Existing Conditions, Needs, & Deficiencies

TECHNICAL MEMORANDUM

South Halsted Bus Corridor Enhancement Project

August 2018

Prepared for:

pace
Connecting Communities

cta

Prepared by:

CDM Smith

PAGE LEFT INTENTIONALLY
BLANK

Table of Contents

Figures

Tables

1. Project Overview

OVERVIEW OF SOUTH HALSTED CORRIDOR

The South Halsted Bus Corridor Enhancement Project was initiated by the Chicago Transit Authority (CTA) in partnership with Pace Suburban Bus to improve transit along approximately 11 miles of South Halsted Street, from the Pace Harvey Transportation Center to 79th Street. The corridor also includes segments of 79th and 95th Streets that provide connections to the CTA Red Line 79th and 95th Street Stations.

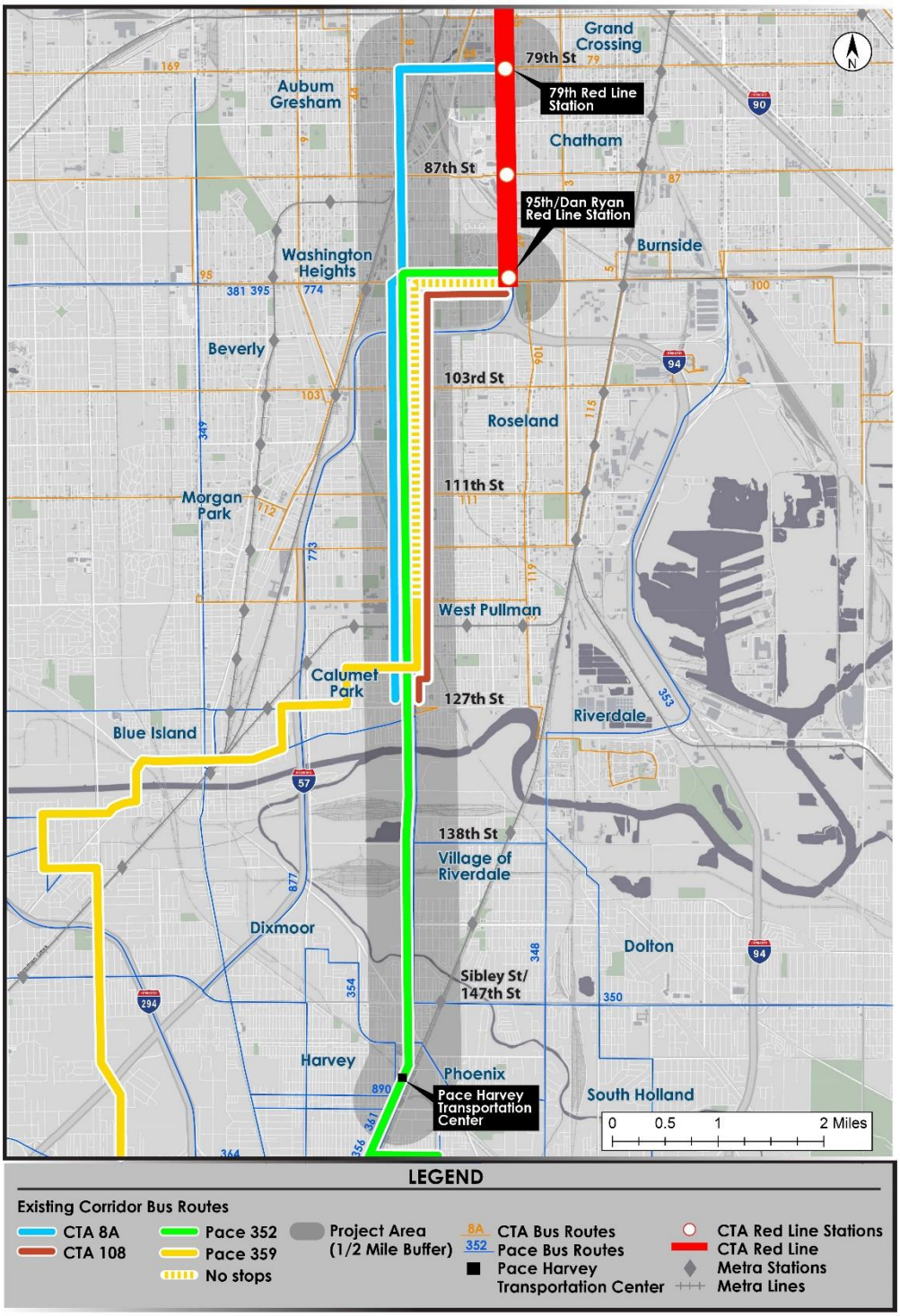
This study will explore potential transit improvements for the corridor's transit riders. On an average weekday, 11,600 trips are made along the corridor. Improvements being considered as part of the project may include:

- Enhanced coordinated service plans
- Realigned bus stops
- Roadway treatments
- Updated passenger amenities
- Traffic signal optimization and transit signal priority
- Potential Pace Pulse stations south of 95th Street

Transit improvements developed in this study will complement CTA's planned extension of the Red Line to 130th Street from 95th Street, which is currently undergoing the federal environmental review and planning process.

The study corridor crosses jurisdictional boundaries, including the Cook County communities of Harvey, Phoenix, Calumet Park, Riverdale, Dixmoor, and the City of Chicago neighborhoods of West Pullman, Morgan Park, Roseland, Washington Heights, and Auburn Gresham. The predominant land use along the South Halsted Street corridor is commercial business, with surrounding areas characterized by single family and other residential uses. Figure 1.1 shows the project area and adjacent transit service.

FIGURE 1.1: PROJECT AREA



CORRIDOR PLANNING INITIATIVES

Halsted Street between 79th Street and 154th Street (Pace Harvey Transportation Center) has been the focus of planning initiatives by various agencies. A summary of several relevant past planning studies conducted for areas in or near the project corridor, as well as proposed projects and their recommendations, are provided below:

- South Cook County-Will County Service Restructuring Initiative – Market Research Report & Service Recommendations Report (2007): This study was a regional market research effort focusing on various transportation modes for work trips to help Pace classify transit users and attract new riders while retaining existing customers. Approximately 1,330 people were surveyed on their commuting behaviors and attitudes toward public transportation. Their responses were used to classify commuters into seven groups based on shared characteristics and attitudes on safety or socioeconomic status. All current Pace bus routes in the southern and southwestern portion of Cook County, and all of Will County were studied. Recommendations to increase efficiency, provide service to areas that currently do not have any, and improve service for current popular commute patterns were made in the study. In total, 29 routes were revised, seven were discontinued, and 21 new routes were recommended, including routes along the South Halsted Corridor. The recommended updates to Routes 352, 359, and 381 are currently in effect.

- CTA Red Line Extension Alternatives (RLE) Analysis – Service Plan (2009): Two alternatives for extending the southern limit of the CTA Red Line were studied including the heavy rail transit (HRT) alternative and the transit system management/bus rapid transit (TSM/BRT) alternative. The HRT alternative has been selected as the preferred alignment. The heavy rail transit (HRT) alternative would parallel the I-57 alignment south of 95th Street before turning south along the Union Pacific railroad and continuing southeast until approximately 130th Street and the Bishop Ford Expressway (I-94). CTA has selected a preferred alternative for the route and will be working to produce a final Environmental Impact Study (EIS) that will include further preliminary engineering work and will analyze impacts of the preferred alignment. CTA expects to apply to the Federal Transit Administration (FTA) for entry into the Project Development Phase for this project. The preferred alignment is shown in Figure 1.2.

- Pace Arterial Rapid Transit Study (2009): Based on Pace's strategic plan, Vision 2020, 24 key corridors were analyzed for potential implementation of arterial bus rapid transit (ART) services. The plan recommends that the ART network implementation begin with the Milwaukee Avenue corridor. It calls for the implementation of five additional ART routes,

most notably South Halsted (from the CTA's 95th Street Station to 159th street) and on 95th Street ART (from the CTA's 95th Street Station to Harlem Avenue) within the first ten years of the program.

- CTA 95th Street Station Improvement Project (2013): The 95th Street Station is the southern terminus for the CTA's Red Line. It serves 13 CTA bus routes, five Pace bus routes, and approximately 20,000 customers per day[1]. The expansion of the station focuses on accommodating the large number of patrons, ensuring passenger safety, increasing efficiency of transfers, and providing additional accessibility to those with limited mobility. The construction includes a new terminal on the south side of 95th Street, rehabilitation of the north side terminal and a pedestrian bridge above 95th Street that links the two. The project expands bus bays with wider canopies, provides additional decking above Dan Ryan Expressway, and expands sidewalks to accommodate the high volume of customers. The construction of the south terminal is complete and open, and the north terminal is currently under construction, scheduled to be completed in 2018. The South Halsted project will link to the 95th Street Station, so improvements to the layout of the station will affect how the corridor interfaces with the CTA Red Line.

- 119th Street Corridor Plan (2015): The 119th Street Corridor is located in the City of Chicago's West Pullman Community Area and stretches four blocks north and south of 119th Street from I-57 to Union Avenue. Following a population peak in 1980, the community has experienced a loss in jobs and retail along 119th Street and Halsted Street. The 119th Street Corridor Plan was developed through broad community outreach including stakeholder interviews, a community survey, and public meetings, and aims to make improvements in the corridor to anchor economic development, improve housing stability, and establish community identity. The plan describes goals, recommendations, and implementation actions for seven topic areas: economic development, job training and adult education, transportation, youth and family development, housing, cultural identity and design, and land use. Transportation-related recommendations include changing the layout of 119th Street to include a center turn lane and multi-use bike path, as well as improving bike and pedestrian access to Major Taylor Trail and nearby transit facilities.

