

CMAP FY 2016-2020 CMAQ PROJECT APPLICATION

TRANSIT PROJECTS

I. PROJECT IDENTIFICATION					
Project Sponsor: Pace Suburban Bus			Contact Information – Name, Title, Agency, Address, Phone, e-mail (e-mail required) Lorraine Snorden Department Manager, Planning Services Pace Suburban Bus 550 W. Algonquin Road Arlington Heights, IL 60005 Email: Lorraine.snorden@pacebus.com Phone: 847-228-4249; Fax: 847-228-2330		
Other Agencies Participating In Project:					
Illinois State Toll Highway Authority					
<input type="checkbox"/> New Project <input checked="" type="checkbox"/> Existing CMAQ Project <input type="checkbox"/> Add CMAQ to Existing Project	<input type="checkbox"/> New Project <input type="checkbox"/> Existing CMAQ Project <input type="checkbox"/> Add CMAQ to Existing Project				
TIP 17-12-0001					
II. PROJECT LOCATION					
<ul style="list-style-type: none"> Projects not readily identified by location must provide a title on the last line of this section Attach a map sufficient to accurately locate this project in a GIS system 					
Name Of Street Or Facility To Be Improved			Marked Route #		
Project Limits: North/West Reference Point/Cross St/Intersection			Marked Route #		Municipality & County
Project Limits: South/East Reference Point/Cross St/Intersection			Marked Route #		Municipality & County
Other Project Location Information Or Project Title: I-90 Corridor Transit Access Improvement Project (see attached summary and map of expanded services).					
III. PROJECT FINANCING & CMAQ FUNDING REQUEST					
Please review the instructions .					
	Starting Federal Fiscal Year*	Total Phase Costs	(New) CMAQ Funds Requested	Other Federal Funds Including prior CMAQ awards	
				Fund Type	Fund Type
Engineering Phase 1	Does not apply	\$0	\$		\$0
Engineering Phase 2	Does not apply	\$0	\$		\$0
Right-Of-Way Acquisition	Does not apply	\$0	\$		\$0
Construction (Including Construction Engineering)	Does not apply	\$0	\$		\$0
Engineering (For Implementation Projects)	Does not apply	\$0	\$		\$0
Implementation	2018 2019	\$11,738,276 \$12,912,104	\$9,390,621 \$10,329,683		\$0
Alternatives Analysis		\$0	\$		\$0
*Phase must be accomplished within 3 years		\$24,650,380	\$19,720,304		
Total Project Costs					
Source Of Local Matching Funds: Pace will provide the local share.		Indicate if sponsor intends to apply for Transportation Development Credits.			
If Soft Matching Funds Are Intended To Be Used, Please Contact CMAP Staff.					

Have the Matching Funds Been Secured? (Provide Details):	
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CMAQ FY 2016-2020 CMAQ PROJECT APPLICATION

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IV. PROJECT EMISSIONS BENEFIT DATA

Project Type (Check One): ☐ Facility Improvement ☒ Service And Equipment ☐ Access to Transit

Auto Trips Eliminated Per Day (Round Trips): **1,986**

Length Of Auto Trips Eliminated (One-Way Miles To The Nearest Tenth): **29,515**

Auto Trips Diverted Per Day (Round Trips): **1,986**

Line-Haul Length Of Diverted Trips (One-Way Miles To The Nearest Tenth): **14.9**

Project Life (Years): **5**

Provide basis for parameters used to estimate benefits (e.g., new ridership, auto occupancy, trip length. See [instructions](#)):

1. The ridership estimate for fixed routes in the corridor is an average of 15 boardings per trip per route. Average daily weekday ridership is estimated to increase from 3,084 currently to 7,554 in year 1; average Saturday ridership is estimated to increase from 1,036 currently to 3,811 in year 1.
2. The ridership estimate for Call-n-Rides in the corridor is an average of 10 per hour per day. Average daily wkdy ridership is estimated to increase from 0 currently to 407 in year 1; average Saturday ridership is estimated to increase from 0 currently to 407 in year 1.
3. It is assumed that of the total riders, 41% will be "Auto Trips Eliminated", 41% will be "Auto Trips Diverted" and 19% will be non-auto trips.
4. One-way trip length for routes in the corridor: Route 600 = 9.55 miles, Route 604 = 13.7 miles, Route 605 = 26.0 miles, Route 607 = 17.2 miles, Route 608 = 8.4 miles. Call-n-Rides = 1.5 miles.

SERVICE IMPROVEMENTS

On-Time Performance: current performance System-Wide: On-time performance for the I-90 network is expected to improve from 65% currently to 90% in years 1, 2 and 3.

Reliability Enhancements (Check All that Apply):

Rail <input type="checkbox"/> New Vehicles <input type="checkbox"/> Upgraded Switches <input type="checkbox"/> Upgraded Power Supply <input type="checkbox"/> Positive Train Control <input type="checkbox"/> Station Consolidation <input type="checkbox"/> Track Improvements <input type="checkbox"/> Reduction of Freight/Vehicle/Pedestrian Interference	Bus <input checked="" type="checkbox"/> New Vehicles (1 st yr implementation) <input checked="" type="checkbox"/> Queue Jump/Bypass Lanes (1 st yr implt) <input type="checkbox"/> Off-board Fare Collection <input checked="" type="checkbox"/> Reduced Stops/Express Service <input checked="" type="checkbox"/> New Dispatching/Decision Support Systems (1 st yr implementation) <input type="checkbox"/> Passenger Vehicle Movement Restrictions	<input checked="" type="checkbox"/> Transit signal priority (1 st yr implement) <input type="checkbox"/> Multi-Door Boarding with Off-board Fare Collection <input checked="" type="checkbox"/> Bus-on-Shoulders <input type="checkbox"/> Managed Lanes <input type="checkbox"/> Dedicated Bus Way <input type="checkbox"/> Far-side Stops <input checked="" type="checkbox"/> Bus Stop Upgrades (1 st yr implement) <input type="checkbox"/> Near Level Boarding
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FACILITIES/CAPITAL IMPROVEMENTS

Existing Asset Condition (1-5 scale used by RTA):

Description and Location of Service (For Equipment Purchases):

