. The 103rd Street Garage was identified to be converted for electric buses based upon the highest level of positive impacts to the neighboring communities. This garage services communities that are experiencing high levels of air pollution and health vulnerability. The neighborhoods surrounding 103rd’s Garage and routes served by this garage have some of the highest levels of existing environmental concerns and persistent poverty in Chicago. These same communities are also historically disadvantaged. This order will allow CTA to build on its existing fleet of 23 electric buses, in addition to 22 electric buses that are on order.

Pace’s purchase of 83 buses will be assigned to the North Division and Southwest Division garages. These garages were selected because they both serve Historically Disadvantaged Communities and federally designated Area of Persistent Poverty. In addition, both areas face several environmental disadvantages compared to other parts of the region. Based on Pace’s Project Zero: Zero Emissions Bus Facility plan, the North Division garage in Waukegan will be the agency’s first fully electric garage by 2027 and Southwest Division will be retrofitted to accommodate an initial fleet of 20 electric buses by 2027 and will house a fully electric fleet by 2029.

Metra has secured funding to purchase the base order of four 2-car battery electric trainsets and the first option on the contract to deliver four additional 2-car trainsets. Metra’s contract includes an option

to purchase up to 32 unpowered trailer cars to extend the 2-car trainsets by placing 1 or 2 trailer cars in the middle of the battery-powered control cars. Metra proposes to use the CPRG grant to accept all contract options for trailer cars and build 8 express charging docks along three of Metra's rail lines.

Metra's Board of Directors has approved a contract to purchase Zero-Emission Trainsets (ZETs), putting Metra on track to becoming the first US passenger transit provider to introduce battery-electric powered transit vehicles. Metra's Zero-Emissions Trainset program will decarbonize a portion of Metra's fleet and prove the emerging technology to be a scalable model that other transit agencies in the United States. Further, the new ZETs are additive to Metra's fleet and allow for additional scheduled service runs during the mid-day period to reduce the time gap between scheduled train runs and capture a new market of transit riders. Introducing the ZETs to Metra's fleet will allow some of its oldest, most polluting diesel locomotives to be retired and will increase transit ridership, thereby eliminating tons of carbon emissions.

RTA's combined application is estimated to reduce 40,567 short tons of carbon dioxide per year and more than 1 million short tons over the useful life of the project. CTA's replacement of fifty 60' Articulated Buses will reduce CO2 emissions by 5,063 short tons per year or 65,813 short tons over the 13-year useful life of the new buses compared to replacing with diesel buses. Pace's replacement of 83 40' Buses will reduce CO2 emissions by 6,210 short tons per year or 80,730 short tons over the 13-year useful life of the new buses compared to replacing with diesel buses. Metra's purchase of 16 battery-powered trainset units will reduce CO2 emission by 29,295 short tons per year or 878,850 short tons over the useful life of trainset when compared to retiring the 16 old diesel locomotives with 16 higher-EPA-tier diesel locomotives.

The table below shows the reduction in CO2 emission by service board and for the region.

Table 1. CO2 Reductions vs Replacement with Diesel Vehicles

Agency	CO2, short tons / Years	CO2, short tons / Useful Life
CTA	5,063	65,813
Pace	6,210	80,730
Metra	29,295	878,850
Total:	40,568	1,025,393

Demonstration of Funding Need

The RTA region has identified over \$2B in funding need to replace diesel buses with electric buses as well as more than \$5B in need required to electrify garages and buildout charging infrastructure along route. The region has set an ambitious goal of moving to zero-emission buses systemwide by 2040. In addition, Metra has begun to transform to cleaner propulsion units as they become available with the total need reaching into the billions. The region's capital program has averaged approximately \$1B in funding per year, meaning over half of the existing program would need to be reassigned to electrification to reach this goal. At the \$1B annual funding level, the region cannot program 50% of funds to electrification as the region needs and continue to focus on key state of good repair projects, as well as continue to improve accessibility and equity throughout the system. A \$375M investment dedicated to electrification would be a key step forward to Transform Transit into a cleaner future.

CTA's need to replace fleet remains largely unfunded. The age of the 50 replacement buses for this proposed project is 15+ years old and the condition and the performance are beyond their useful life. The all new zero emissions buses will take some of the most polluting buses off the streets and benefit the health of CTA riders and the Chicago Region. By 2026, every bus purchase the CTA makes must be zero emission to ensure that all diesel buses can be fully retired by 2040, which means the CTA must convert its bus infrastructure now, including the continued conversion of the 103rd Garage. See more in "Charging Forward," CTA's vehicle electrification plan, (see attachments 2&3, CTA's Charging Forward Report & Appendix and, CTA's Zero-Emission Fleet Transition Plan Addendum).

Similarly, Pace's existing buses will be reaching their useful life as these bus procurements commence. According to Pace's Zero Emissions Bus Transition Plan, , there is a need to replace an average of 35 buses annually with zero emissions vehicles to reach their goal of operating a zero emissions fleet by 2024. This grant would cover more than two years of funding needed for zero emissions vehicles, allowing Pace to use funding sources, such as regional federal formula funding on converting garages to support zero emissions buses.

When Metra was created, the agency assumed passenger railroad operations in the Chicago region and inherited many assets from now-defunct private operators, including passenger railcars built between the early 1950s and 1980. With thousands of aging assets across Metra's legacy system, Metra's total state of good repair backlog for capital assets is \$12.1 billion—a deficit that is impossible to overcome with only local funding sources. Given this enormous backlog, Metra is not only seeking funding for a new fleet but has also installed an in-house rehabilitation program to ensure its vehicles are safe and reliable even decades after eclipsing FTA's and Metra's useful life benchmarks.

CPRG funds for Metra's ZET program would provide means to expand the scale of a GHG reduction measure that Metra will proceed with implementing. As previously noted, Metra has secured partial funding from a federal Congestion Mitigation and Air Quality Improvement (CMAQ) grant to afford the purchase of 16 2-car trainsets, but Metra needs additional funding from the CPRG program to secure the total funding needed to fully implement the measure.

Transformative Impact

By RTA leading this grant application, the region is proposing a commitment to a systemwide transformation to cleaner vehicles. CTA, Metra, and Pace working together with RTA's leadership can be a huge driver in prioritizing equity in reducing GHG emissions throughout the region. One example of this effort is on the South Side of Chicago and the south suburbs. The neighborhoods surrounding the garage proposed by CTA and routes served by the garage have some of the highest levels of existing environmental concerns and persistent poverty and are historically disadvantaged. Making progress toward improving air quality here would support the Biden Administration's Justice40 Initiative.

As part of this application there will be a major coordinated focus spreading out along 95th Street. CTA has already obtained an FTA Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant to fund electric charging capabilities at the CTA Red Line 95th/Dan Ryan Bus Terminal. This will become a hub of electric bus service with CTA's Route 29 and 95 services as well as Pace's Route 381 service out of the Southwest Division garage being able to utilize future charging equipment at the facility. In addition, Metra will offer service using battery electric trainsets at two stations along 95th Street, at the Beverly Hills station on the Rock Island Line, as well as the upgraded 95th Chicago State University Station on the Metra Electric Line.