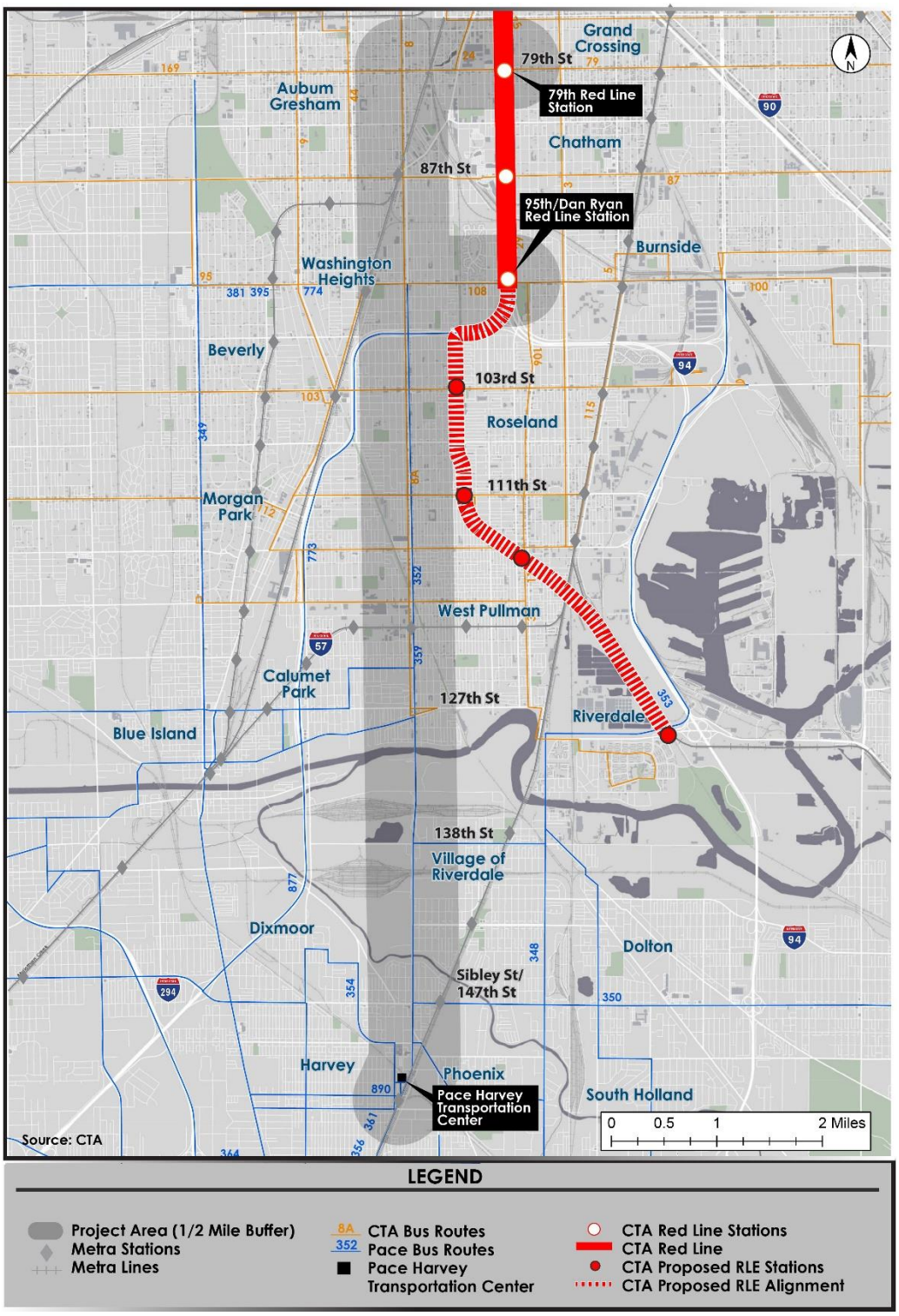
- Chicago Region Environmental and Transportation Efficiency (CREATE) Program Project GS21a – Grade Crossing Separation of Union Pacific and 95th Street east of Eggleston Avenue (2015): A grade separation of the Union Pacific railroad tracks crossing 95th Street

[1]CTA. 95th Street Terminal Improvement Project, Environmental Assessment, February 2013. https://www.transitchicago.com/assets/1/6/2013-02-07_CTA_TIGER_IV_-_EA_95thTerminal_Approved_20130211_ADA.pdf

near Eggleston Avenue is proposed. The objective of the grade separation is to eliminate safety risk for rail-vehicle crashes, especially for trains carrying hazardous materials or energy products. Due to the proximity of the railroad crossing to the CTA Red Line's 95th Street Station, the Dan Ryan Expressway (I-94), I-57, and Chicago State University, that type of crash event would present significant safety risks. In addition, the grade separation would reduce travel time for vehicles, buses, and trains that serve the surrounding area. The Chicago Department of Transportation (CDOT) is currently moving forward with Phase I: Preliminary Engineering which is estimated to be completed in two years. This improvement will result in operational efficiencies for buses operating along the South Halsted Corridor.

- CTA Bus Slow Zone Study – CTA Route #79 (2017): 79th Street was identified by CTA as a Bus Slow Zone corridor. In 2017, the Bus Slow Zones study was initiated by CTA and CDOT to study pinch points for buses on 79th Street. Six intersection locations on 79th Street were identified as slow zones and further studied. These include: Kedzie Avenue-Columbus Avenue, Ashland Avenue, Halsted Street, Lafayette Avenue-State Street (CTA Red Line Station), Martin Luther King Drive, and Stony Island Boulevard-South Chicago Avenue. Recommendations were based on expected reduction in bus delays and overall feasibility. Most notably, an eastbound and westbound shared bus and right turn lane is recommended on 79th Street, including at the intersection of Halsted Street and 79th Street, with peak hour bus lanes recommended beyond the intersection on 79th Street. Peak hour bus lanes are recommended along 79th Street where peak hour parking restrictions are currently in place. The study recommended that two advanced left turn lanes, one through lane, and a shared bus and right turn lane in the eastbound direction at the Lafayette Avenue intersection be added. The study recommended that one advanced left turn lane, one through lane, and a shared bus and right turn lane in the westbound direction, as well as an eastbound queue jump phase at the State Street intersection be added. In addition, the study proposed adding a protected left turn in the eastbound direction and a dedicated bus lane between State Street and Lafayette Avenue. Improvements to pavement markings throughout the 79th Street corridor are recommended. The South Halsted Corridor includes the section of 79th Street between South Halsted and the 79th Street CTA Red Line Station, so bus improvements along this section of the corridor would benefit the South Halsted Corridor project.

FIGURE 1.2: PROJECT CORRIDOR WITH PROPOSED RED LINE EXTENSION (RLE)



2. Roadway & Traffic Analysis

This section provides a summary of existing roadway, traffic, and crash characteristics along the South Halsted Corridor. Data gathered to develop this summary includes existing roadway plans, analysis of traffic counts, and readily available agency data.

ROADWAY GEOMETRY

The roadway geometry along the corridor typically maintains a straight alignment. The roadway width changes along the corridor due to the number of through lanes, parking lanes, turn lanes, presence of medians, and bridges. Table 2.1 summarize the lane configuration on 79th, 95th, and South Halsted. The maps shown in Figure 2.1 and Figure 2.2 show the roadway geometry and average daily traffic of Halsted Street, 79th Street, and 95th Street, respectively.

TABLE 2.1: AVERAGE DAILY TRAFFIC AND LANE CONFIGURATION

South Halsted Corridor Segment	Lane Configuration	Average Daily Traffic	Jurisdiction
79th Street: Halsted Street to Lowe Avenue	One through lane, on-street parking in each direction with snow and peak hour restrictions, including paid spaces between Halsted and Emerald	14,800	CDOT
79th Street: Lowe Avenue to Parnell Avenue	One through lane, no parking due to viaduct	14,800	CDOT
79th Street: Parnell Avenue to Vincennes Ave	One through lane, on-street parking with PM peak hour and snow restrictions in westbound direction	14,800	CDOT
79th Street: Vincennes Ave to Perry Avenue	One eastbound through lane, two westbound through lanes, on-street parking in eastbound direction with snow restrictions	14,800	CDOT
79th Street: Perry Avenue to Lafayette Avenue	Three eastbound through lanes, two westbound through lanes, painted median, no on-street parking	14,800	CDOT
79th Street: Lafayette Avenue to State Street	One eastbound through lane, two eastbound left turn lanes, one eastbound bus lane, two westbound through lanes, one westbound left turn lane, no on-street parking	12,800	CDOT
95th Street: Halsted Street to Perry Avenue	Two through lanes, landscaped median, on-street parking with snow restrictions on both sides	21,100	IDOT, Maintained by CDOT
95th Street: Perry Avenue to Lafayette Avenue	Two through lanes, one eastbound bus-only left turn lane, painted median, no on-street parking	15,200	IDOT, Maintained by CDOT
95th Street: Lafayette Avenue to State Street	Two through lanes, two eastbound left turn lanes, one westbound left turn lane, one westbound bus lane, no on-street parking	15,200	IDOT, Maintained by CDOT

South Halsted Corridor Segment	Lane Configuration	Average Daily Traffic	Jurisdiction
Halsted Street: 79th Street to 85th Street	One through lane, bicycle lane, on-street parking with snow restrictions in each direction including paid parking between 79th and 80th	8,300	CDOT
Halsted Street: 85th Street to Vincennes Ave	Two through lanes, no parking	8,300	CDOT
Halsted Street: Vincennes Ave to 98th Street	Two through lanes, landscaped median beginning at 87th Street, on-street parking with snow restrictions on both sides	17,200	CDOT (North of 87th) IDOT, Maintained by CDOT (South of 87th)
Halsted Street: 98th Street to 99th Street	Three through lanes, no on-street parking	17,100	IDOT, Maintained by CDOT
Halsted Street: 99th Street to 100th Street	Three through lanes, landscaped median, two northbound right turn lanes, one southbound left turn lane	17,100	IDOT, Maintained by CDOT
Halsted Street: 100th Street to Vermont Street	Two through lanes, landscaped median, on-street parking with snow and Sunday restrictions both sides	17,100	IDOT, Maintained by CDOT
Halsted Street: Vermont Street to 129th Place	Two though lanes, landscaped median, on-street parking with snow and evening restrictions both sides	18,100	IDOT
Halsted Street: 129th Place to Forest View Avenue	Two through lanes, no on-street parking	16,100	IDOT
Halsted Street: Forest View Avenue to 144th Street	Two through lanes, concrete median, no on-street parking	16,100	IDOT
Halsted Street: 144th Street to 146th Street	Two through lanes, no on-street parking	16,100	IDOT
Halsted Street: 146th Street to 148th Street	Two through lanes, concrete median, no on-street parking	13,600	IDOT
Morgan Street: 148th Street to 152nd Street	Two through lanes, no on-street parking	6,900	IDOT
Park Avenue: 152nd Street to 154th Street	Two through lanes, no on-street parking	6,900	IDOT

Source: IDOT, Average Daily Traffic Counts GIS Application, April 2018, https://www.gettingaroundillinois.com/gai.htm?mt=aadt; Cook County Department of Transportation and Highways, Highway Jurisdiction, August 2018, https://maps.cookcountyil.gov/hwyjurisdiction/