Net Number Of New Vehicle Parking Spaces: _____ Net Number Of New Bicycle Parking Spaces: _____

V. PROGRAM MANAGEMENT INFORMATION

Is right-of-way acquisition required for this project? ☐ Yes ☒ No
 If so, has right-of-way been acquired? ☐ Yes ☐ No

Engineering Status: ☒ N.A ☐ Not Begun ☐ Engineering Underway (provide details below) ☐ Engineering Completed
 Date completion is anticipated: _____

Estimated Completion Year/Start Of Service: **This is a multi-year project, 1st year implemented late 2016/17 with completion of Tollway modernization work.**

VI. PROJECT DESCRIPTION

Please describe project:

I-90 Corridor Transit Access Improvement Project

This funding request is for the 2nd and 3rd years of service operations and marketing of new and expanded express bus routes and demand responsive services within in the I-90 Jane Addams Tollway corridor between Elgin and Rosemont Il. (Please see the attached sheets which provide a project summary with a map of the proposed services).

This project is being planned in coordination with the Illinois State Toll Highway Authority's reconstruction of I-90 Jane Addams Tollway opening in late 2016. Pace's project component of the overall Tollway project includes new and expanded express bus services, local distribution services (Call n Rides/shuttles, three new park & rides, new vehicles, a dedicated transit lane, dedicated transit access at stations, transit signal priority on local access roads and smart corridor connected vehicles technology.

One of the unique features of this service is the I-90 Barrington Road Station in Hoffman Estates. This station is designed into the new interchange and allows Pace express buses to remain on the Tollway facility. The design best represents the elements which support the express buses as it allows suburbanites to easily access the station while also reducing transit travel times by minimizing the time and delay the bus travels to access a park & ride facility located off the highway.

It also allows the station to serve surrounding developments with access for passengers to utilize the station as an origin and destination point and provides for transit supportive land use development around the surrounding area.

As part of Pace's planned *Rapid Transit Network*, the I-90 Corridor Transit Access Improvement Project will advance Pace's long term vision and connect residents to employment generators, hospitals, schools, and other regional destinations. The *Rapid Transit Network* proposes a combined Arterial Bus Rapid Transit (ART) network and an expressway bus network for the 8 million residents of northeastern Illinois through an enhancement of existing surface transportation infrastructure. The Network provides service across 885 miles in the region with 655 miles on arterials and 230 miles on expressways. This premium service is the next level of transit to truly grow long term ridership supporting regional plans including GOTO 2040. Pace recently submitted their *Rapid Transit Network* to the US DOT as a Project of National and Regional Significance. (Please see PNRS attachment).

TOTAL CMAQ FUNDS REQUESTED = \$19,720,304

DETAILED ESTIMATE OF COSTS

[illegible]

ESTIMATES MUST BE BASED UPON QUANTITIES AND UNIT COSTS WHENEVER POSSIBLE.
LUMP SUM AMOUNTS ARE NOT ACCEPTABLE

Previous Funding I-90 Transit

[illegible]

I-90 MARKET EXPANSION PROJECT DESCRIPTION

February 25, 2015

Goals of this project:

1. To improve air quality and reduce traffic congestion by reducing the number of autos on I-90 Jane Addams Tollway through mode shift from cars to Pace transit services operating in that corridor.
2. To provide service to new markets that are expected to be affected by the road re-construction project on I-90.
3. To provide service to new or under-utilized park n ride lots in the region.
4. To provide service on new managed lanes, which will give Pace an advantage over autos and thereby convert non-transit users into transit users.
5. To continue implementing strategies which support Pace's Vision 2020/Plan and GOTO2040 as described in the CMAQ application.

The components of this project are described below:

ROUTE 600 NORTHWEST EXPRESS—This peak only express route operates between the Rosemont Blue Line Station and the Pace Northwest Transportation Center in Schaumburg (see attached map) with a significant portion of its routing on I-90. Service would be expanded to operate all-day on weekdays and on Saturdays.

ROUTE 604 PALATINE – SCHAUMBURG EXPRESS—This new weekday route would operate between Dundee/IL 53 and the Pace Northwest Transportation Center in Schaumburg via IL 53 and would connect with the express routes on I-90 as well as other Pace routes and a new distributor service at the Schaumburg terminal.

ROUTE 605 RANDALL ROAD ELGIN – ROSEMONT BLUE LINE STATION EXPRESS—This new weekday and Saturday bi-directional express route would operate between a park n ride lot near Randall Road/I-90 and the Rosemont Blue line Station with stops at various park n rides along I-90 and will connect with several new distributor services to provide the 1st/last mile connections.

ROUTE 607 RANDALL ROAD ELGIN – SCHAUMBURG

This new weekday and Saturday service would be a branch of Route 605 and would operate from the Randall Road/I-90 park n ride and serve various park n rides along I-90 and then operate to the Pace Northwest Transportation Center in Schaumburg for connections to the Pace network, a new distributor and the Schaumburg Dial-a-Ride service.

ROUTE 608 ROSELLE – SCHAUMBURG—This new weekday route would operate between the Metra MD-West Line Roselle Station and the Pace Northwest Transportation Center in Schaumburg via several northwest suburban communities. At the Roselle Metra Station, timed connections with other local Pace routes will allow customers to travel to Addison and

Wheaton. This service would help to distribute people from the I-90 corridor to areas south of the Jane Addams Tollway.

ROUTE 609 BARRINGTON ROAD HOFFMAN ESTATES DISTRIBUTOR —This new all day distributor service would connect with several Pace express routes at a new Barrington Road park n ride and will distribute riders to nearby office parks/retail businesses.