According to the State of Illinois PCAP, the transportation sector is the largest source of GHG emissions in Illinois (25%), in addition to being a major source of criteria pollution that impacts environmental justice communities. By introducing a battery-electric fleets, the area can significantly reduce GHG emissions in the Chicago region. In addition to lowering emissions and improving air quality, electric buses and trains offer fuel cost savings. Electric vehicles are also quieter, reducing noise pollution in neighborhoods adjacent to major facilities. This Project is a vital step towards reducing emissions from the transit sector.

Finally, the RTA region's reach to six counties is key to a consolidated effort to also bring electrification to suburban Lake and Will counties, including minority-majority cities like Waukegan.

2. Impact of GHG reduction measures

Magnitude of GHG Reductions from 2025 through 2030

RTA is providing estimated emissions reductions for the project by each agency (Service Board) using the EPA's Diesel Emissions Quantifier (DEQ) tool. The chart below shows the reduction from 2025-2030.

Table 2. Estimated Emissions Reduction from 2025-2030 based on EPA DEQ Analysis

	NOx, short tons	PM2.5, short tons	HC, short tons	CO, short tons	CO2, short tons	Fuel, gallons
CTA:	16.68	0.08	2.68	3.62	6,581	585,000
Pace:	38.01	0.05	4.24	24.68	26,393	2,346,000
Metra:	292.08	7.08	162.18	75.53	102,533	9,114,000
Total:	346.76	7.22	169.10	103.82	135,507	12,045,000

Magnitude of GHG Reductions from 2025 through 2050

RTA is providing estimated emissions reductions for the project by Service Board using the EPA's Diesel Emissions Quantifier (DEQ) tool. The chart below shows the reduction from 2025-2050.

Table 3. Estimated Emissions Reduction from 2025-2050 based on EPA DEQ Analysis

	NOx, short tons	PM2.5, short tons	HC, short tons	CO, short tons	CO2, short tons	Fuel, gallons
CTA:	51.32	0.26	8.24	11.12	20,250	1,800,000
Pace:	64.83	0.09	7.22	42.09	45,023	4,002,000

Metra:	959.69	23.27	530.38	248.16	336,893	29,946,000
Total:	1,075.84	23.61	545.84	301.38	402,166	35,748,000

Cost Effectiveness of GHG Reductions

Table 4. Cost Effectiveness for Project Implementation 2025-2050

	NOx, \$/short tons	PM2.5, \$/short tons	HC, \$/short tons	CO, \$/short tons	CO2, \$/short tons	Fuel, \$/gallons
Project Total:	\$348,565	\$15,880,341	\$687,019	\$1,244,279	\$932	\$10.49

Documentation of GHG Reduction Assumptions

The GHG Reduction was calculated using the EPA's DEQ tool. Inputs and results from the tool are included as part of the application. RTA manually created lifetime reductions based on assumed remaining useful lives stated below. A spreadsheet is included. As noted on the site, the DEQ calculator may not be able to calculate lifetime savings because some vehicles are past the normal useful life. CTA, Metra, and Pace have strong quarter and mid-life overhaul programs which have extended the useful life of vehicles, which has been necessary due to insufficient funding to replace all vehicles at scheduled intervals.

CTA Bus Assumptions

- 30,000 Annual Miles Traveled
- 9,000 Diesel-equivalent gallons
- 1,460 Annual idling hours
- 3 years of useful life remaining at time of replacements after mid-life overhauls

Pace Bus Assumptions:

- 35,612 Annual Miles Traveled
- 6,900 Diesel-equivalent gallons
- 334 Annual idling hours
- 6-7 years of useful life remaining at the time of bus replacements based on purchase date

Metra Assumptions:

- 1,302 Annual Usage Hours
- 162,750 Annual Fuel Gallons (125 Gallons per Hour)
- 10-11 years of useful life remaining at the time of locomotive replacements based on current remaining life based on purchase date

3. Environmental results – outputs, outcomes, and performance measures

Reduction Measure Output: Procurement of (50) fifty, 60' battery electric buses for CTA and (83) eighty-three 40' battery electric buses for Pace

Outcomes:

- The proposed measure will result in an estimated reduction of 32,974 short tons of CO2 emissions from 2025 through calendar year 2030. It will result in an estimated reduction of over 65,273 short tons of cumulative CO2 emissions from 2025 through calendar year 2050. All emission reductions can be seen in section 3 of this application.
- The proposed measure will reduce exposure to hazardous diesel air pollution or unhealthy ambient air quality.
- The proposed measure will address particulate matter complaints from bus garage workers and bus turnaround neighbors.
- The proposal will result in the 1 for 1 replacement of 133 buses from some of the oldest most polluting buses to clean battery electric buses, enhancing customer experience and helping increase ridership.

Reduction Measure Output: 32 trailer railcars to make complete 16 trainsets

- The proposed measure will result in an estimated reduction of 102,583 short tons of CO2 emissions from 2025 through calendar year 2030. It will result in an estimated reduction of over 336,983 short tons of cumulative CO2 emissions from 2025 through calendar year 2050. All emission reductions can be seen in section 3 of this application.
- The proposed measure will reduce exposure to hazardous diesel air pollution or unhealthy ambient air quality.
- The proposed measure will address particulate matter complaints from yard workers and rail neighbors.
- The proposal will result in the 1 for 1 replacement of 16 of the oldest, most polluting locomotives to clean battery electric trainsets. The new trainsets will also assist in increasing capacity for more trips, enhancing ridership, particularly during the midday periods. Furthermore, the introduction of zero emission trainsets to Metra's fleet and the new midday service that can be scheduled will support Metra's ambition to transition from a commuter to a regional rail service model.

Reduction Measure Output: Dissemination of information about the program via annual and quarterly reporting:

Outcomes:

- Understanding and communication about the environmental and economic effectiveness of zero emission buses
- Pilot and share information about one of the first battery electric trainset fleets in the world
- Increases visibility of the region's commitment to providing sustainable transit
- Providing transparent information on the delivery and implementation of these new technologies

Performance Measures and Plan

The proposed performance measures that will be used to track, measure, and report progress toward achieving the expected outputs and outcomes for each GHG reduction measure are summarized below:

Outcome 1: Avoided GHG Emissions

- Quantity of buses/trainsets procured
- Date of deployment
- Annual and semi-annual mileage
- Average vehicle distance traveled (miles/day) (hours/day)
- Gallons consumed per day
- Days traveled over each semi-annual reporting span

The Service Boards will utilize their respective established data collection and reporting systems to meet the EPA's requirements. This data can be specifically tailored to track emissions reductions achieved across the project's life span.

Avoided GHG emissions will be reported on a semi-annual timeline, as requested by the EPA. To calculate GHG emissions avoided over each 6-month timeframe, the following equations will be performed:

$(\text{passenger-miles traveled per day}) * (\text{CO}_2\text{e emissions factor}) * (\text{number of buses/trains}) = \text{MT CO}_2\text{e avoided daily}$

Outcome 2: Reduction in Particulate Matter (PM) Pollutants

Reduction in emitted PM will also be reported on a semi-annual basis, as requested by the EPA. To calculate PM avoided for the entire service area over each 6-month timeframe, the following equations will be performed:

$(\text{passenger-miles traveled per day}) * (\text{PM factor}) * (\text{number of buses/trains}) = \text{PM avoided}$

Authorities, Implementation Timeline, and Milestones

Once the notice of the grant award is received, CTA, Metra and Pace would program these projects into the upcoming current Capital Improvement Plan, which would be followed by a Transportation Improvement Program (TIP) and/or Statewide Transportation Improvement Program (STIP)

Amendment, in coordination with the Chicago Metropolitan Association for Planning (CMAP), the local MPO. This work could be completed within one quarter.