FIGURE 2.1: PROJECT CORRIDOR LANE CONFIGURATION

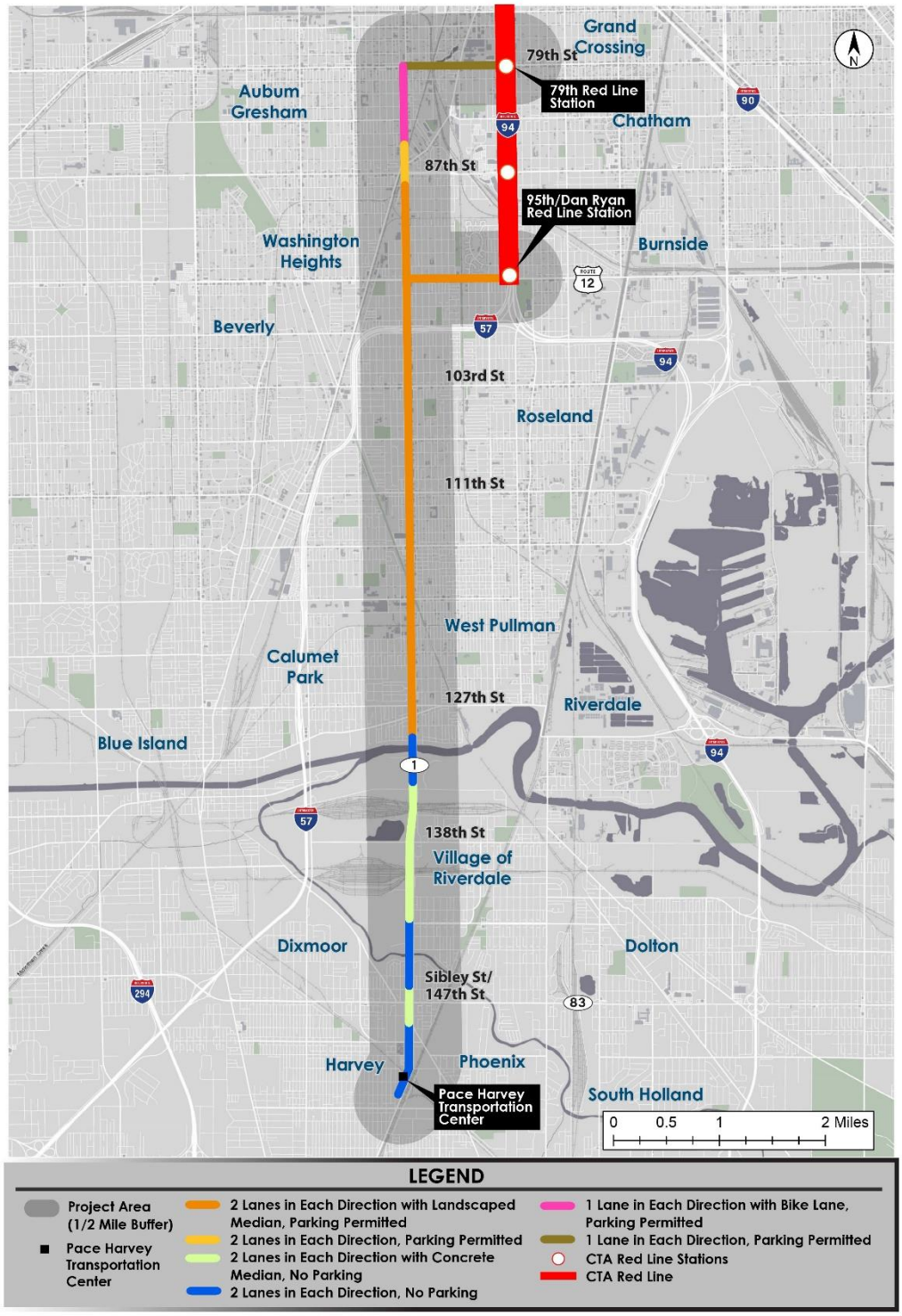
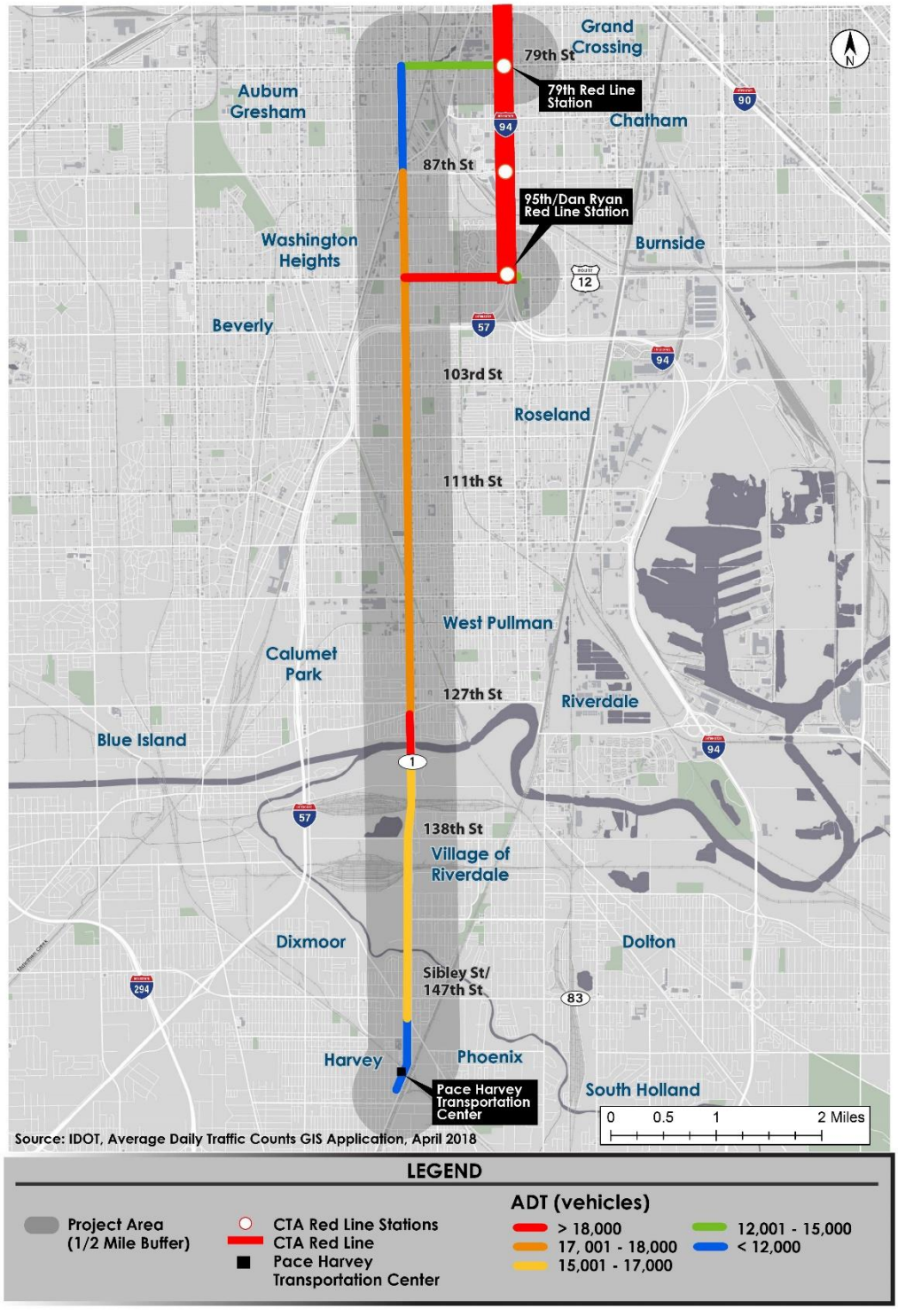


FIGURE 2.2: PROJECT CORRIDOR AVERAGE DAILY TRAFFIC (2014-2017)



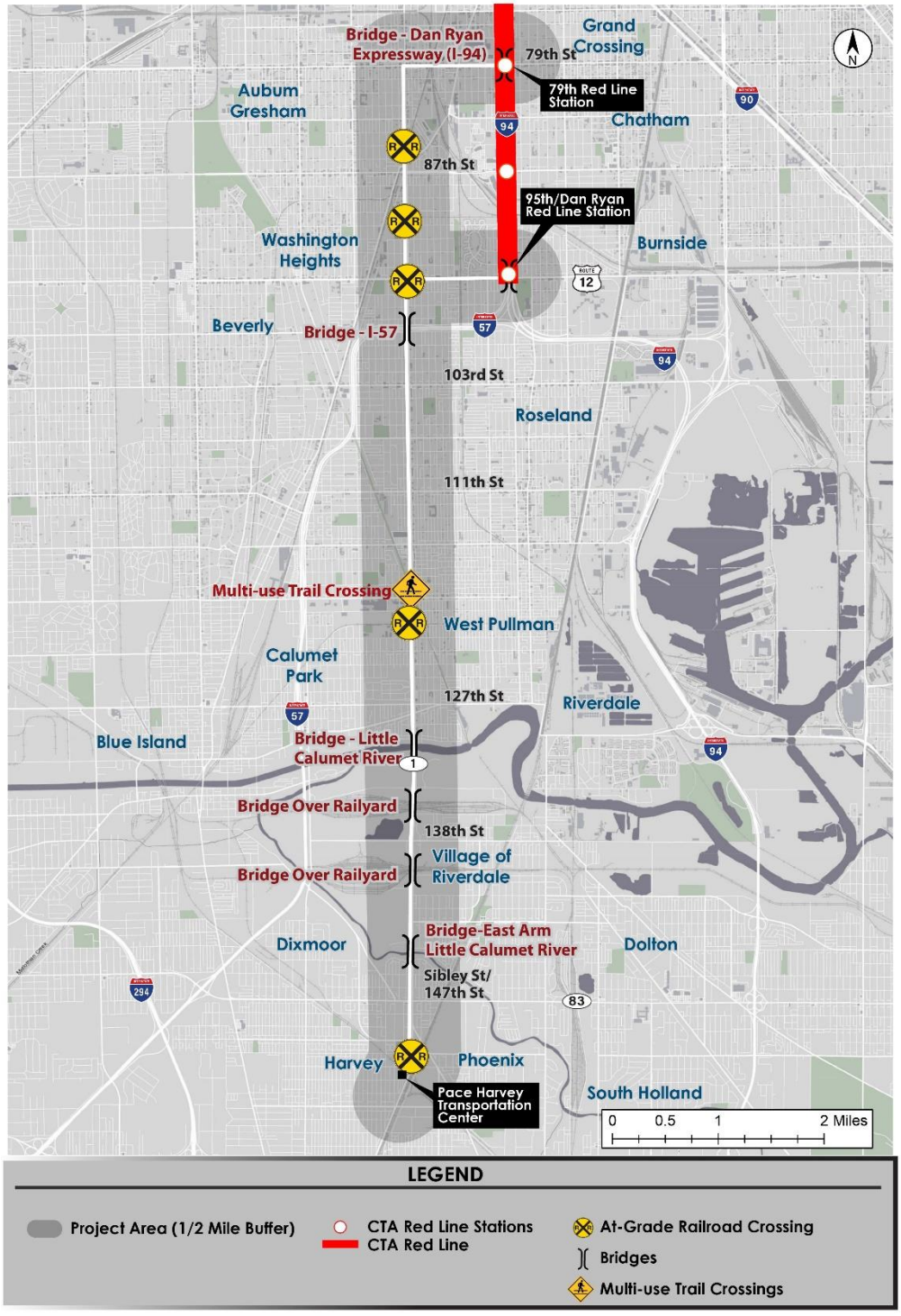
ROADWAY FEATURES

Throughout the corridor the roadway has several key features including four at-grade railroad crossings, seven bridges, two railroad viaducts over Halsted Street, and one multi-use trail crossing. The location of these key features is listed in Table 2.2 and shown in Figure 2.3.

TABLE 2.2: ROADWAY FEATURES

South Halsted Corridor Segment	Roadway Feature
79th Street: Lowe Avenue to Parnell Avenue	Grade-separated Railroad Crossings – Union Pacific, Rock Island District (Metra)
79th Street: Lafayette Avenue to State Street	Bridge – Dan Ryan Expressway (I-94)
95th Street: Eggleston Avenue to Harvard Avenue	At-Grade Railroad Crossing – Union Pacific
95th Street: Lafayette Avenue to State Street	Bridge – Dan Ryan Expressway (I-94)
Halsted Street: Vincennes Avenue to 85th Street	Grade-separated Railroad Crossing – Rock Island District (Metra)
Halsted Street: 91st Street to 90th Street	At-Grade Railroad Crossing – Chicago Rail Link
Halsted Street: 99th Street to 98th Place	Bridge – I-57
Halsted Street: 119th Street	Multi-use trail crossing
Halsted Street: 122nd Street to 120th Street	At-Grade Railroad Crossing – Metra Electric District
Halsted Street: 130th Street to 129th Place	Bridge – Little Calumet River
Halsted Street: Frontage Road/Emerald Avenue to 134th Street/Forest View Avenue	Bridge over Railyard – Indiana Harbor Belt
Halsted Street: 142nd Street to 138th Street	Bridge over Railyard – CSX Transportation
Halsted Street: Shore Drive to Calumet Boulevard	Bridge – East Arm Little Calumet River
Park Avenue: 153rd Street to 152nd Street	At-Grade Railroad Crossing – CSX Transportation

FIGURE 2.3: ROADWAY FEATURES WITHIN CORRIDOR



SIDEWALKS

A maxim of transit service is that every transit rider is a pedestrian at the beginning and end of their trip. As such, pedestrian infrastructure is extremely important for encouraging transit use and attracting riders. If riders can't access the transit, they won't use it. Sidewalks are present throughout most of the project study area. Both 79th Street and 95th Street have sidewalks on both sides of the roadway from Halsted Street to State Street. Along Halsted Street, sidewalk is present from 79th Street to 124th Street on both sides of the roadway. Sidewalks are not present in three sections of the corridor:

- West side of South Halsted Street between 124th Street & 127th Street for approximately 1/3 of a mile
- Both sides of South Halsted Street between 129th Place & Forest View Avenue for approximately ½ of a mile. This section runs along land being used as forest preserve and a golf course. Though no sidewalks are present, unpaved desire paths have developed along some sections on the east side of the street.
- West side of South Halsted Street between Forest View Avenue & Shore Drive for approximately 1.5 miles

Additionally, sidewalks are present on both sides of several bridges along Halsted Street; however, these sidewalks often do not continue past the bridge on one or both sides.