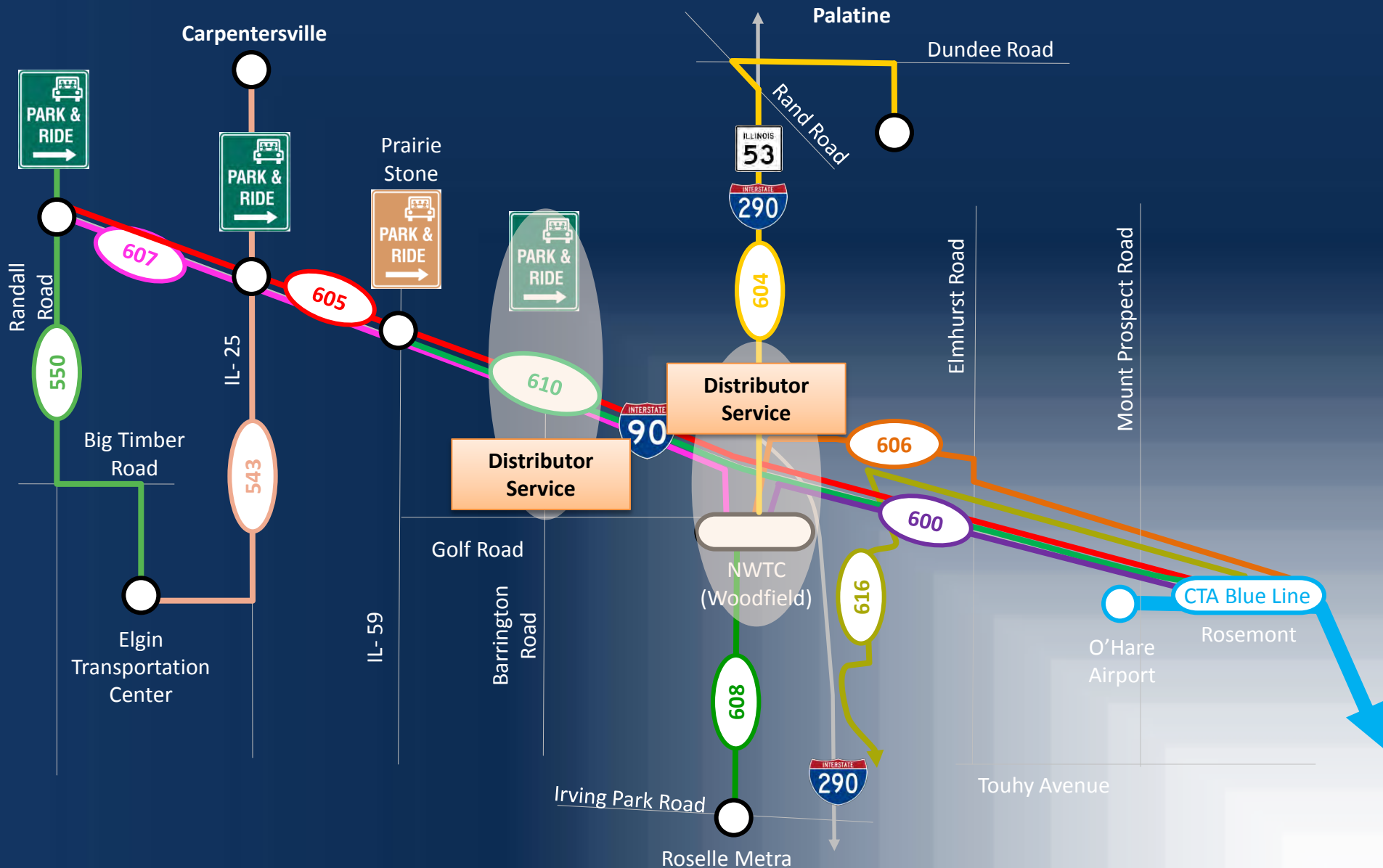
ROUTE 610 RIVER ROAD – PRAIRIE STONE EXPRESS—This peak only express route operates bidirectional service between the Rosemont Blue Line Station and Sears headquarters at Prairie Stone in Hoffman Estates. Bidirectional service and a temporary park and ride lot at Prairie Stone were implemented in August 2013. When the permanent park and ride facilities along the I-90 corridor are completed, the need for continued operation of the temporary park and ride lot at Prairie Stone will be evaluated.

ROUTE 611 NORTH SCHAUMBURG DISTRIBUTOR—This new weekday and Saturday distributor service would connect with many Pace routes serving the Pace Northwest Transportation Center in Schaumburg and distribute riders to nearby office parks/retail businesses.

MARKETING OF THE EXPANDED SERVICES—To assist Pace in better developing the market for our new and expanded transit services in the I-90 corridor, additional marketing funds are requested.



Expanded Services: System Concept



The Pace Rapid Transit Network

Pace Suburban Bus

Pace is implementing the future of bus transit in Chicago's suburban region through an enhancement of existing surface transportation infrastructure. Through Pace's strategic plan, *Vision 2020*, this Rapid Transit Network proposes a combined Arterial Bus Rapid Transit (ART) network and an expressway bus network for the 8 million residents of northeastern Illinois.

Pace's regional rapid transit network connects residents to suburban employment generators, health care facilities, schools, entertainment and other destinations. The network provides enhanced transit service that has proved successful in other states in improving regional mobility, access, speed, efficiency, reliability, security and comfort of bus transit—and, thus, increasing transit ridership. Pace's proposed program offers multi-modal connections to CTA service, Metra commuter rail, Amtrak intercity rail and the region's international airports.

Stations are planned to develop a "sense of place" within the suburban environment. Transit-supportive land use development, bicycle/pedestrian access and improved street crossings enhance the transit experience and support economic development and expanded employment opportunities.

The network provides service across 885 miles of corridors, including 24 ART corridors (655 miles) and 11 expressway corridors (230 miles). The rapid transit network also relies on the construction of three operating garages.



Arterial Rapid Transit (ART)

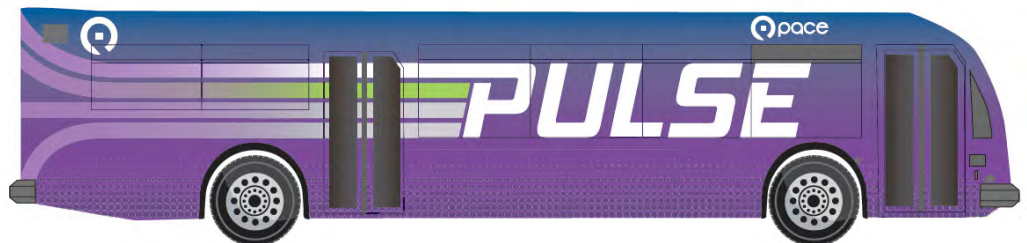
In 2001, Pace published *Vision 2020*, a blueprint for its vision of expanded transit mobility in the greater Chicago region. *Vision 2020* articulated Pace's long-term goal of developing line-haul rapid transit routes on both arterial streets and expressways. An accompanying 2002 bus rapid transit (BRT) study defined the functional elements of these rapid bus services and a preliminary list of potential corridors.