CTA:

For bus procurements, CTA's Vehicle Engineering and Purchasing departments will issue a Request for Proposals (RFP) based upon the technical requirements for the electric vehicles and standard Federally compliant procurement and contracting procedures. The RFP format will allow for selection on both price and technical requirements, which will consider the ability of the proposer to integrate into the current electric bus charging infrastructure implemented on the system. Tasks and milestones associated with purchasing electric buses and converting the 103rd Street Garage include:

- Planning, Grant Initiation, and Environmental Compliance - Q4/2025
- Design Procurement; Ebus Request for Proposals Advertisement - Q2/2026
- Design; Ebus Contract Award - Q2/2027
- Contractor Procurement/Construction NTP - Q3/2027
- Construction Substantial Completion; Ebus Delivery to CTA - Q4/2029
- Project Closeout (Including Financial) - Q4/2030

Pace:

The successful expansion of Pace's BEB fleet relies on the agency's Operations team, which has a vital role in integrating BEBs into existing routes, scheduling charge times, and training personnel on operating and maintaining the new BEBs. Clear communication with the public is also key; Pace's community engagement teams will work with the project manager to develop information that informs the communities of the environmental benefits and potential service adjustments, if any.

- Planning, Grant Initiation – Q1/2025
- Bus procurement begins – Q3/2025
- Receive initial bus – Q3/2026
- Receive and deploy all buses – Q4/2027
- Project Closeout (Including Financial) - Q4/2028

Metra:

In February 2024, Metra's Board of Directors approved a contract to purchase Zero-Emission Trainsets (ZETs). Metra would execute options as soon as funding becomes available

- Planning, Grant Initiation – Q1/2025
- Initial Trainset scheduled for delivery – Q3/2026
- Options scheduled to begin delivery – Q3/2027
- All options to be delivered and in service Q1/2029
- Project Closeout (Including Financial) - Q4/2030

4 Low-income and disadvantaged communities

Community Benefits

Regionwide

The Chicago region is home to more than 8 million residents of all races and ethnicities, but a legacy of racism and segregation, including in our transportation system, has led to inequitable access to opportunity for too many.

The RTA recognizes the historic harms that have left communities of color, those experiencing lower incomes, residents with disabilities and older adults — all groups who rely most on transit — without the transportation network they deserve.

Transit connects people to jobs, education, and healthcare. It provides independence to people with disabilities. It transports people to economic opportunities beyond their community. During the pandemic, it was a constantly humming lifeline, continuing to provide essential trips, including those for workers like nurses and warehouse employees to jobs that allowed millions to stay home.

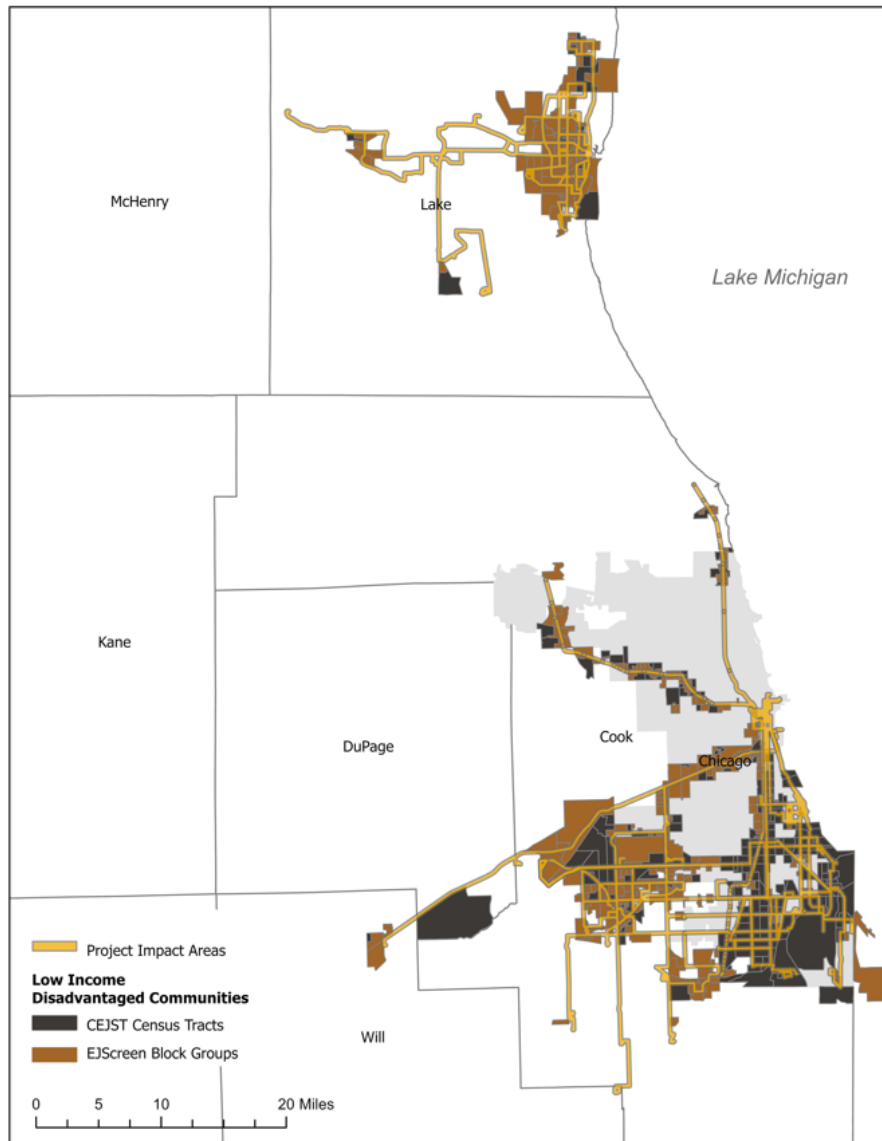
Fulfilling the promise of a more equitable transit system includes reducing the exposure of vulnerable populations to harmful air pollutants produced by diesel buses and trains, improving the passenger riding experience, and benefiting passengers' health due to reduced noise levels and cleaner air.

The EPA CPRG funding will help achieve those goals as the replacement of diesel vehicles outlined in the Project will reduce CO₂ emissions by 40,568 tons per year. Additionally, through the service enhancements brought to the system by the Project, RTA estimates 253,000 single-occupancy auto trips annually will be captured by transit (mode-shift), saving 766 tons of CO₂ emission annually beyond the direct GHG emissions benefits documented throughout this application.

As documented in the attachments, the Project benefits 204 census tracts as identified as at or exceeding the thresholds for the Climate and Economic Justice Screening Tool (CEJST) and 419 block groups through the EPA's EJScreen. The focus of the Project is to direct the benefits of the Project funding to these low-income and disadvantaged communities is evidenced by 45.5% of all block groups through which the project benefits also meet the EJScreen thresholds. The block groups benefited by the project have a total population of 1.34 million.

In addition to the significant air quality benefits, this project will offer benefits to reduced exposure to noise pollution, lower stormwater impacts, and public health safety benefits.