Table 2.3 shows approximate locations of paved sidewalk throughout the project corridor.

TABLE 2.3: SIDEWALK LOCATIONS

South Halsted Corridor Segment	Length (miles)	Sidewalk Location
79th Street: Halsted Street to State Street	1.0	Both sides of 79th Street
95th Street: Halsted Street to State Street	1.0	Both sides of 95th Street
Halsted Street: 79th Street to 124th Street	5.6	Both sides of Halsted Street
Halsted Street: 124th Street to 127th Street	0.4	East side of Halsted Street only
Halsted Street: 127th Street to 129th Place	0.3	Both sides of Halsted Street
Halsted Street: 129th Place to Forest View Avenue	0.5	No sidewalk
Halsted Street: Forest View Avenue to Shore Drive	1.5	East side of Halsted Street only
Halsted Street: Shore Drive to 149th Street	0.8	Both sides of Halsted Street
Morgan Street/Park Avenue: 149th Street to 154th Street	0.6	Both sides of Morgan Street/Halsted Street

TRAFFIC CONDITIONS

Synchro, a macroscopic traffic-modeling and analysis software, was used to analyze existing traffic conditions along the corridor at signalized intersections. Turning movement counts and traffic volume data collected during previous studies were used where available from CDOT. Video-based systems were used to collect turning movement counts, as well as bike and pedestrian counts, where previous traffic counts were not available. The traffic counts were conducted between 7-9 AM and 4-6 PM on April 10, 2018 at the following locations:

- The intersections of 79th Street & Vincennes Avenue and 79th Street & Lafayette Avenue
- The intersections of 95th Street & Parnell Avenue and 95th Street & Wentworth Avenue
- Each signalized intersection along Halsted Street from 154th Street to Vermont Street, from 123rd Street to 114th Street, 107th Street, 101st Street, 98th Street, 91st Street, 83rd Street, and 81st Street

Halsted Street

A Synchro network model was developed based on existing conditions along Halsted Street between 79th Street and 154th Street, and along both 79th Street and 95th Street from Halsted Street to State Street for AM and PM peak periods using Synchro 10. The AM peak period is defined as 7-9 AM, and the PM peak period is defined as 4-6 PM. Synchro inputs were based on the following sources:

- Intersection geometrics and lane widths – Google Earth
- Traffic Volumes – Turning movement counts for peak hours were used as input
- Peak Hour Factors – Calculated for each intersection based on 15-minute interval traffic counts
- Signal Timings – CDOT timing schedules[2]

Signalized intersection level of service (LOS) is defined in terms of an average observed delay for the entire intersection, i.e. the increased travel time that vehicles experience. An intersection's LOS is based on an average of the delay at all signals that comprise the intersection. A LOS of A, B, or C indicates that an intersection is performing well under current traffic conditions. A LOS of D is used as the minimum acceptable design standard. Intersections

[2] CDOT maintains signal timings, even on IDOT roadways; signal information from IDOT outside the City is unavailable

with a LOS of E are considered performing poorly, and intersections with a LOS of F are failing under current traffic conditions. Table 2.4 summarizes the LOS criteria for the 36 signalized intersections in the study corridor, as defined by the Highway Capacity Manual (2010).

TABLE 2.4: INTERSECTION LEVEL OF SERVICE STANDARDS

LOS	Performance	Delay	Number of Intersections in South Halsted Corridor		
			AM	PM	Total
A	Well	≤10 sec	6	2	8
B	Well	10-20 sec	11	15	26
C	Well	20-35 sec	11	11	22
D	Acceptable	35-55 sec	5	7	12
E	Poor	55-80 sec	3	1	4
F	Failure	80+ sec	0	0	0

Source: Highway Capacity Manual, Transportation Research Board, 2010

Next, the Synchro model was used to identify instances in which overall intersection performance was LOS D or worse. Table 2.5 lists each of these intersections and notes if the AM and PM LOS is a D or worse. If the AM or PM LOS is a C or better, no results are listed in the table. Three intersections out of 36 total intersections in the corridor were found to operate poorly in the morning. These three intersections are at 103rd Street, 111th Street, and 147th Street; 147th Street also operates poorly in the afternoon. No intersections operate at failure (LOS F) at any time of the day. The LOS for each approach at every signalized intersection during the AM peak period (7-9 AM) is shown in Figure 2.4 and during the PM peak period (4-6 PM) in Figure 2.5. The LOS of each approach is represented by a portion of a circle, as illustrated in the legend of Figure 2.4 and Figure 2.5.

Based on the Synchro model, a total of four intersections perform with a level of service of D or E during both the AM and PM peak periods. An additional three intersections performed poorly (LOS D or below) during the AM peak and three intersections performed poorly in the PM peak. The following provides additional explanation of the 10 intersections performing at a D or lower.

79th Street at Halsted Street experiences a large volume of traffic and long delays on the southbound approach. The intersection of 85th Street, Summit Avenue, and Halsted Street has a unique geometry which results in significant delay in the southbound direction. Vincennes Avenue at Halsted Street experiences long delays on the westbound approach in the PM peak. The intersection of 87th Street and Halsted Street performs poorly with significant eastbound delays during the AM peak, and significant westbound delays in the PM peak.

95th Street at Halsted Street performs poorly due to delays on the eastbound approach in the PM peak. 98th Place at Halsted Street has a LOS of D in the AM peak due to long delays on the westbound approach. Halsted Street at 103rd and 111th Streets have poor intersection LOS. The intersection of 147th Street and Halsted Street experiences delays on its eastbound and westbound approaches, with an overall intersection LOS of D. The intersection of 149th Street, Morgan Street, and Halsted Street is unique, with northbound Halsted Street and Morgan Street merging, as shown in Figure 2.6. This atypical configuration results in additional turn movements, contributing to a LOS of D at this location.

TABLE 2.5: INTERSECTIONS WITH LOS D, E, OR F

Intersection	AM Level of Service	PM Level of Service
79th Street & Halsted Street		D
85th Street, Summit Avenue & Halsted Street		D
Vincennes Avenue & Halsted Street		D
87th Street & Halsted Street	D	D
95th Street & Halsted Street	D	D
98th Place & Halsted Street	D	
103rd Street & Halsted Street	E	
111th Street & Halsted Street	E	
147th Street & Halsted Street	D	D
149th Street & Halsted Street	D	D