In the 2009 *Arterial Rapid Transit Study*, Pace further refined 24 proposed rapid transit corridors and prioritized these corridors for phased implementation, based upon the following evaluation factors: institutional support, community support, regional connectivity, current ridership, ridership potential, travel time savings and right-of-way impacts. The study established Milwaukee Avenue as the first corridor to be developed, prioritizing a near-term segment between Jefferson Park Transit Center in Chicago and Golf Mill Shopping Center in Niles, and identifying medium- and long-term extensions to Wheeling and Gurnee, respectively. Additional near-term corridors were designated on segments of Dempster Street, Harlem Avenue, Halsted Street, and 95th Street plus an additional corridor (the "Oak Brook corridor") was identified to connect western Cook County with the Oak Brook area, with an alignment to be defined at a later date. Later, the so-called "J Route", which connects Naperville to O'Hare Airport, was added to the list of near-term corridors.

In 2013, Pace initiated the Milwaukee Corridor ART Project Definition study to define Pace's first ART project to a level sufficient to advance into the environmental documentation and engineering phase in 2015. Construction is anticipated to begin in spring 2016, with revenue services anticipated for fall 2016. Branding of this service, including the name "Pulse" and a logo and color scheme, was finalized in 2014.

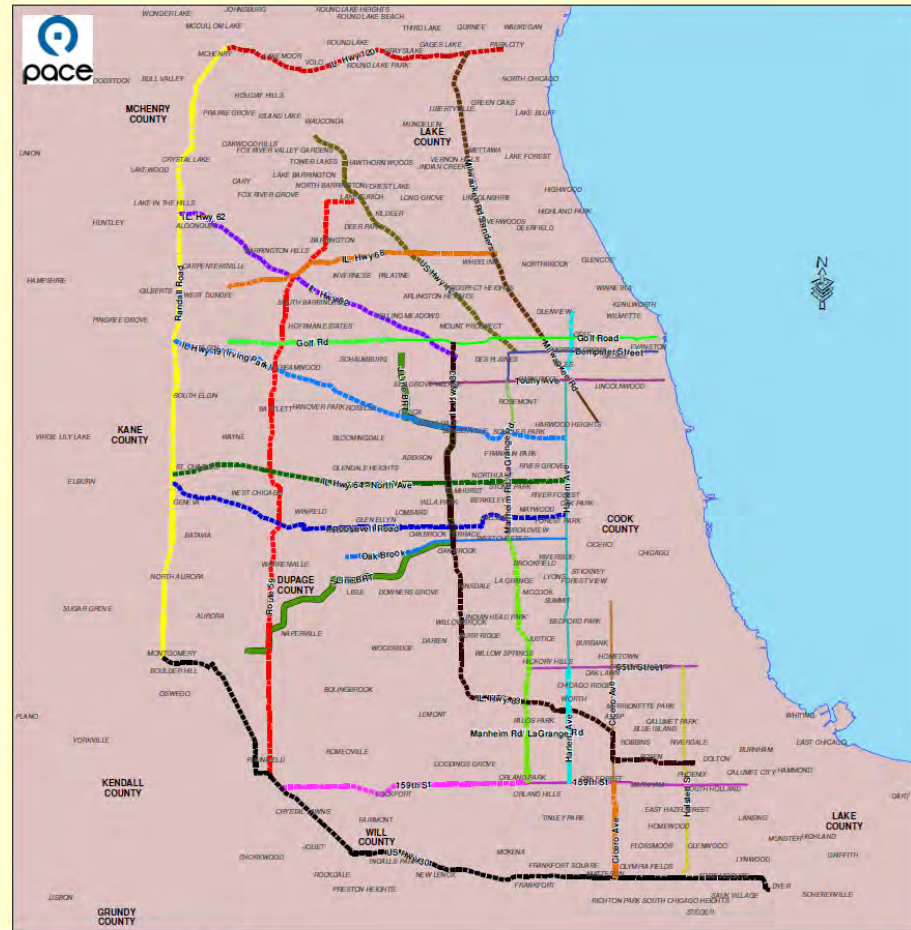
Characteristics of Pace's "Pulse" ART service include:

- Branded 40' low-floor vehicles, as shown at right
- Level boarding platforms
- Upgraded and branded stations that include enhanced features such as weather protection, infrared heating, lighting, and route maps
- Transit signal priority and other roadway improvements that give the ART bus an advantage over regular traffic
- Real-time arrival & departure displays
- Vicinity maps at stations
- Fewer bus stops (wider station spacing) for quicker and more efficient travel
- Frequent, all-day service (10-15 minute headways)
- Local service coverage (serving the last mile of trips)
- TDM strategies to provide coverage when ART service is not operating.
- On-board video surveillance to enhance passenger safety
- Free Wi-Fi for passengers
- Robust communications network between vehicles, traffic signals, dynamic signs, a dispatch center, and the customer (V2I, V2V, V2 Central Control, V2 Customer)



Map of 24 future Pace Arterial Bus Rapid Transit corridors

Pace ART Service Long Term Development



Legend

LongTerm

- 159th St, As Extension
- 159th St, Long
- 95th Street - , Long
- Cicero Ave, As Extension
- Cicero Ave, Long
- Dempster Street , Long
- Golf Rd, As Extension
- Golf Road, Long
- Halsted St, Long
- Harlem Ave, As Extension
- Harlem Ave, Long
- IL Hwy 19 (Irving Park), As Extension
- IL Hwy 64 - North Ave, As Extension
- IL Hwy 120, As Extension
- IL Hwy 62, As Extension
- IL Hwy 68, As Extension
- IL Hwy 83, Long
- J Line BRT, As Extension Routing TBD
- Manheim Rd/LaGrange Rd., Long
- Manheim Rd/ LaGrange Rd, As Extension
- Milwaukee Rd, Long
- Milwaukee Rd/Sanders, As Extension
- Oak Brook, As Extension
- Oak Brook, Long
- Randall Road , As Extension
- Roosevelt Road , As Extension
- Route 59 , As Extension
- Touhy Ave. , Long
- US Hwy 12, As Extension
- US Hwy 30, As Extension