The benefit area of the Project is shown in Figure 1



CTA Buses from 103rd Street Garage:

CTA's project is based in Chicago's far South Side, a region that has borne a disproportionate pollution burden for decades. Of all CTA bus routes from the 103rd Street Garage, 93% are classified Title VI minority routes and 86% are classified Environmental Justice (EJ) low-income routes. Using the EPA EJ Screen, the area surrounding the 103rd Street Garage is all above the 80th percentile for PM2.5 and ozone.

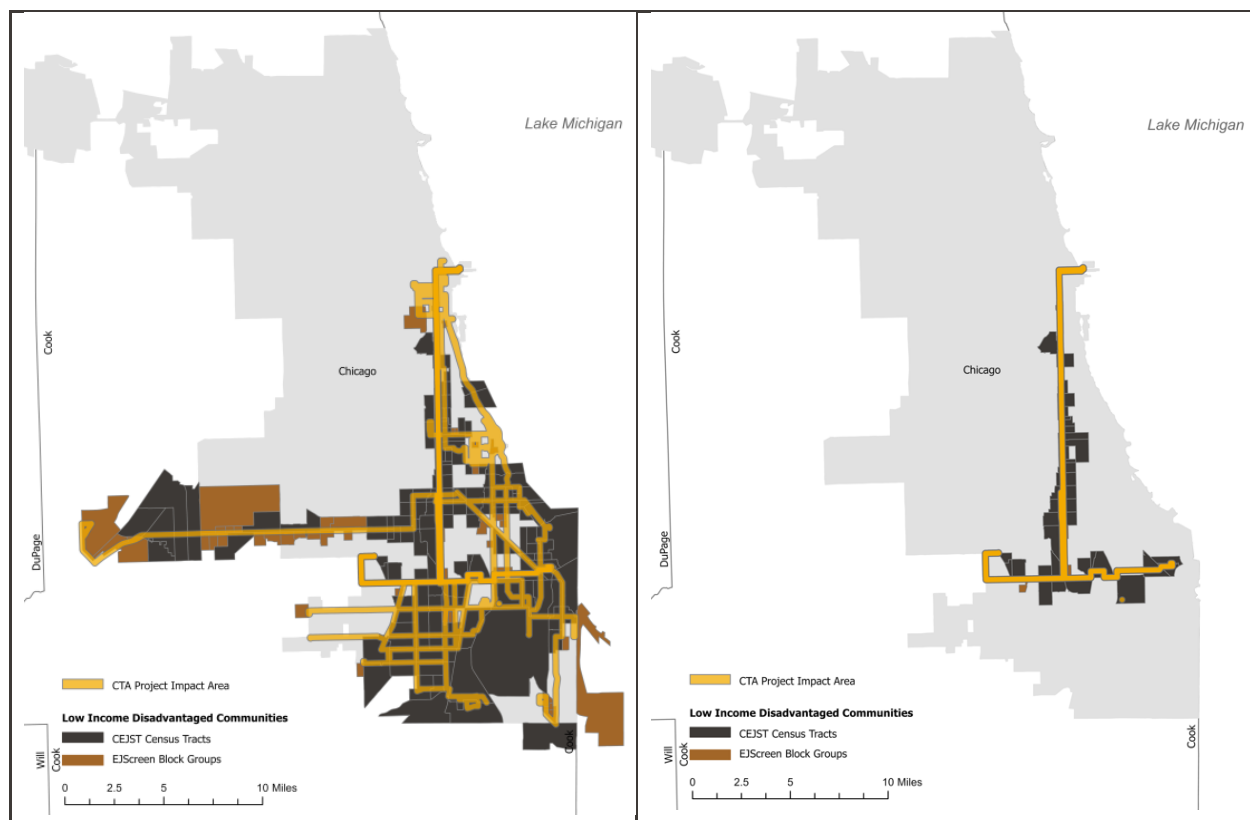
The project is in Census Tract 5103, which is a historically disadvantaged community per the USDOT metrics. Additionally, surrounding areas, including areas around the routes served by the garage, are also historically disadvantaged communities. By focusing the electric bus conversion on Chicago's far South Side, CTA would improve air quality within a community that has high levels of transit dependence.

An upgraded and increased electric fleet diminishes barriers to opportunity by providing a more efficient bus fleet to those who are most dependent on it. Electric buses operating out of the 103rd Street Garage would eliminate emissions in environmental justice communities currently struggling with the effects of high air pollution counts. The current conditions of the garage will not allow for fully electric routes from this garage, which would continue the current disadvantaged status of the communities. In the service area's Justice40 communities, inefficiencies in service and reliability can often result in loss of employment, school tardiness and truancy, and a loss of resources for those who are most dependent on CTA service. Electrifying the 103rd Street Garage bus fleet provides an all-electric mobility option to many people who may not be able to afford a personal car. As discussed in the Description of GHG Reduction Measures section, the electric buses purchased through the project will be placed in service on the #29 State and #95 95th Street routes. The benefit area of 103rd Garage is shown on the left in Figure 2 while the benefit area of the #29 and #95 routes are shown on the right. For this application, only the GHG emissions reductions from the #29 and #95 are included in the benefit analysis.

Figure 2 Project benefit area for:

CTA 103rd Street Garage service area

#29 State and #95 95th Street routes



Pace Buses at North Division Garage:

Located in the City of Waukegan, IL, Pace's North Division operates 54 fixed route buses on 14 routes. Waukegan is approximately 24 square miles and has a population of 90,000 residents. These routes serve Waukegan, as well as Gurnee, Vernon Hills, Libertyville, Wheeling, Mundelein, Grayslake, Zion, Fox Lake, Round Lake, Buffalo Grove, North Chicago, and other communities in Lake County. Table Table presents the Census Tracts served by the routes operating out of North Division that are in a Historically

Disadvantaged Community (based on the 2010 Census), as well as denotes if they are located in a federally designated Area of Persistent Poverty (based on the 2020 Census). These Census Tracts are in low-income and disadvantaged communities and will benefit from reduced GHG emissions through the implementation of BEBs.

Table 5: Disadvantaged Census Tracts Served by North Division Routes

County	Census Tract	Historically Disadvantaged Community (2010 Census)	Area of Persistent Poverty (2020 Census)
Cook County	8016.03, 8020.04, 8024.02, 8025.06, 8060.01, 8060.04	Yes	No
Cook County	8025.05	Yes	Yes
Lake County	8603.02, 8605, 8606, 8618.04, 8619.02, 8620, 8621, 8623, 8624.01, 8624.02, 8625.01, 8625.02, 8626.03, 8626.04, 8626.05, 8627, 8628, 8629.01, 8629.02, 8630.03, 8631 8632.01, 8661	Yes	No
Lake County	8613.03, 8614.03	Yes	Yes

Waukegan residents face several environmental disadvantages. Utilizing the EPA EJScreen tool, the city ranks high (over 70th percentile) in the following environmental indicators:

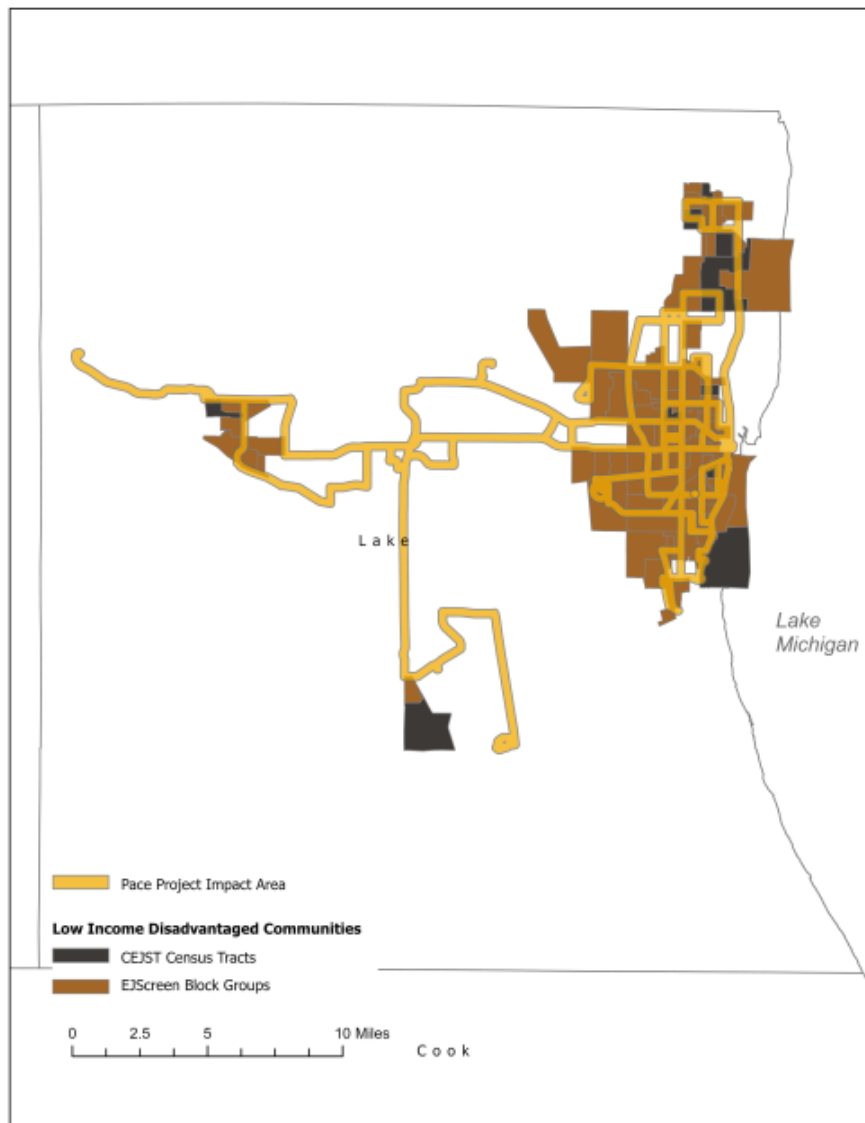
- Ozone: 83rd percentile nationally / 93rd percentile in state
- Diesel Particulate Matter: 76th percentile nationally
- Toxic Releases to Air: 93rd percentile nationally / 89th percentile in state
- Traffic Proximity: 82nd percentile nationally / 85th percentile in state
- Lead Paint: 70th percentile nationally
- Superfund Proximity: 98th percentile nationally / 98th percentile in state
- RMP Facility Proximity: 81st percentile nationally
- Hazardous Waste Proximity: 75th percentile nationally / 75th percentile in state
- Underground Storage Tanks: 90th percentile nationally / 72nd percentile in state

Utilizing the EPA EJScreen tool, the city of Waukegan ranks high (over 70th percentile) in the following socioeconomic and health indicators:

- Demographic Index: 83rd percentile nationally / 82nd percentile in state
- Supplemental Demographic Index: 79th percentile nationally / 80th percentile in state
- People of Color: 83rd percentile nationally / 82nd percentile in state
- Low Income: 72nd percentile in state

- Limited English-Speaking Households: 85th percentile nationally / 85th percentile in state
- Less than High School Education: 85th percentile nationally / 88th percentile in state
- Asthma: 75th percentile in state
- Lack of Health Insurance: 84th percentile nationally / 91st percentile in state

The Project benefit area of the Pace North Division garage is shown in Figure 3.



Pace Buses at Southwest Division Garage:

Pace's Southwest Division provides fixed route service on eight routes in southwestern Cook County. The implementation of BEBs at this facility will benefit the 25 communities that Southwest Division currently serves: Alsip, Bedford Park, Blue Island, Bridgeview, Burbank, Chicago, Chicago Ridge, Crestwood, Evergreen Park, Hickory Hills, Hodgkins, Hometown, Justice, Midlothian, Oak Forest, Oak

Lawn, Orland Park, Palos Heights, Palos Hills, Palos Park, Robbins, Summit, Tinley Park, Willow Springs, and Worth. Table presents the Census Tracts served by the routes operating out of Southwest Division that are in a Historically Disadvantaged Community (based on the 2010 Census), as well as denotes if they are located in a federally designated Area of Persistent Poverty (based on the 2020 Census). These Census Tracts are in low-income and disadvantaged communities and will benefit from reduced GHG emissions through the implementation of BEBs.

Table 6: Disadvantaged Census Tracts Served by Southwest Division Routes

County	Census Tract	Historically Disadvantaged Community (2010 Census)	Area of Persistent Poverty (2020 Census)
Cook County	5601, 5604, 6404, 6407, 6408, 7002, 7303, 8204, 8205.01, 8205.02, 8206.04, 8209.02, 8210.02, 8211.01, 8220, 8231.01, 8237.05, 8352	Yes	No
Cook County	6406, 7302.01, 8206.03, 8206.05, 8224, 8230.01, 8236.03, 8237.03, 8243, 8244	Yes	Yes

Bridgeview residents face several environmental disadvantages. Utilizing the EPA EJScreen tool, the city ranks high (over 70th percentile) in the following environmental indicators:

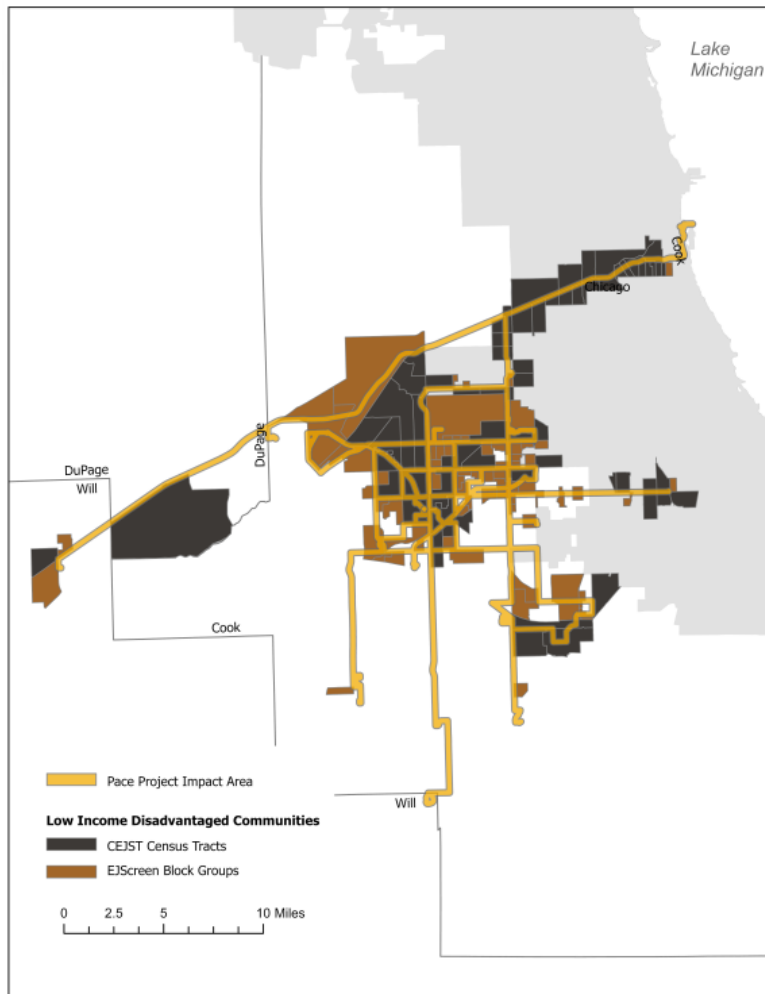
- Particulate Matter: 96th percentile nationally / 99th percentile in state
- Ozone: 79th percentile nationally / 76th percentile in state
- Diesel Particulate Matter: 92nd percentile nationally / 84th percentile in state
- Air Toxics Respiratory HI: 70th percentile nationally / 78th percentile in state
- Toxic Releases to Air: 89th percentile nationally / 70th percentile in state
- Traffic Proximity: 82nd percentile nationally / 85th percentile in state
- Superfund Proximity: 73rd percentile in state
- RMP Facility Proximity: 99th percentile nationally / 98th percentile in state
- Hazardous Waste Proximity: 88th percentile nationally / 91st percentile in state
- Underground Storage Tanks: 93rd percentile nationally / 80th percentile in state
- Wastewater Discharge: 97th percentile nationally / 86th percentile in state

Utilizing the EPA EJScreen tool, the city of Bridgeview ranks high (over 70th percentile) in the following socioeconomic and health indicators:

- Unemployment Rate: 70th percentile nationally
- Limited English Speaking Households: 86th percentile nationally / 86th percentile in state
- Less than High School Education: 72nd percentile nationally / 75th percentile in state

- Low Life Expectancy: 73rd percentile nationally / 74th percentile in state
 - Broadband Internet: 71st percentile nationally / 72nd percentile in state
- Lack of Health Insurance: 76th percentile nationally / 85th percentile in state

The Project benefit area of the Pace Southwest Division garage is shown in Figure 4.



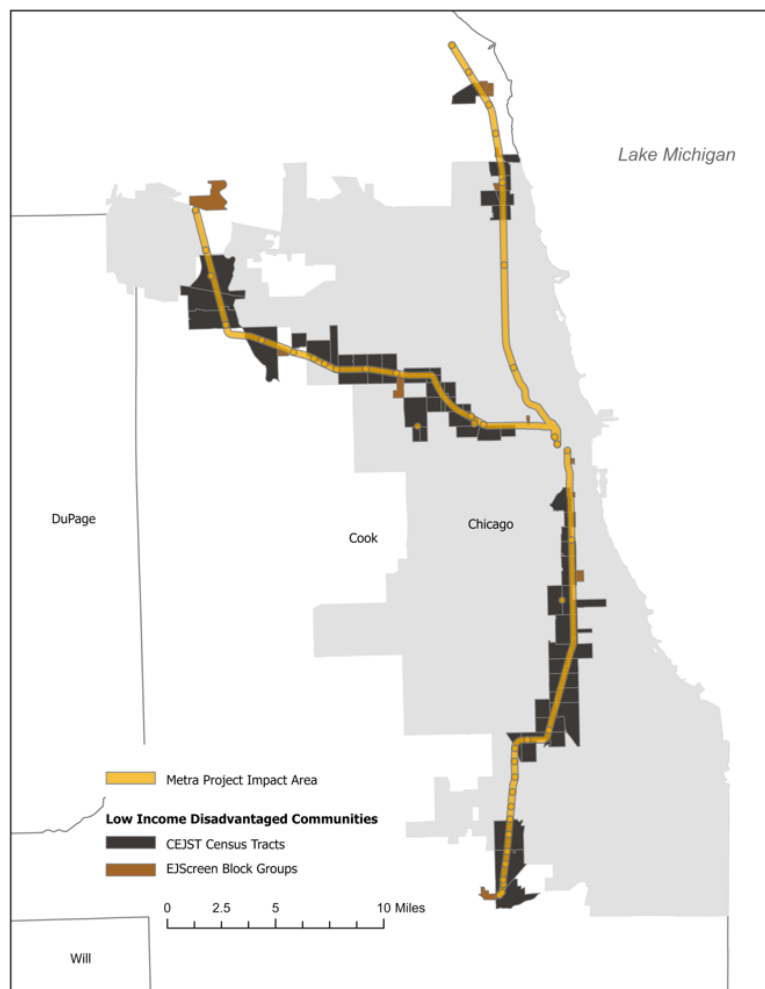
Metra

The Project location was evaluated by Metra staff to determine ideal lines and segments to introduce zero-emissions trainsets. The initial ZETs that Metra has already secured funding for will be introduced on the Metra-owned Rock Island (RI) Line. The RI Line is most suitable for the new vehicles as Metra owns the track, yards, signals, and conducts dispatching along the line. Metra owns and maintains rail yard facilities at 47th Street and Blue Island, which can both easily be outfitted with charging equipment for the battery-electric trainsets.

An EPA grant award would fund the expansion of the ZET program in the following manner:

- **Rock Island (RI) Line – Beverly Branch:** The pilot area for Metra’s first ZET units was selected primarily due to the area having the poorest air quality in the region, the operations profile of the Beverly Branch’s stations that are 1/2 mile apart which improves battery distance with regenerative braking during stops at stations, and due to Metra’s ownership of the line. CPRG funding will provide trailer cars to insert between powered trainset control cars and to construct express charging docks at 3 locations along the RI Line.
- **The Milwaukee District West (MD-W) Line:** CPRG funding will enable Metra to expand Metra’s ZET program to a segment of this line that links the downtown terminal Chicago Union Station with first-ring suburbs west of Chicago and Metra’s O’Hare Transfer station. The O’Hare International Airport is consistently one of the five busiest airports in the country and among the 10 busiest in the world. Metra owns the majority of the route and owns and operates the rail yards that will service the ZETs.
- **The Union Pacific North (UP-N) Line:** CPRG funding will enable Metra to expand to a segment of this line, specifically between the Ogilvie Transportation Center terminal in downtown Chicago and the Winnetka station. The UP-N Line has the highest non-peak period ridership of Metra’s 11 rail lines and is estimated to have a large, unserved market demand for additional midday transit service. Metra trains run uninterrupted in this segment where no freight trains operate.

The Project benefit area of the Metra is shown in Figure 5



Operating zero-emission trainsets within Chicago and the nearby suburbs offers the most benefits to society. The South Side of Chicago and the eastern Chicago suburbs are subjected to the lowest air quality in the Chicago Non-Attainment Area. Communities along the South Side are particularly overburdened with the region's emissions as numerous factories, state highways, interstates, and freight railroad yards generate significant and harmful emissions.

Investing in Metra's project will further encourage established transit-supportive land use and development (TODs). Neighborhoods along the RI, UPN, and MDW Lines were developed in the late 1800s and are effectively the original TODs, with land and tracts subdivided for commercial centers and homes adjacent to what are now Metra commuter rail service lines.