FIGURE 2.4: LEVEL OF SERVICE DURING AM PEAK PERIODPERIOD

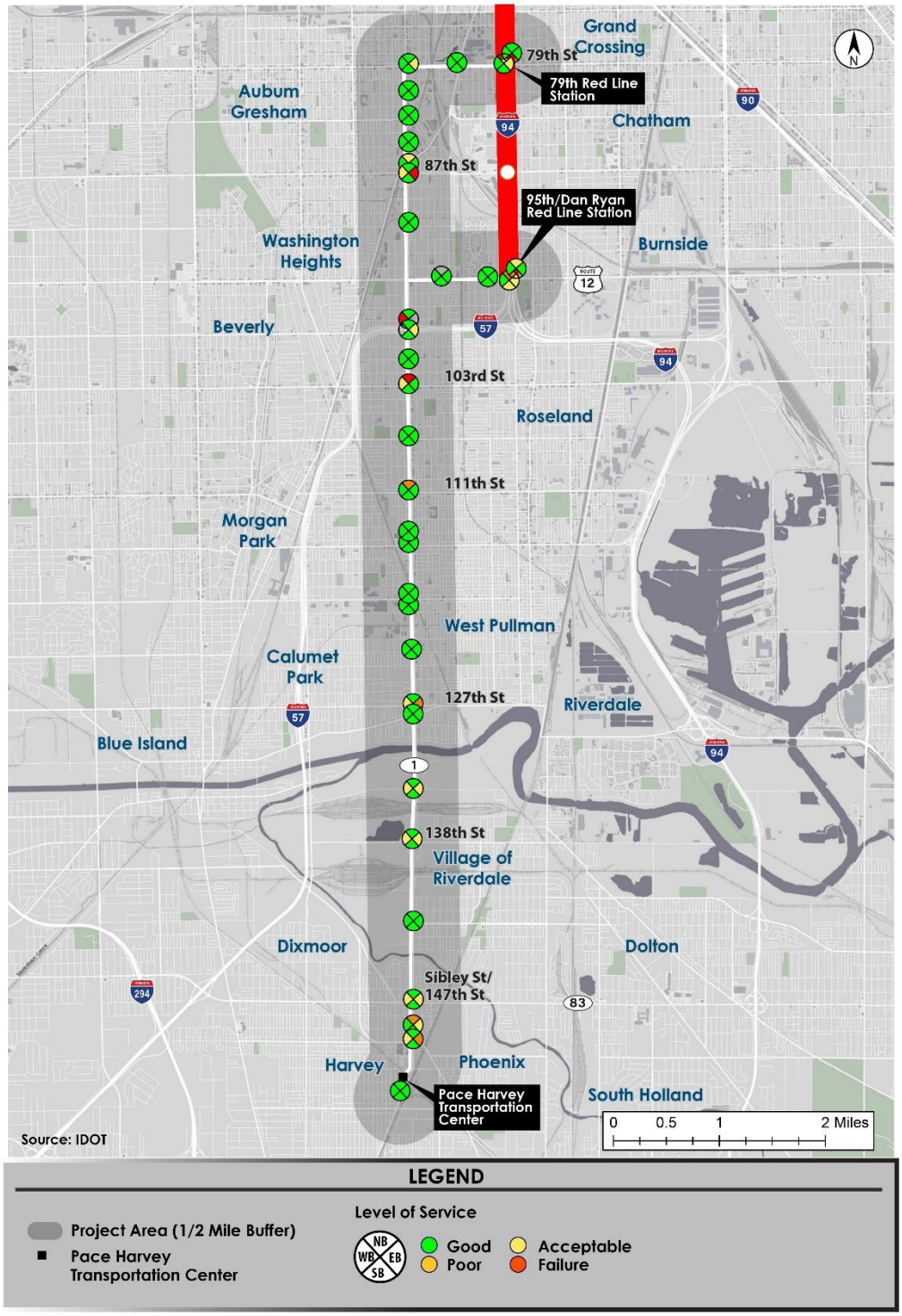


FIGURE 2.5: LEVEL OF SERVICE DURING PM PEAK PERIOD

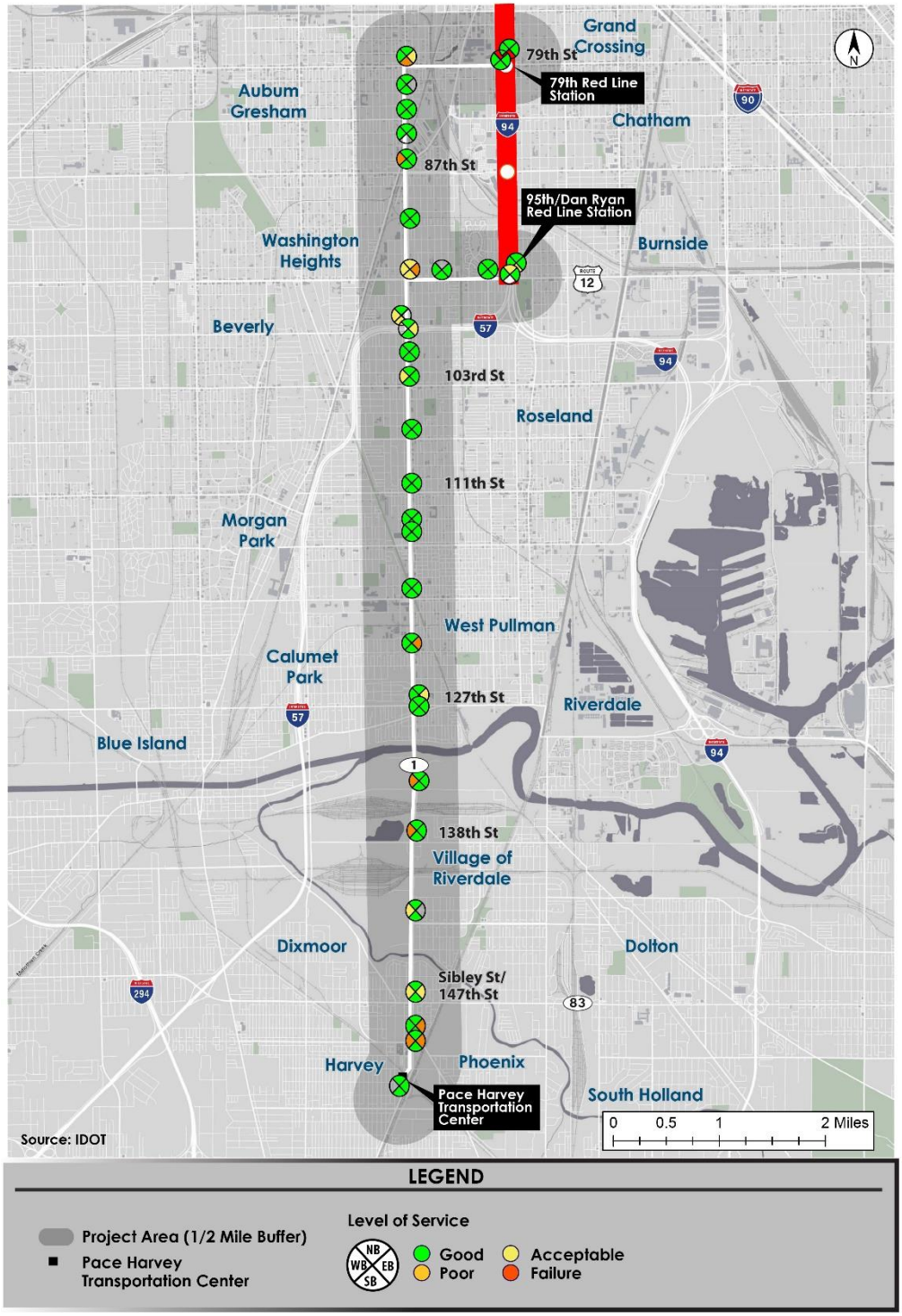


FIGURE 2.6: 149TH STREET AT HALSTED STREET

79th Street

79th Street runs east-west and connects Halsted Street to the Dan Ryan Expressway (I-94). The 79th Street CTA Red Line Station is located between Lafayette Avenue and State Street. There are four signalized intersections east of Halsted Street to State Street. These intersections are located at Vincennes Street, LaSalle Street, Lafayette Avenue, and State Street. There are no known issues impacting traffic operations at these signalized intersections.

95th Street

Similarly, 95th Street runs east-west and provides access to the Dan Ryan Expressway (I-94) in the northbound direction only. There are four signalized intersections east of Halsted Street to State Street. These intersections are located at Parnell Avenue, Wentworth Avenue, Lafayette Avenue, and State Street. The 95th Street CTA Red Line station and a CTA bus terminal are located between Lafayette Avenue and State Street. The northern CTA terminal is currently under construction. Present traffic congestion near Lafayette Avenue and State Street relates to the signal phasing and modified lane configuration during construction. Once construction of the terminal is complete, assessment of the existing signal operation can be made.

3. Traffic Crashes

A review of crash locations and high crash areas, including those involving pedestrian and bicycles was conducted along the South Halsted Corridor. IDOT provided crash data for 2011 to 2015, which was the most recent data available. This subsection summarizes the findings. As a busy urban corridor, South Halsted regularly experiences traffic crashes of all types. However, the crash rate for the corridor is not unusually high as compared to other high traffic corridors throughout the region. No part of the corridor was identified by the City of Chicago as a high crash corridor or high crash area in the Vision Zero Framework Plan, released in June 2017.[3]

Table 3.1 shows overall crashes that occurred on the corridor between 2011 and 2015, as well as subtotals by crash type and corridor segment. During this period, there were 4,251 reported crashes along the corridor. About one quarter of the reported crashes (1,104) involved at least one injury. Among total crashes, 209 involved a bus; 203 involved a pedestrian or bicyclist. The data does not indicate fault/cause of the crash, so just because a bus was involved does not mean it contributed to the cause of the crash. No fatalities involved buses. On a per mile basis, the highest number of crashes occurred on 79th Street. The locations of crashes that involved injuries and fatalities are shown in Figure 3.1. The figure does not show a clear pattern regarding where these crashes occur.

[3] CDOT, Vision Zero Chicago, High Crash Corridor Framework Plan, June 2018. http://visionzerochicago.org/wp-content/uploads/2018/06/VZ_HCC_FrameworkPlan_2018-06-15.pdf

TABLE 3.1: NUMBER OF CRASHES BY CORRIDOR SEGMENT (2011-2015)

Segment	Total Crashes per Mile	Total Crashes	Injury Crashes	Property Damage Only	Fatality Crashes	Involving Buses	Pedestrian	Cyclist	Angle	Rear End	Sideswipe	Turning
79th Street: Red Line to Halsted	581	581	135	0	1	32	25	4	64	200	112	105
95th Street: Red Line to Halsted	436	436	85	0	0	52	21	3	43	156	79	77
Halsted: 79th to Dan Ryan	491	1,227	302	0	2	37	43	8	143	359	205	234
Halsted: Dan Ryan to Little Calumet River	354	1,414	393	0	1	70	57	13	142	410	230	307
Halsted: Little Calumet River to Harvey TC	185	593	189	0	5	18	24	5	65	175	72	163
All Crashes Total	**363**	**4,251**	**1,104**	**0**	**9**	**209**	**170**	**33**	**457**	**1,300**	**698**	**886**

Source: IDOT Crash Data, 2018

FIGURE 3.1 CRASHES WITH INJURIES AND FATALITIES (2011-2015)

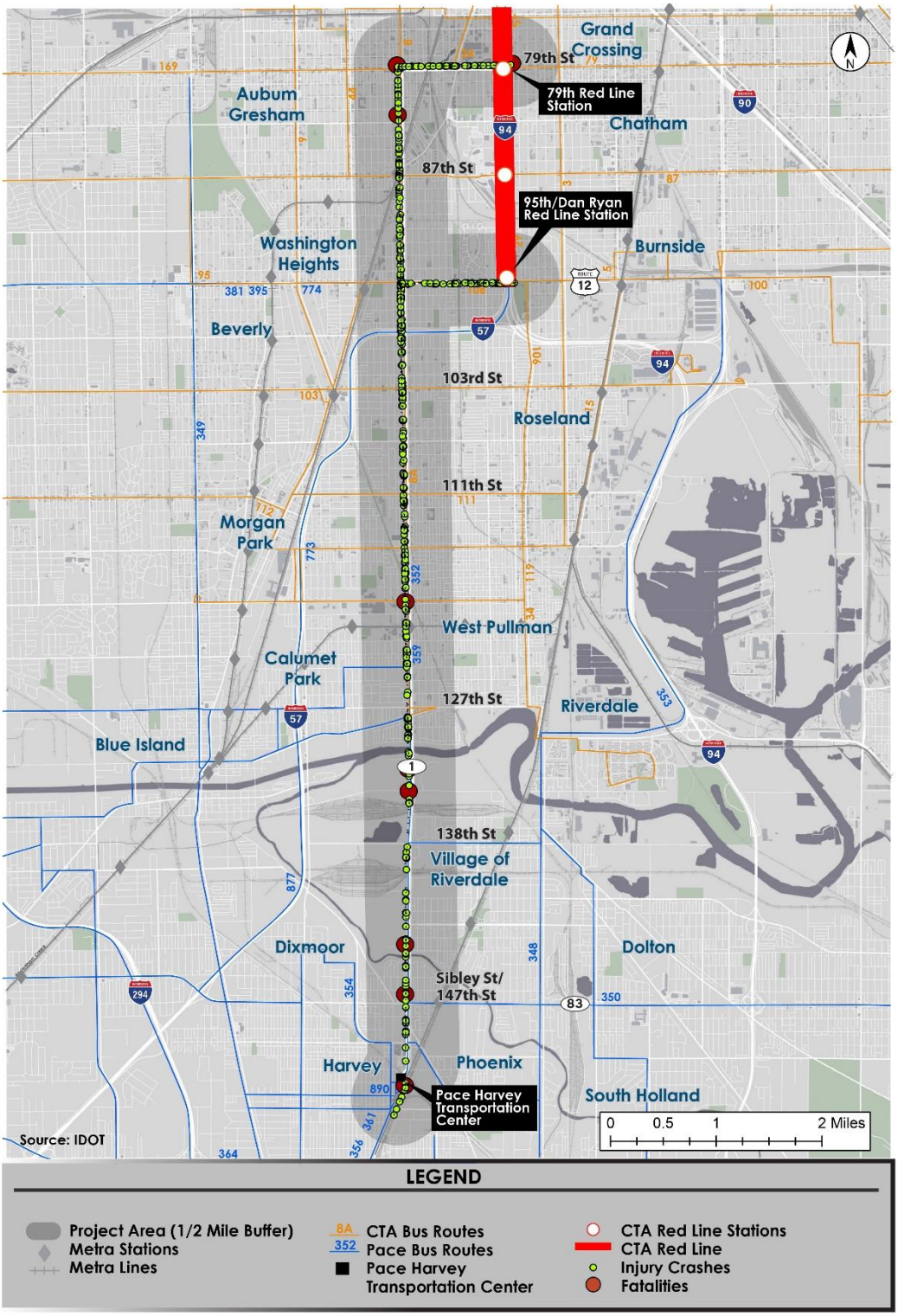


Table 3.2 highlights the intersections with the most traffic crashes of various types. The table is ordered by total crashes, as listed in the second column. The table includes intersections with a high rate of crashes in the various categories below. The numbers and colors represent the intersection's rank in each category, as follows:

- Red (1) – The intersection with the highest total number of crashes of this type; in a case in which two or more intersections had the same number of crashes, both intersections were given this designation.
- Yellow (5) – An intersection within the top five highest total number of crashes of this type
- Blue (10) – An intersection within the top 10 highest total number of crashes of this type

For example, the intersection of Halsted Street & 99th Street has the highest number of total traffic crashes, highest total injuries, angle crashes, rear end crashes, and turning crashes as well as the highest number of rear end crashes involving a bus. The intersection was also in the top five for sideswipe crashes and total crashes, total injuries, pedestrian/cycle crashes, and angle crashes involving a bus. Additionally, it was in the top 10 for sideswipe crashes involving a bus.

The highest crash locations and locations where fatalities have occurred in the corridor should be given additional consideration for applying best practices to help improve conditions, including:

- Signal phasing that provide an advance walk sign for pedestrians before releasing right-turning vehicles.
- Confirming that yellow phases are long enough to allow sufficient warning to drivers that a stop signal is coming
- Review if queue lengths are adequate
- Review if signage and striping is up to current standards.