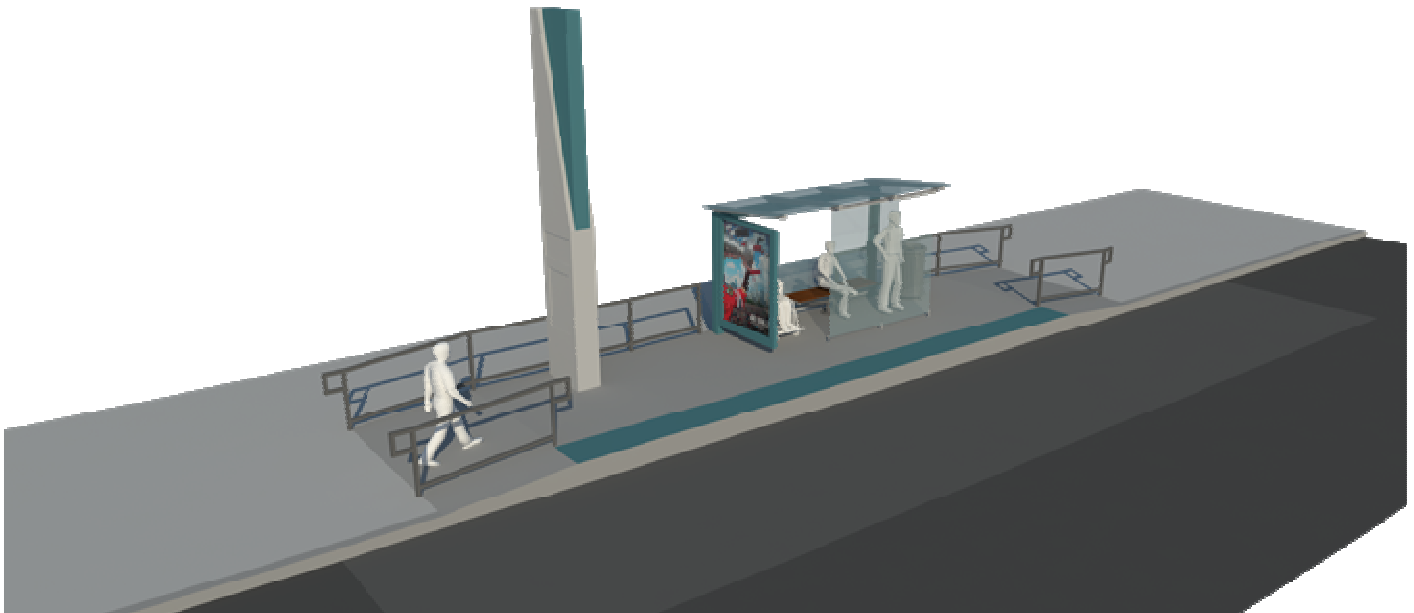
0 5 10 Miles

Service Analysis
Department of Planning Services
GIS

Proposed "Pulse" ART station



Rendering of proposed "Pulse" ART station



Transit Signal Priority/Communications Network

Within the Pace service area, the speed and reliability of Arterial Bus Rapid Transit vehicles is enhanced by a regional Transit Signal Priority (TSP) system. TSP allows buses to shorten red lights and lengthen green lights to keep on schedule, using technology similar to that in use by ambulances and fire trucks. In northeastern Illinois, TSP is being implemented through the Regional Transit Signal Priority Implementation Program (RTSPIP). Several corridors in our region already have TSP, and as part of the implementation of the Rapid Transit Network, all 24 ART corridors will have this technology.

The regionally interoperable TSP system will function for Pace Suburban Bus and Chicago Transit Authority (CTA) vehicles throughout the region. The Transit Signal Priority program follows the outline proposed by the Federal Highway Administration (FHWA) in their *Systems Engineering Guidebook for I.T.S.* Version 3.0.

Pace has not developed its TSP system in a vacuum. Rather, Pace and its partners have developed regional standards and guidelines for the design, implementation, operation and maintenance of a multijurisdictional TSP system. This coordination allows approved vehicles across the region to take advantage of a standardized technology. The RTSPIP's regional stakeholders include Pace, the Chicago Transit Authority, the Illinois Department of Transportation (IDOT), the Chicago Department of Transportation, local DOTs, the Chicago Metropolitan Agency for Planning, and other municipalities.

The RTSPIP goals are as follows:

1. Improved schedule adherence and reduced travel times for transit and improved signal coordination for general vehicles.
2. Regional TSP interoperability between Pace, CTA, CDOT, IDOT, and other local DOTs. Open standards for TSP provides the benefits of not being tied to a single TSP vendor, simplification of operations and maintenance for participating agencies, ability of Pace and CTA vehicles to request priority status from a single device within the traffic signal cabinet, and centralized monitoring of TSP activity.
3. Compliance with standards set by the Northeastern Illinois Regional ITS Architecture.

Characteristics of Proposed RTSPIP System:

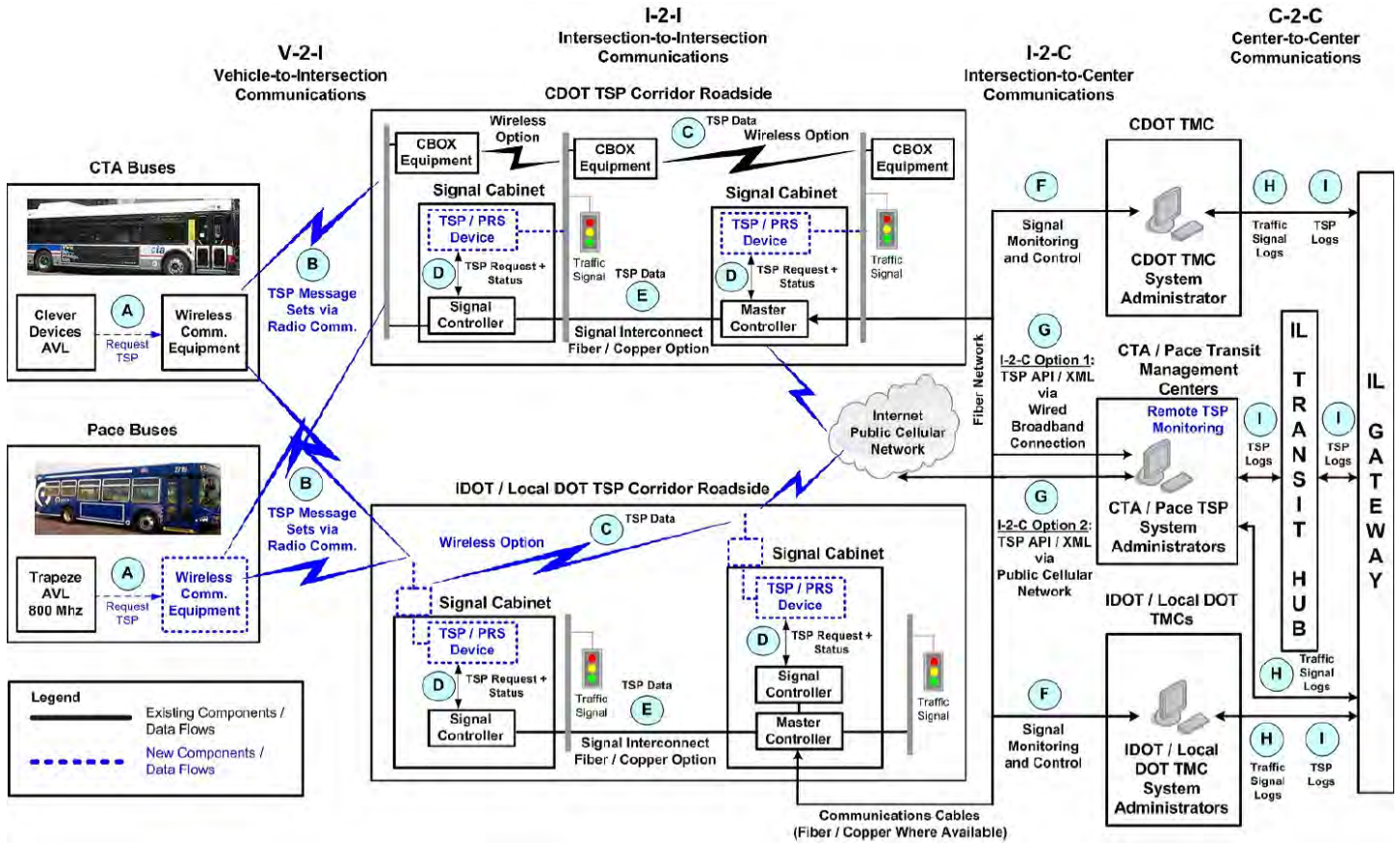
The proposed TSP system deployed through the RTSPIP is shown on the illustration below. The system is divided into three general areas of communication between system components:

1. Vehicle-to-Intersection (V-2-I): Represents equipment on-board Pace and CTA buses that communicates TSP requests and message sets to intersection-based equipment.
2. Intersection-to-Intersection (I-2-I): Represents equipment at intersections that can relay TSP requests to signal controllers and to other intersections as needed for the purpose of TSP operations
3. Intersection-to-Center (I-2-C): Represents the communications equipment that can relay operations data and logs from TSP equipment to Pace / CTA and CDOT/ IDOT central offices for system administration purposes.

The proposed TSP System will not access or interfere with the security of traffic signal operations and associated communications systems without expressed authorization of the transportation agency having jurisdiction.

Regional Transit Signal Priority Implementation Program

The schematic below describes the various channels of communication between vehicles, traffic signal equipment and central monitoring hubs.



Suburban Expressway Bus Network

Express Service provides direct point to point connection between major centers of activities in the regions. Point to Point Express Buses take the fastest route between origin-destination points independently of corridors or arterials. Such express routes have a cluster of stops at origin and a cluster of stops at destination without stops in between. This model allows them fast travel between origin and destination nodes. Express buses provide a one seat ride between the route defining origin and destination centers.