Reducing the harmful pollutants caused by diesel emissions from Metra's diesel locomotive operations will significantly improve the health of the communities adjacent to the transit lines. [EPA's research finds that states that air pollutants emitted by locomotives can be especially high within about the first 500-600 feet downwind of operations](#). The zero-emissions trainsets will operate primarily within the city of Chicago and the near suburbs, in Census Tracts that are designated as economically disconnected and disinvested areas communities.

Cook County, the second-most populous county in the country, is home to nearly 5.2 million people and is designated by the EPA as a "Nonattainment Area" and an "Air Toxic Assessment Area" as determined in the most recent EPA Green Book, dated December 31, 2022. The Project will be especially beneficial for the area's sensitive population since emission reductions are particularly advantageous to their health and well-being. Health research studies have consistently underlined significant health disparities in Cook County. A recent study conducted by the Illinois Department of Public Health (IDPH) found that "rates of childhood asthma inpatient hospitalizations and emergency department visits in Illinois were highest among young black children." IDPH attributed "significantly higher rates of hospitalizations in geographic areas of high concentrated disadvantage," and stated the findings are likely the result of neighborhood factors including "environment triggers" and "socio-structural determinants of health." The report states "childhood asthma inpatient hospitalization and ED visit rates align closely with census tracts of high concentrated disadvantage" within Chicago and Suburban Cook County, which disproportionately affect black children.

Serving some of the most disadvantaged communities in Cook County, the Project will significantly improve the air quality for minorities, low-income people, and people over 65 and under 5, who are currently suffering from high diesel particulate concentrations.

Community Engagement

During the development of *Transit is the Answer*, the RTA's strategic plan adopted in February 2023, working groups comprising more than 100 riders, advocates, agency staff, and stakeholders expressed that accelerating the transition to a zero-emission regional transit system was a priority. While the past several years has seen increased urgency in electrification of bus fleets, working groups pushed for an even faster pace and improved coordination in the adoption of green transit technologies including a target of eliminating all fossil fuel transit and fleet vehicles by 2040.

The Project has strong support at the local, regional, and state level (see Letters of Support).

CTA, Metra, and Pace are coordinating with local utility provider Commonwealth Edison (ComEd) to organize the necessary upgrades to the electrical grid to support the vehicle charging at facilities regionwide.

CTA

CTA's e-bus program draws on the support, expertise, and engagement of a variety of key partners, including the City of Chicago, the Chicago Department of Transportation (CDOT), and CMAP. CTA is working collaboratively with these partners to align the e-bus roll-out with both local and regional transportation planning and climate action initiatives. Chicago's leading associations advocating for air quality and clean transportation – the Respiratory Health Association of Metropolitan Chicago and the Chicago Area Clean Cities Coalition – are providing ongoing guidance and feedback to CTA in developing the e-bus plans.

Members of CTA's team are principal participants in the American Public Transportation Association (APTA) working groups addressing the creation of standards for e-bus and charger technologies. They bring insights and experience from other transit agencies and industry participants across the country back to CTA to inform our own program.

CTA is also a key partner with the following organizations:

- Chicago Climate Action Plan by reducing energy use and carbon emissions from Chicago-area transportation.
- Chicago Regional Green Transit Plan which calculates the environmental benefits of transit in the Chicago region.
- Chicago Area Clean Cities Coalition CTA has supported the local coalition by providing hybrid buses for ride and drives, participated in crafting idling reduction strategies, and participating in educational events for fleet managers.
- Sustainable Chicago 2015, the City's near-term sustainability action agenda designed to complement the long-term Chicago Climate Action Plan. Sustainable Chicago 2015 captures CTA's efforts to increase operating efficiencies (e.g., reduce large service gaps), decrease vehicle idling (e.g., electrified jersey barriers), and expand use of cleaner vehicle technologies (e.g., electric buses).

Pace

Pace's zero-emission bus program draws on the support, expertise, and engagement of a variety of key partners, including the local cities and counties. Pace is working collaboratively with these partners to align the e-bus roll-out with both local and regional transportation planning and climate action initiatives.

Pace's inaugural electric bus entered service on January 19, 2024, and is housed at Southwest Division. The agency held a special event with elected officials, stakeholders, and the public to honor the milestone. Event speakers included U.S. Senator Dick Durbin; Illinois State Senator Bill Cunningham; RTA Board Member Michael Lewis; Pace Chairman Rick Kwasneski; and Pace Executive Director Melinda Metzger. Event guests included Illinois State Representative and Mayor of Evergreen Park Kelly M. Burke; members of the ATU Local 241; and representatives from Moraine Valley College.

Pace has an existing webpage dedicated to the project. Through this webpage, Pace provides information and announcements, as well as opportunities for public involvement. Updates and information about this Project will also be shared on Pace's Project Zero webpage.

Metra:

In April 2021, Metra published the first of three RFPs, challenging the industry to submit proposals for battery-electric locomotives. The Active Transportation Alliance, a regional non-profit advocate for transit, walking, and bicycling, gather signatures from 28 civic and environmental organizations to put zero-emissions technology on the rails. In September 2021, the coalition provided a public comment applauding Metra's pursuit of zero-emission trainsets, while showing disappointment that an RFP for zero-emissions trainsets was delayed.

The following spring, Metra sought seed funding from the newly created Congressionally Directed Spending (CDS) Accounts process. Metra requested CDS funds from Sen. Durbin for the initial effort to prepare for zero-emission trainsets, and Illinois' ranking senator secured \$1,500,000 in the FY2023 federal Omnibus Appropriations Bill. Metra proceeded to program local PAYGO funds in the out years of the regional capital program to be prepared for federal discretionary grant opportunities made possible by IIJA and the IRA. During the program development process, Metra hosted 6 community open houses and discussed the planned procurement at multiple Board of Directors meetings that are open to the public.

Also, Metra participated in the plan update process for the regional PCAP funded by EPA CPRG planning funds. Metra attended an open house meeting with CMAP and MMC in December 2023 and various follow-up meetings. In January 2024, Metra presented to the MMC's Environmental Committee to provide a primer of the ZET project and to solicit support for the project.

5. Job quality

The RTA region's service providers are heavily invested in equitable job creation and access.

CTA's Disadvantaged Business and Workforce Development Department specializes in identification and outreach to achieve significant minority, local business, and workforce participation in all major capital projects. They work closely with agencies and groups to assist contractors in connecting with smaller companies and individuals who are looking for work. Typical CTA contracts require 26% disadvantage business participation combined with specific workforce goals for local and minority labor.

CTA has established labor-management partnerships to ensure that both existing and new employees receive comprehensive training to gain skills and knowledge on electric bus technologies. CTA's Training & Workforce Development Department uses a train-the-trainer approach whereby CTA Bus Instructors and Bus Maintenance Trainers, nearly all unionized positions, learn directly from equipment vendors and then provide courses and hands-on instruction to CTA bus operations and maintenance personnel.

CTA regularly promotes from within, including from its trailblazing Second Chance Program which hires and trains individuals with backgrounds that make it difficult to find employment – including those with criminal records and/or those in recovery from substance use disorder. Further, CTA works with myriad unions, including ATU local 241, a Historical Bargaining Unit which represents most of the bus operators and maintenance workers who would be affected by this project.