A complete list of intersections and crashes by type is included as Appendix B: Crashes by Intersection.

TABLE 3.2: INTERSECTIONS WITH HIGHEST NUMBER OF TRAFFIC CRASHES

		All Crashes Rank								Bus Crashes Rank							
Intersection	Total Crashes	Total Crashes	Total Injuries	Fatality Crashes	Pedestrian	Cyclist	Angle	Rear End	Sideswipe	Turning	Total Crashes	Total Injuries	Pedestrian/ Cyclist	Angle	Rear End	Sideswipe	Turning
Halsted & 99th	177	1	1				1	1	5	1	5	5	5	5	1	10	
Halsted & 95th	162	5	5		1		10	5	5	1	5		5			1	
Halsted & Sibley	135	5	1		10		5	5		1							5
Halsted & 79th	119	5	10	1	5	1		10	1		5	5	5	1			
79th & Lafayette	111	5			5		10	5	5		10	10	10	10	1		
Halsted & 87th	105	10	10		10		10	10	5	10	10	10	10				1
Halsted & 103rd	100	10	10		5				10	1							5
Halsted & 111th	97	10	5		5				10	10	10	10	10	10			1
Halsted & 127th	94	10	5		10		5		10	10				10		10	
Halsted & 115th	92	10	10		10			10	10	10	5	10	5		5	10	
Halsted & 107th	78							5			10	10	10	10	5	5	
Halsted & 138th	76		10							1							
State & 79th	69			1	10							10		10			
95th & Lafayette	66							10			1	1	1	10		5	5
Halsted & 145th	49			1		1											

Source: IDOT Crash Data, 2018

4. Existing Service & Ridership

This section provides a summary of existing transit service conditions in the corridor including descriptions of the service provided, ridership, origin and destination, performance, and multimodal connections.

EXISTING CORRIDOR SERVICE

Routes

Both CTA and Pace provide local bus service along the South Halsted Corridor, which overlaps in some areas. In general, most CTA and Pace bus routes run early morning through evening, every 10 to 30 minutes during peak periods with less frequent off-peak service. Buses stop approximately every block (1/8 mile) or every other block (1/4 mile) at posted stops. Bus stops that are served by both CTA and Pace buses are marked by signage administered by CTA, which provides basic route alignment and service span for both CTA and Pace service. All CTA and Pace vehicles that operate along routes in the corridor are accessible for passengers needing a wheelchair lift or ramp. CTA buses on the corridor operate from the 77th and 103rd garages and seat between 37 and 39 patrons; Pace buses on the corridor operate out of the South Division garage and seat 37 passengers.

As denoted in bold text in Table 4.1 and Table 4.2, CTA Routes 8A and 108 and Pace Routes 352 and 359 operate along significant portions of the Halsted segment of the study area. There are several other routes with high levels of service including CTA Routes 79, 95, and 112 and Pace Routes 348 and 381 that run along either the 79th Street or 95th Street sections of the study corridor. Several express Pace routes provide service along the 95th Street section of the corridor, and are referenced in Table 4.1 and Table 4.2, as are several other CTA and Pace routes that intersect with the corridor at various points including at the corridor's northern (79th Street and 95th Street Red Line stations) and southern (Pace Harvey Transportation Center) termini. Specialty routes that do not offer regular service (e.g. direct to US Cellular Stadium) are not included.

There are slight fare differences between Pace and CTA bus service, as shown in Table 4.3.

TABLE 4.1: EXISTING CTA LOCAL BUS SERVICE

Route	Name	Service	Relationship to Corridor
3	King Drive	Daily	Runs parallel to corridor on northern side
N5	South Shore Night Bus	Nightly	Connection at 95th St Red Line station
8	Halsted	Daily	Connection at 79th St & Halsted St; continues north along Halsted St
8A	**South Halsted**	**Daily**	**Runs along corridor between 127th St (Halsted) and 79th & Perry (just west of 79th St Red Line station)**
9	Ashland	Daily	Runs parallel to corridor on northern side
9A	Ashland/95th	Nightly	Connection at 95th St Red Line station
24	Wentworth	Weekday	Connection at 79th St Red Line station, operates parallel to corridor between 79th St and 87th St
29	State	Daily	Connection at 95th St Red Line station
34	South Michigan	Daily	Connection at 95th St Red Line station
44	Wallace/Racine	Daily	Runs parallel to corridor on northern side
75	74th/75th	Daily	Connection at 79th St Red Line station; runs perpendicular to corridor on northern side
79	**79th**	**Daily**	**Runs along 79th St on corridor including between Halsted and 79th St Red Line station**
87	87th	Daily	Connection at 87th St & Halsted
95	**95th**	**Daily**	**Runs along 95th St on corridor including between Halsted and 95th St Red Line station**
100	Jeffery Manor Express	Weekday	Connection at 95th St Red Line station
103	West 103rd	Daily	Connection at 95th St Red Line station and at 103rd St; runs perpendicular to corridor
106	East 103rd	Daily	Connection at 95th St Red Line station
108	**Halsted/95th**	**Weekday**	**Runs along corridor between 127th St (Halsted) and 95th St Red Line station**
111	111th/King Drive	Daily	Connections at 95th St Red Line station and 111th St
112	**Vincennes/111th**	**Daily**	**Runs along 95th St on corridor including between Halsted and 95th St Red Line station**
115	Pullman/115th	Daily	Connections at 95th St Red Line station and 115th St
119	Michigan/119th	Daily	Connections at 95th St Red Line station and 119th St
169	69th/UPS Express	Weekday	Connection at 79th & Halsted

Source: CTA

*Note: Routes operating on significant portions of the Halsted segment of the study area are noted in **bold***

TABLE 4.2: EXISTING PACE LOCAL BUS SERVICE

Route	Name	Service	Relationship to Corridor
348	Harvey - Riverdale - Blue Island	M-Sa	Connections at various points along southern end of corridor
349	South Western	Daily	Connection at Harvey TC; runs parallel to corridor
350	Sibley	Daily	Connection at Harvey TC; runs perpendicular to corridor
352	**Halsted**	**Daily**	**Runs along corridor from 95th St Red Line station to beyond corridor limits**
353	95th/Dan Ryan CTA - River Oaks - Homewood Limited	Daily	Connection at 95th St Red Line station; runs parallel to corridor
354	Harvey - Oak Forest Loop	M-Sa	Connection at Harvey TC
356	Harvey - Homewood - Tinley Park	Daily	Connection at Harvey TC
359	**Robbins/South Kedzie Avenue**	**Daily**	**Operates on corridor between 124th St and 95th St Red Line station**
360	Harvey - Amazon Monee	Daily	Connection at Harvey TC
361	Harvey - Laraway Crossings Express	Daily	Connection at Harvey TC
364	159th Street	Daily	Connection at Harvey TC; runs perpendicular to corridor
381	**95th Street**	**Daily**	**Runs along 95th St on corridor including between Halsted and 95th St Red Line station**
395	95th/Dan Ryan CTA Station - UPS Hodgkins	Weekday	Runs along 95th St on corridor including between Halsted and 95th St Red Line station providing specialty limited service
877	Harvey - Downers Grove Limited	Weekday	Connection at Harvey TC
890	South Suburbs UPS Hodgkins	Weekday	Connection at Harvey TC

Source: Pace

*Note: Routes operating on significant portions of the Halsted segment of the study area are noted in **bold***

TABLE 4.3: FARE STRUCTURE

Type	Full Fare	Reduced Fare	Student	Cash Fare	Cash Reduced
CTA Rail Fare	$2.50	$1.25	$0.75	$2.50	$1.25
CTA Bus Fare	$2.25	$1.10	$0.75	$2.50	$1.25
CTA Transfers	$0.25	$0.15	$0.15		
Pace Bus Fare	$2.00	$1.00	$1.00	$2.25	$1.10
Pace Transfers	$0.30	$0.20	$0.20		

Source: RTA, Paying for Your Ride; http://www.rtachicago.org/index.php/plan-your-trip/travel-tips/paying-for-your-ride

Corridor Service

Currently, CTA Routes 8A and 108 and Pace Routes 352 and 359 provide the primary service along the South Halsted Corridor. As shown in Table 4.4, CTA Route 108 operates between the 95th Street Red Line Station and 127th Street; CTA Route 8A operates between the 79th & Perry (just west of the 79th Street Red Line Station) and 127th Street. Pace Route 352 operates service from 95th Street Station to the Pace Chicago Heights Terminal via 95th and Halsted Streets; the majority of trips short-turn at the Pace Harvey Transportation Center. Pace route 359 provides service from the 95th Street station along Halsted to 124th Street, then continues south, beyond the study area, to Homewood.

As shown in Table 4.4, the typical frequency of each route along the corridor generally provides service every 5 to 20 minutes during the morning (6 to 9 am) and afternoon (3 to 6 pm) peak and 10 to 30 minutes off-peak, though transit schedules do include some variability to ensure efficient bus operations. In general, CTA buses provide a shorter span of service than Pace buses, with most bus activity on the corridor stopping by approximately 8:30pm, creating a gap with no service on Halsted between 79th and 95th Street. Pace service runs from 5am to 11pm or later. Route 352 provides 24-hour service along between 95th/ Dan Ryan Red Line Station and Pace Harvey Transportation Center.