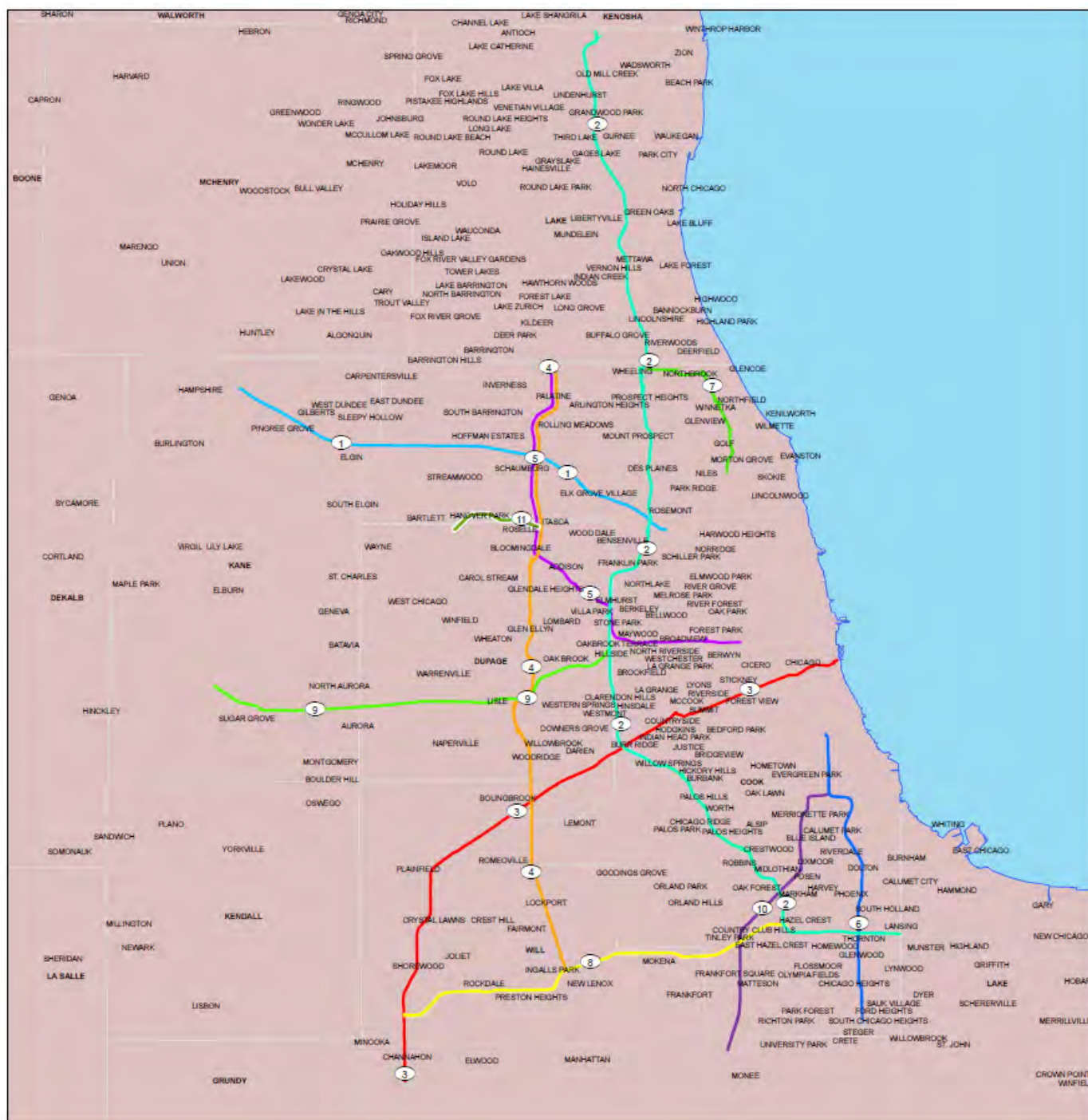
Pace currently has four bus routes operating on the shoulder of I-55 and has dozens of other routes using the region's expressways in regular travel lanes. Pace plans 11 other express bus routes as part of the proposed Rapid Transit Network.

Characteristics of Pace's Expressway Bus Service include:

- Branded over-the-road coach buses
- Park & Ride stations (see next page)
- Bus on shoulder operations, with appropriate bus exterior messaging as shown below and at right
- Free Wi-Fi for passengers
- Transit Priority access treatments
- Robust communications network between vehicles, traffic signals, dynamic signs, a dispatch center, and the customer (V2I, V2V, V2 Central Control, V2 Customer)
- Supplementary local service coverage (serving the last mile of trips, when necessary)
- TDM strategies to provide coverage when express bus service is not operating
- On-board video surveillance to enhance passenger safety
- Real-time arrival & departure displays
- Vicinity maps at stations