This Project will create competitive wage jobs with free and fair choice to join a union. Pace's bus operators/mechanics at the North and Southwest Division facilities are part of Amalgamated Transit Union (ATU) Local 900 and 241, respectively, and the agency will work to hire and train staff to get the

best possible equipment performance and prepare the Pace workforce for the changing transportation environment. Training will use the existing "train the trainer" system, where the original equipment manufacturer (OEM) of the BEBs/chargers provides training to instructors who then train Pace personnel at scale. Pace and its union partners will work to ensure staff can safely make this transition and continue to create good paying transportation jobs.

Pace has existing partnerships with South Suburban College (SSC) and Olive-Harvey College to help recruit, prepare, and employ the next generation of professional bus operators. The partnership provides students with a customized two-week commercial driver's license (CDL) course that prepares them to obtain their CDL permit and start their career as professional bus operators. Five SSC classes have already graduated, and 17 students are now working at Pace. This partnership provides a pathway to meaningful careers in public transportation. Pace removes financial barriers for students by covering the costs of tuition and other expenses associated with the Class "B" CDL permit course at SSC.

Support of this project will create high-quality, good paying sustainable jobs with the free and fair choice to join a union at Metra. Metra is contracted with 17 different unions from the project including the American Railway and Airway Supervisors Association (ARASA), Brotherhood Railway Carmen (BRC), International Association of Machinists and Aerospace Workers (IAM), International Brotherhood of Electrical Workers (IBEW), National Conference of Fireman & Oilers (NCFO), Sheet Metal/Air/Rail/Transportation – Mechanical & Engineering (SMART-ME).

Metra and its contractor Stadler US, Inc. have agreed to terms in the awarded contract that includes a robust training program. Metra will host Stadler's engineers, machinists, and other experts for a multi-week, hands-on training with Metra's workforce. Unions representing Metra's workforce will hire and train staff for the project while ensuring staff have the best possible equipment to maintain and run the new Zero-Emission Trainsets. Metra and its union partners will ensure that Metra forces involved with the Project can do so safely while creating good paying public transportation jobs.

All contracts related to the Project will be administered and overseen by Metra's Procurement Section, which has extensive experience with ensuring contracts are following all Federal and state requirements. Metra has a robust Diversity Business Enterprise (DBE) program and includes DBE participation as a requirement in all contracts.

Metra has several initiatives to support apprenticeships and procurement from DBEs. Metra's DBE Program helps encourage qualified firms to become DBE certified and provide small and diverse businesses access to Metra procurement opportunities. The program also aims to facilitate the growth of minority and women-owned firms by building relationships with these firms.

Metra also takes part in the Illinois Works Apprenticeship Initiative. Metra's apprenticeship goal for all qualified projects is to utilize US Department of Labor certified apprentices to perform 10% of labor hours on each project or 10% of the estimated labor hours in each prevailing wage category.

6. Programmatic capability and past performance

Past Performance

Through committed leadership, RTA, along with the Service Boards, CTA, Metra and Pace have the capacity, experience, and processes in place to successfully implement this project.

RTA has a history of receiving federal grants and suballocating them to the regional Service Boards for implementation. RTA offers the ability to coordinate projects regionally and to provide oversight of implementation and delivery through our Program Management Oversight office.

CTA has successfully received and implemented billions of dollars of Federally funded grants. CTA has received over \$150M in grants to support bus electrification to date with awards from the CMAQ Program, FTA's LONO and Bus and Bus Facilities programs and from the EPA. CTA has a robust team to delivery on awarded funds. A cross-function team will be responsible for the project from design to delivery to placing vehicles in service. CTA is already operating a fleet of over 20 electric buses and will use knowledge learned from that rollout to continue the transition if awarded this grant.

Pace has successfully administered hundreds of millions of dollars in federal grant money and complied with all applicable federal rules in all cases. Pace has the internal staff resources in place to administer this proposed grant funding. Pace has a \$333 million operating budget and \$118 million capital budget for 2024. Pace is currently administering over 40 grants awarded in the last five years totaling more than \$750 million in funds. Pace recently created a Priority Project Management Office (PPMO) comprised of a cross-functional team dedicated to the delivery of major capital projects; the PPMO and Operations are responsible for the delivery of this Project. With a dedicated team focused on grants administration, including already awarded 2022 and 2023 RAISE grants, Pace is well positioned to manage EPA CPRG grant funds and oversee the timely and successful completion of the Project.

Since 2021, Metra has secured over \$514 million in discretionary grant awards. This includes more than \$169 million Congestion Mitigation and Air Quality (CMAQ) award for the zero-emission trainsets that will pair with the trainset trailer cars requested in this application to make complete, longer zero-emission trainsets. In addition, Metra has previously secured significant CMAQ grant for \$29 million for Alternative Fuel Locomotives and previous grant awards for locomotive repowering which will significantly reduce emissions. Metra will build on this proven experience of securing and implementing green fleet initiatives with the implementation of a successful CPRG award.

Reporting Requirements

RTA and the Service Boards have a long history of funding and carrying out major transportation projects and are familiar with all Federal regulations including financial accounting, fund disbursements, financial management and audit documentation. RTA also has a long history of managing FTA grant funds including using FTA's electronic grant application system, TrAMS. RTA is required by FTA to meet

the reporting requirements within FTA's Circular 5010.1E, Grants Management Requirements Circular. Once a grant is active, RTA is required to report to FTA on the project's progress each quarter. FTA monitors grant activities to ensure proper grantee stewardship of Federal funds are following the laws and regulations that govern its grant programs.

Staff Experience

RTA has identified a team of highly qualified staff ready to assist in managing the Grant and Project implementation:

- Maulik Vaishnav, Senior Deputy Executive Director of Planning and Capital Programming
- Brian Lowenberg: Manager, Capital Programs
- Violet Gunka-Gurgul: Division Manager, Project Management, Oversight and Compliance

CTA's team has vast knowledge in engine/emissions design and implementation and has been working through all phases from "design to delivery" for the current Nova 300 bus order and the prior electric bus order to ensure that the project arrives on time, meets all applicable federal, CTA and state standards, and is within budget. Staff includes:

- Donald Bonds, Chief Transit Officer
- Richard Lin, Assistant Chief Bus Equipment Engineer
- Jay Charoenrath, General Manager, Bus Engineering & Training
- Islam Youssef, Chief Bus Equipment Engineer
- Ralph Cerant, Senior Project Manager

Pace has identified a team of highly qualified staff and contract support ready to assist the Project including:

- Josh Berger – Department Manager, Capital Infrastructure
- Charlotte Obodzinski – Department Manager, Priority Project Management Office
- Erik Llewellyn – Chief Planning Officer
- Lindsey Umek – Chief Operating Officer

Metra's Mechanical Department is responsible for maintaining Metra's passenger rail car fleet and equipment. It initiates multiple capital improvements projects each year identified in the capital program. The Mechanical Division will be trained by the Stadler team on best practices for maintaining the new Zero Emission trainsets and will continue to train as the trainsets begin to roll out to Metra.

Metra's highly qualified and experienced team that will lead the implementation of this project includes:

- Sean Cronin – Senior Director, Mechanical Capital Projects
- Brian Stepp – Senior Director, Grants Management & Accounting
- Kevin Clifford – Chief Mechanical Officer
- Kevin McCann – Chief Operating Officer