TABLE 4.4: CORRIDOR LOCAL BUS SERVICE

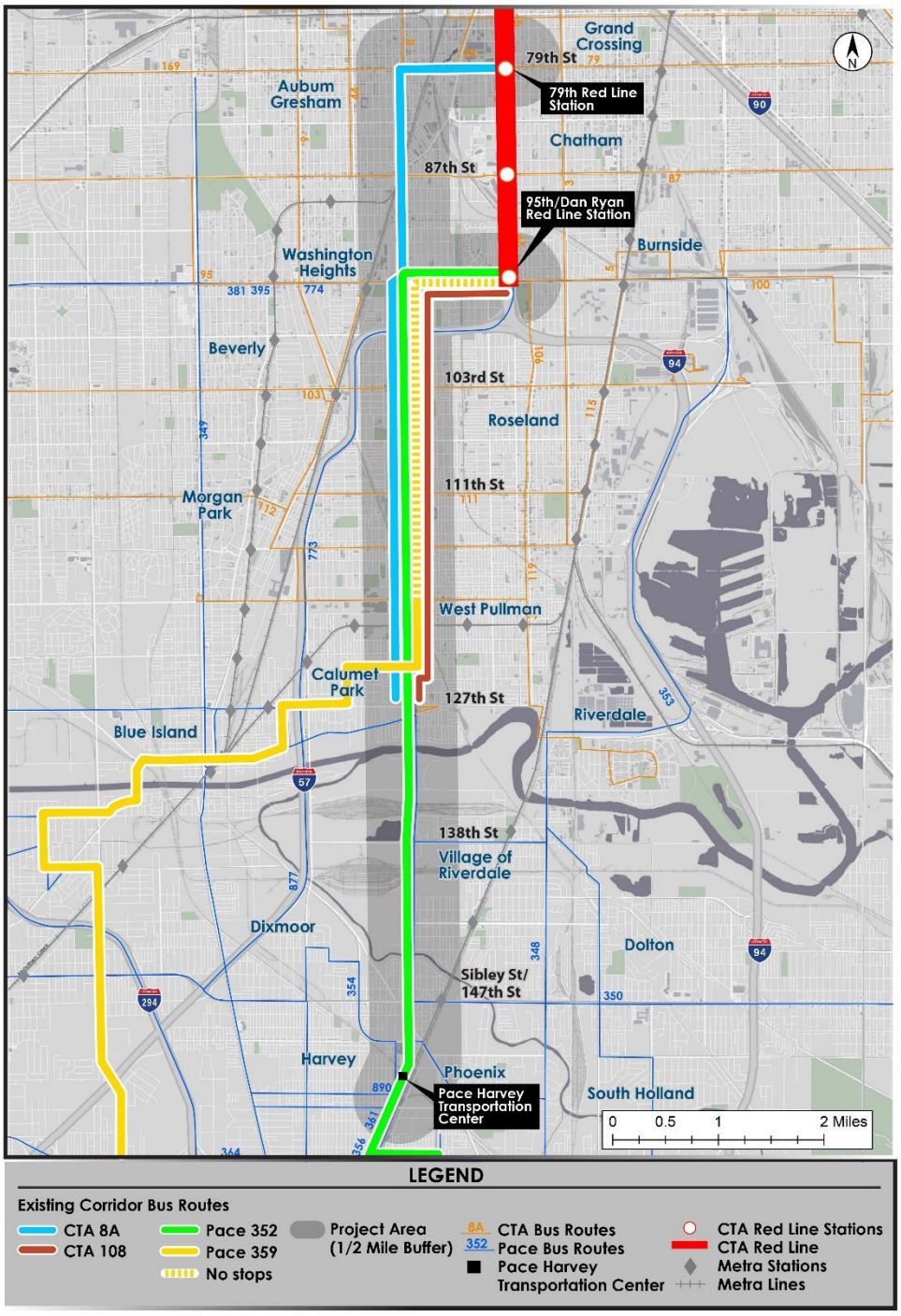
Operator	Route	Terminus	Span	Weekday Peak Headway	Weekday Off-Peak Headway	Weekend Headway
CTA	8A	North: 79th & Perry (near 79th Street Station) South: 127th/Lowe	Daily: 5:30am – 9pm	15 min	15-20 min	15-20 min
CTA	79	West: Ford City or 79th/Western East: 79th/Lakefront	Daily: 24 hours to 79th/Western; 6am – 12:30am to Ford City	5-7 min	7-20 min	7-14 min
CTA	95[4]	West: 87th/Damen East: 92nd/Buffalo	Daily: 24 hours between Commercial and 95th Red Line; Service to/from 87th/Damen until 12:30 am	10-14 min	10-20 min	12-20 min
CTA	108	North: 95th Red Line South: 127th/Lowe	Weekday: 5:30am – 9:30am & 2pm – 9pm	15-19 min	15-20 min	n/a
CTA	112	West: 111th/Pulaski East: 95th Red Line	Weekday: 4:30am – 11pm	13-15 min	12-25 min	20-30 min
Pace	352	North: 95th Red Line South: Chicago Heights Terminal or Pace Harvey Transportation Center	Weekday: 24 hours to Harvey TC; 5am – 1am to Chicago Heights Saturday/Sunday: 24 hours to Harvey TC; 6am – 1am to Chicago Heights	10 min to Harvey TC 30 min to Chicago Heights	15-30 min to Harvey TC 30-60 min to Chicago Heights	15-30 min to Harvey TC 30 min to Chicago Heights
Pace	359	North: 95th Red Line South: Metra Homewood Station	Weekdays: 5am – 1am Saturdays: 6am – 1am	20-30 min	40-60 min	60 min
Pace	381	West: Moraine Valley Community College East: 95th Red Line Station	Weekdays: 5am – 11pm Saturdays: 5am – 10pm	20 min	20-30 min	30-60 min

Source: CTA and Pace, 2018

Note: Span and headways are approximate

[4] Overnight service is provided by Route #N5 South Shore Night Bus, with service between 92nd/Commercial and 95th/Red Line Terminal

FIGURE 4.1: PRIMARY CTA & PACE ROUTES OPERATING ALONG THE CORRIDOR



Stops

There are currently 66 CTA and 34 Pace bus stops along South Halsted Corridor, with stops as frequent as every other block in some locations. Generally, the bus stops are represented by pairs, with both a northbound and southbound stop. Amenities vary at each stop based on boarding and alighting activity. The total number of bus stops for each route along the corridor is shown in Table 4.5; in many cases, a single stop is used for more than one bus route. The locations of these bus stops are shown in Figure 4.2. About 15 CTA and Pace stops occupy the same physical space, though this is not considered as part of Table 4.5. Stop location (near-side vs. far-side) varies based on roadway geometrics. CTA service standards stipulate that stops should be placed between one-eighth to one-quarter of a mile (660 feet and 1,320 feet, respectively) apart based on land use density.

The corridor also features several major transit centers where local bus service connects with other transportation modes. The Pace Harvey Transportation Center is located at the southern terminus of the South Halsted Corridor and provides connections to eight Pace bus routes (348, 349, 350, 352, 354, 356, 364, and 890). It also features 71 commuter parking spaces, although Pace operations staff report that the parking lot never reaches capacity. The corridor is also serviced by the West Pullman and Gresham Metra stations, as well as the Harvey Metra station adjacent to the Pace Harvey Transportation Center at the southern end of the study area. The 79th and 95th Red Line stations also serve the corridor. These rail connections are described in additional detail in the Multi-Modal Connections section of this report. The CTA Route 8A includes a stop at the 79th Street Bus Turnaround at the corner of 79th Street and Halsted Street.

TABLE 4.5: EXISTING BI-DIRECTION LOCAL BUS STOPS BY ROUTE WITHIN THE STUDY AREA

Operator	Route	Stops
CTA	8A	8
CTA	108	24
CTA	8A & 108	34
CTA	**Total**	**66**
Pace	352	25
Pace	359	4
Pace	352 & 359	5
Pace	**Total**	**34**

Source: CTA and Pace

EXISTING RIDERSHIP

According to October 2017 ridership data, CTA and Pace average weekday boardings along the South Halsted Corridor was 11,628. Ridership was comprised from boardings on CTA routes 108 and 8A and Pace Routes 352 and 359, as shown in Table 4.6. Routes 8A and 108 have moderate ridership compared to the broader CTA bus system; both routes provide service primarily within the footprint of the corridor except for a few trips that extend to nearby schools. Route 352 is Pace's top performing route in term of ridership, while the 359 is within Pace's top 20 performing routes. Both routes extend beyond the corridor. Route 352 provides service to Chicago Heights after serving the Pace Harvey Transportation Center; 6,706 (76%) of the route's 8,863 average weekday boardings occur between the 95th Red Line Station and the Pace Harvey Transportation Center. Route 359 provides service to University Park after serving the South Halsted Corridor between the 95th Red Line Station and 127th Street; 622 (25%) of the route's 2,505 average weekday riders board between the 95th Street Red Line Station and 127th Street. Figure 4.2 shows the total weekday boardings for CTA and Pace at each bus stop along the corridor.

Bus ridership on South Halsted has decreased in recent years, in line with systemwide trends. Table 4.7 shows October ridership at stops near major intersection along the corridor for CTA routes 8A and 108 and Pace routes 352 and 359 for each year between 2014 and 2017. The stop area aggregates boardings from several stops near the noted intersection of the corridor, which simplifies the results. Figure 4.3 shows the results graphically, including notable spikes in boardings along the corridor at key locations. The table and figure indicate that the 95th Red Line Station is by far the most common place to board, highlighting the importance for connections to CTA rail. There are several other popular bus transfers, especially to buses providing east-west service, including connecting buses at 111th and 119th Streets. There are also connections to Metra at the Gresham, West Pullman, and Harvey Stations.

TABLE 4.6: AVERAGE WEEKDAY BOARDINGS WITHIN CORRIDOR BY ROUTE AND TIME OF DAY (OCTOBER 2017)

Agency	Route/ Direction	AM (6 - 9 am)	Midday (9 am - 3 pm)	PM (3 - 6 pm)	Evening (6 - 10 pm)	Late Night/Owl 10 pm - 6 am	Total Ridership	Percent of Corridor
CTA	**108**	**406**	**135**	**483**	**209**	**28**	**1,262**	**11%**
CTA	North	293	55	186	77	21	633	5%
CTA	South	112	80	297	133	7	629	5%
CTA	**8A**	**655**	**1,349**	**737**	**262**	**34**	**3,038**	**26%**
CTA	North	405	737	320	126	8	1,597	14%
CTA	South	250	612	418	136	26	1,441	12%
Pace	**352**	**1,212**	**2,195**	**1,315**	**998**	**986**	**6,706**	**58%**
Pace	North	687	993	468	335	483	2,967	26%
Pace	South	525	1,201	846	663	504	3,740	32%
Pace	**359**	**111**	**175**	**156**	**148**	**33**	**622**	**5%**
Pace	North	17	16	6	5	4	48	0%
Pace	South	94	158	150	143	29	574	5%
	Total	**2,384**	**3,854**	**2,691**	**1,617**	**1,082**	**11,628**	**100%**
	North	**1,403**	**1,802**	**980**	**543**	**516**	**5,244**	**45%**
	South	**982**	**2,052**	**1,711**	**1,074**	**565**	**6,384**	**55%**
	Percent	21%	33%	23%	14%	9%		

Source: CTA and Pace

FIGURE 4.2 AVERAGE WEEKDAY BOARDINGS BY STOP (OCTOBER 2017)