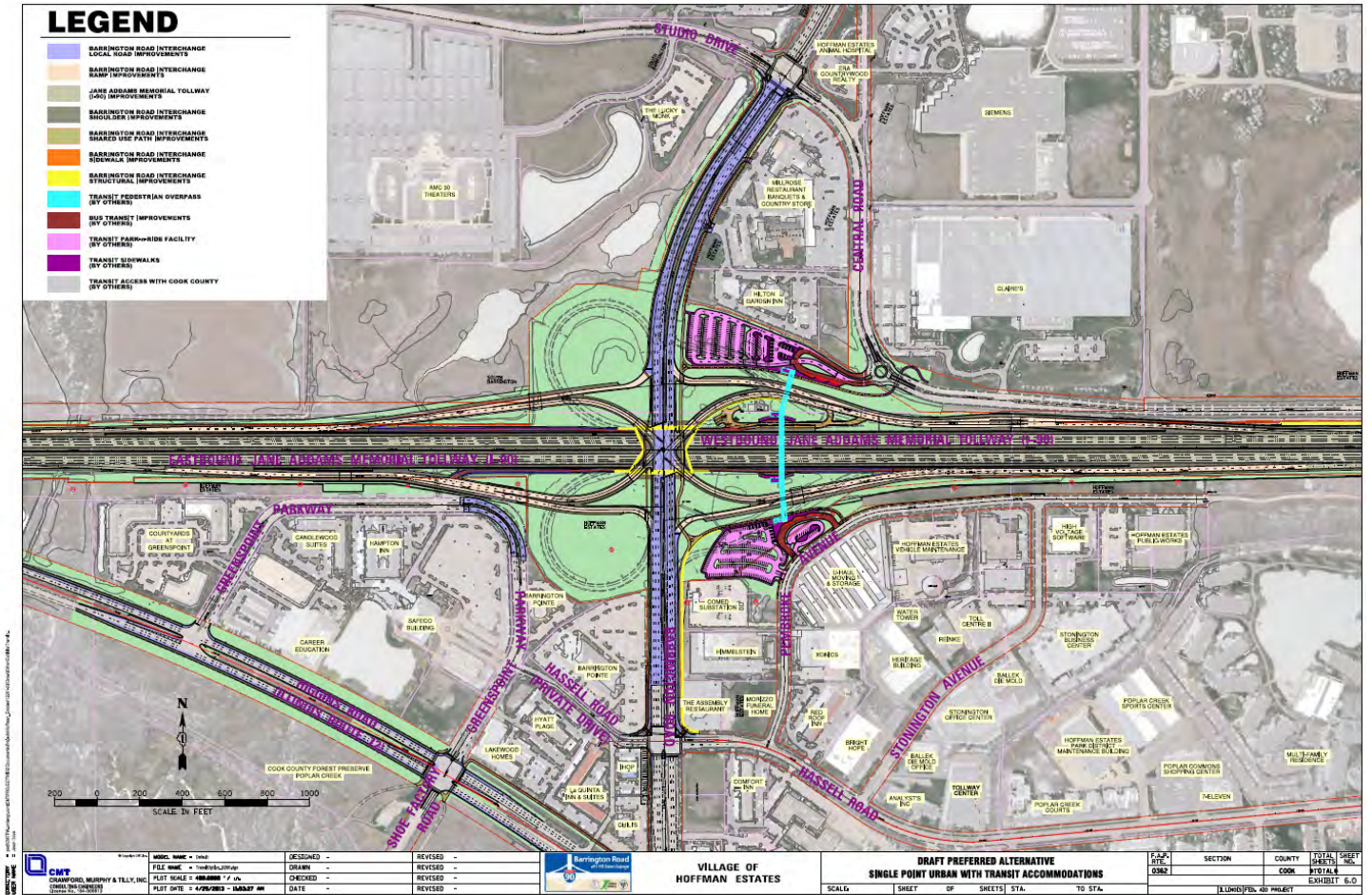
Pace Express Bus Network corridors



Legend

- 1 I-90 Rosemont to Randall Rd., 1
- 2 I - 294 Wisconsin border to Indiana border, 2
- 3 I - 55 Joliet to Chicago, 3
- 4 I - 355/I 53 - New Lenox to Lake/Cook Rd, 4
- 5 I - 290 Forest Park to IL 53 Lake Cook Rd, 5
- 6 I - 94 - I - 394 Sauk Village to 87th St, 6
- 7 I - 94 Edens Dempster to Lake Cook Rd, 7
- 8 I - 80 Joliet to I - 294, 8
- 9 I - 88/ I - 290 Forest Park to Sugar Grove, 9
- 10 I - 57 Chicago to Richton park, 10
- 11 Elgin O'Hare Corridor - West Terminal to Elgin, 11

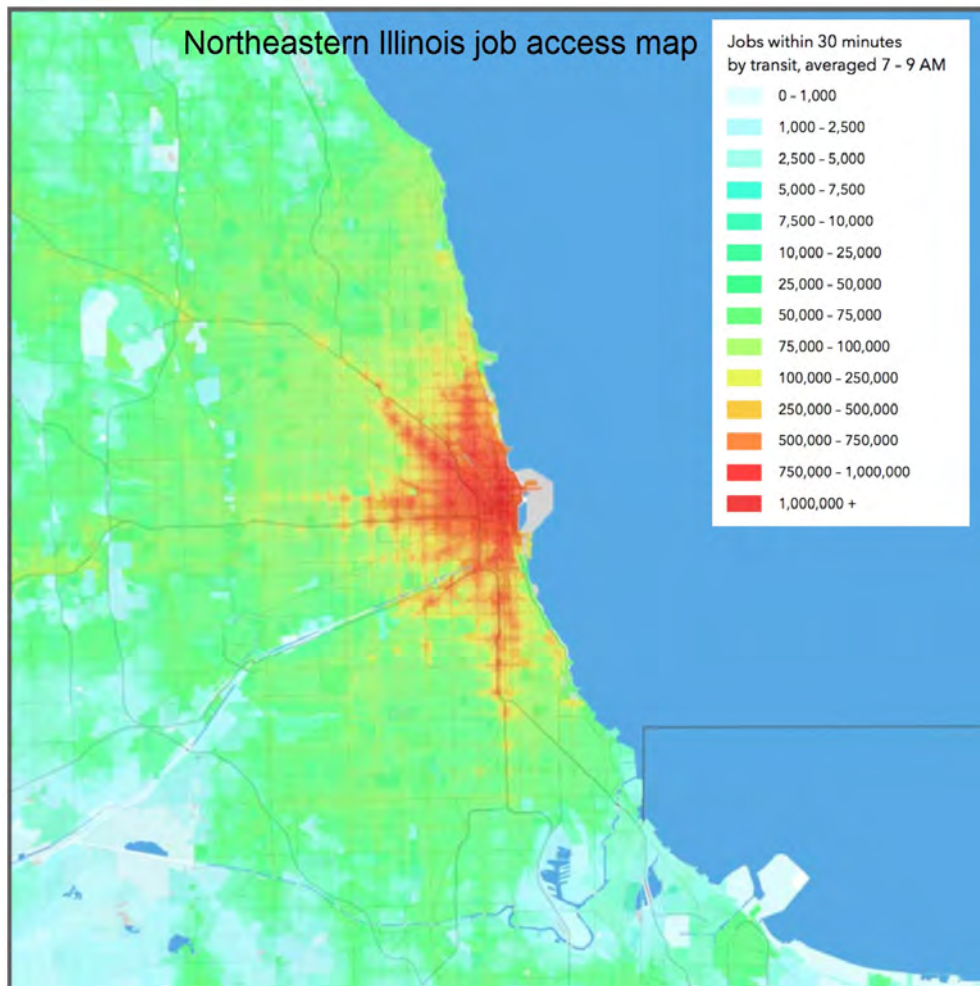
Proposed Park & Ride design at I-90/Barrington Road interchange



Suburban job access

A recent analysis from the Accessibility Observatory, a research group at the University of Minnesota, showed how much more difficult it is for residents of northeastern Illinois to access suburban employment opportunities within 30 minutes (see <http://www.washingtonpost.com/blogs/wonkblog/wp/2014/10/07/mapped-how-public-transit-changes-your-job-prospects/>). The Pace rapid transit network would vastly expand that job access, allowing suburban and Chicago residents alike to use public transit to access suburban jobs with much shorter commute times than they can using today's transit service.

Initial deployment of transit signal priority in northeastern Illinois created a travel time savings of up to 20% for standard bus service. When extrapolated to traffic signals over 24 ART and 11 expressway corridors (on arterial service to and from highway facilities) throughout the suburban region, the time savings would have a tremendous cumulative effect on the networks user's productivity and (by encouraging mode shift from driving to using transit) the region's fuel consumption.



Proposed Rapid Transit Network
Cost breakdown

Arterial Bus Rapid Transit

Capital cost per mile = \$2.8 million, including:

- Design
- Engineering
- Station infrastructure
- Real-time customer information
- Communications technology
- Transit Signal Priority
- Vehicles

655 miles along 24 corridors = \$1,834,000,000

Express bus

Capital cost per mile = \$1.5 million, including:

- Design
- Engineering
- Park & Ride stations
- Priority access for buses
- Bus-on-Shoulder infrastructure
- Vehicles

230 miles along 11 corridors = \$345,000,000

Bus garages

3 garages, \$40 M each = \$120,000,000

Total project cost = \$2,299,000,000