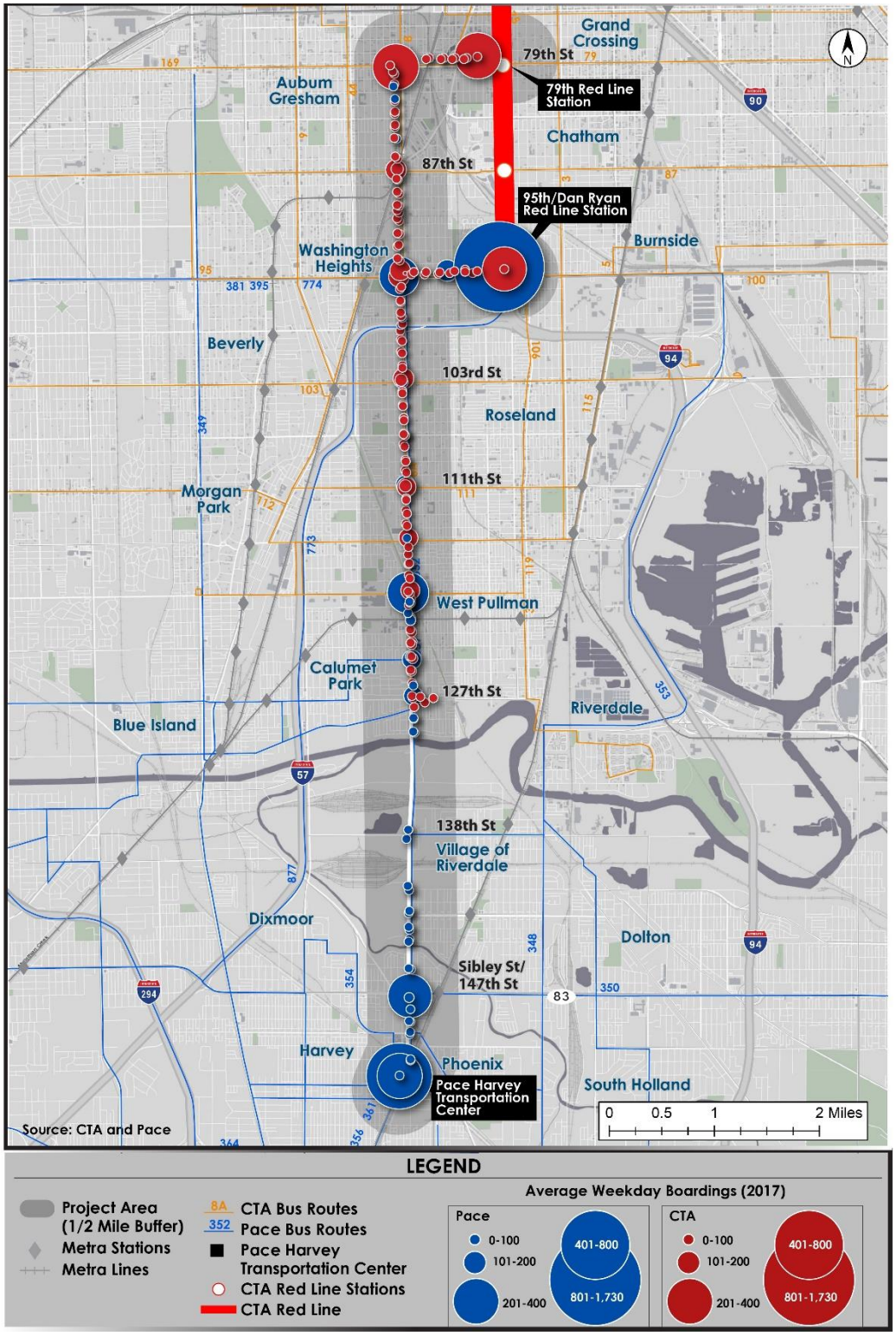
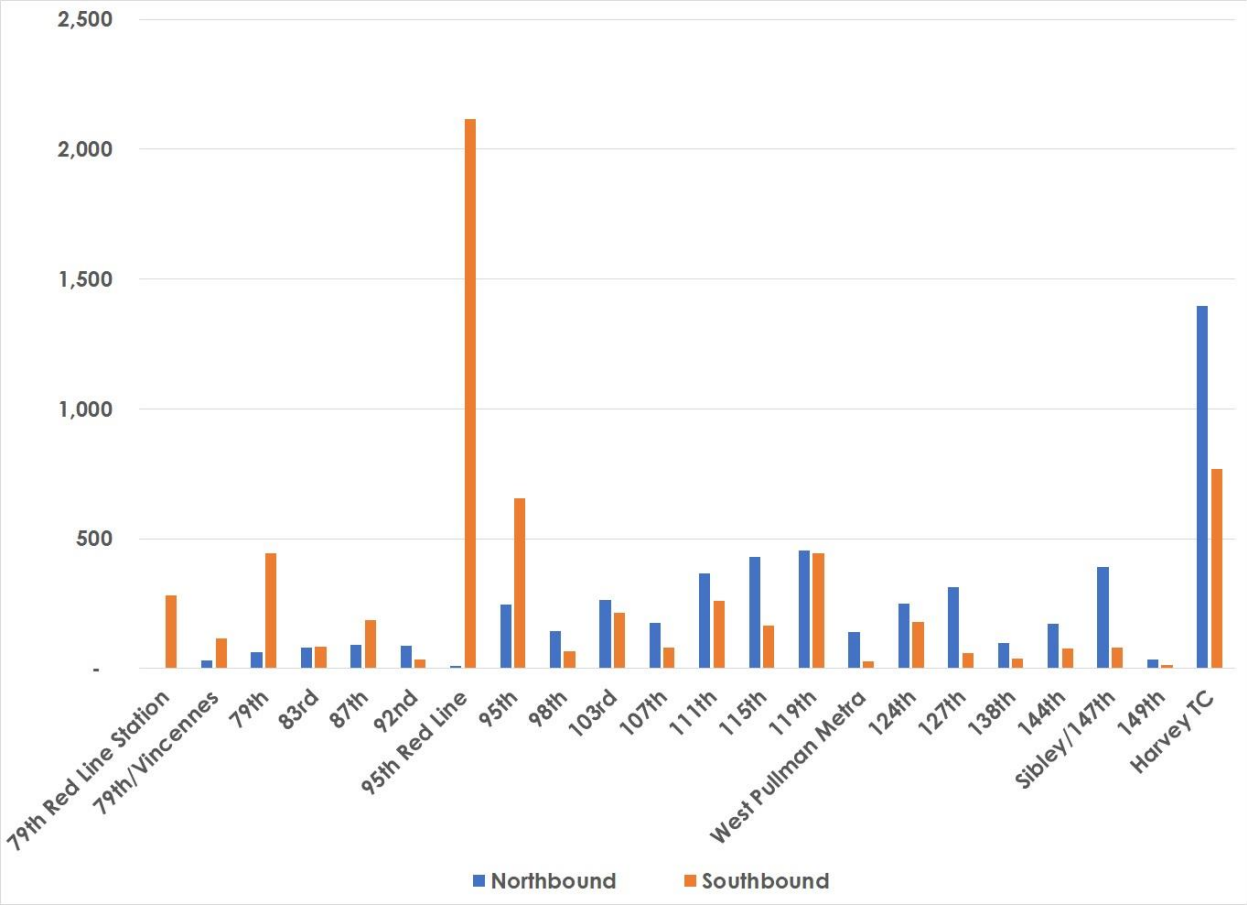


TABLE 4.7: AGGREGATED AVERAGE WEEKDAY BOARDINGS BY YEAR

Agency	Stop Area	2014	2015	2016	2017	Avg. Annual Change
CTA	79th Red Line Station	288	310	291	283	0%
CTA	79th/Vincennes	167	131	148	145	-4%
CTA	79th	658	638	551	508	-8%
CTA	83rd	193	204	169	163	-5%
CTA	87th	368	372	325	277	-9%
CTA	92nd	112	123	105	120	3%
CTA & Pace	95th Red Line	2,629	2,551	2,363	2,128	-7%
CTA & Pace	95th	794	753	623	902	7%
CTA & Pace	98th	233	244	200	210	-3%
CTA & Pace	103rd	555	549	477	477	-5%
CTA & Pace	107th	279	306	227	255	-1%
CTA & Pace	111th	659	666	612	625	-2%
CTA & Pace	115th	702	634	573	593	-5%
CTA & Pace	119th	688	633	593	901	13%
CTA & Pace	West Pullman Metra	111	114	120	167	16%
CTA & Pace	124th	370	346	280	430	9%
CTA & Pace	127th	372	365	385	371	0%
Pace	138th	168	136	109	134	-6%
Pace	144th	144	127	118	250	31%
Pace	Sibley/147th	442	393	378	473	3%
Pace	149th	26	22	15	48	58%
Pace	Harvey TC	1,312	1,151	1,018	2,168	30%
Total		**11,270**	**10,770**	**9,679**	**11,628**	**2%**

Source: CTA and Pace, October 2014-2017

FIGURE 4.3: AVERAGE WEEKDAY BOARDINGS BY STOP AREA (OCTOBER 2017)



Source: CTA and Pace, October 2017

Bus ridership on these routes varies by direction and time of day. Table 4.8 shows the number of boardings by stop and direction. The table highlights the degree to which Red Line Stations, especially the 95th Street Red Line Station, comprises the majority of the southbound boardings. Conversely, northbound boardings are more evenly distributed throughout the corridor with presumably a significant number of riders alighting at Red Line stations.

Figure 4.4 shows the average load by stop during the peak periods in the peak direction for CTA Routes 8A and 108. The figure shows that bus loads build as passengers head north in the morning. Route 108 generally builds as it heads north, then empties at its terminus at the 95th Red Line Station. Loads on the 8A begin to decrease after 92nd Street. This suggests that while there may be some customers riding the corridor from end to end, many customers are alighting along South Halsted Street, with customers using the routes to connect from bus to bus, bus to Metra, or bus to CTA rail. The figure also shows the reverse occurring southbound in the afternoon. Passenger loads increase on Route 8A until 87th Street, then begin to decline after

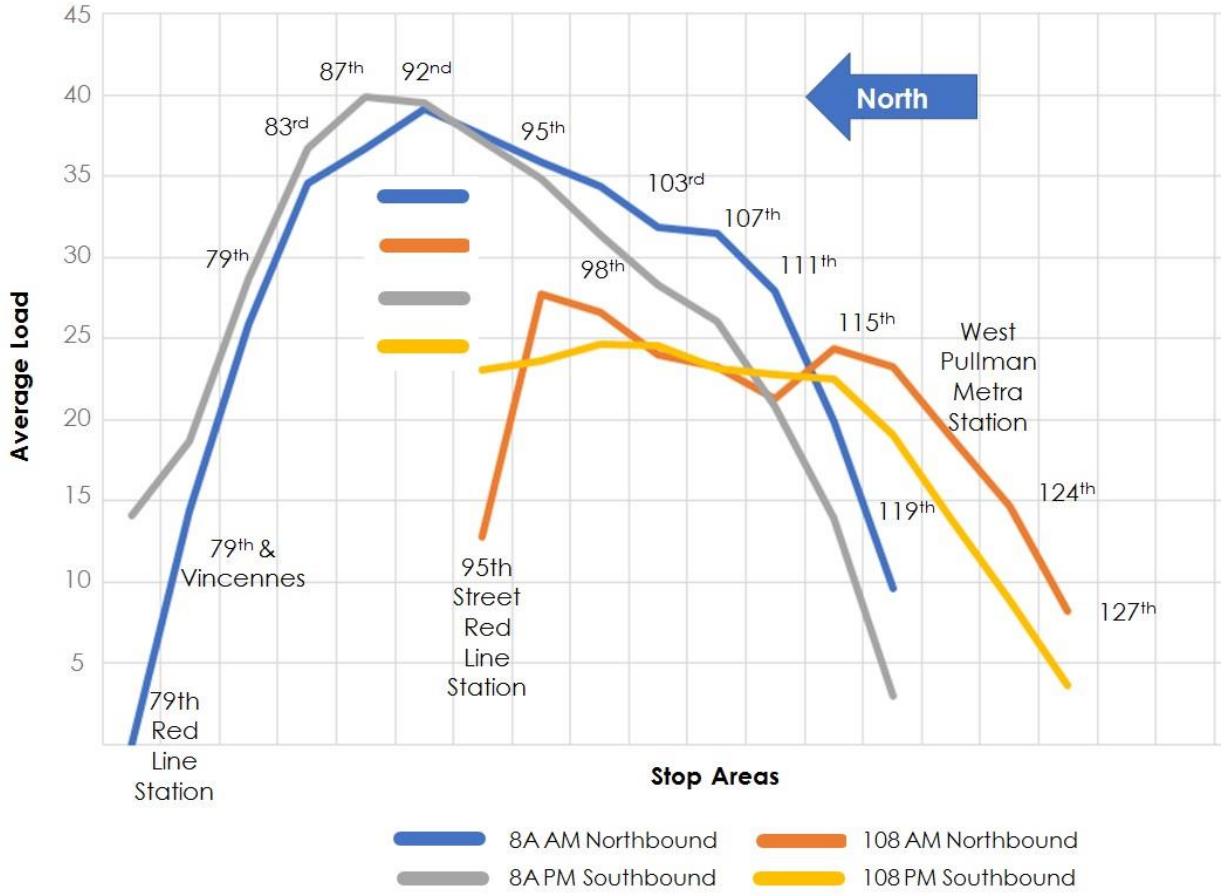
92nd Street. On Route 108, loads are at their maximum at or shortly after 95th Street, then decrease as the bus heads south.

TABLE 4.8: AVERAGE WEEKDAY BOARDINGS BY STOP AREA AND DIRECTION (OCTOBER 2017)

Stop	North	South
79th Red Line Station	0	282
79th/Vincennes	32	114
79th	64	444
83rd	80	84
87th	91	186
92nd	87	34
95th Red Line Station	11	2,116
95th	247	654
98th	144	66
103rd	262	216
107th	176	79
111th	367	259
115th	428	166
119th	455	445
West Pullman Metra	139	28
124th	251	179
127th	314	58
138th	97	38
144th	173	77
Sibley/147th	392	81
149th	36	12
Harvey TC	1,398	770
Total	**5,2434**	**6,385**

Source: CTA and Pace, October 2017

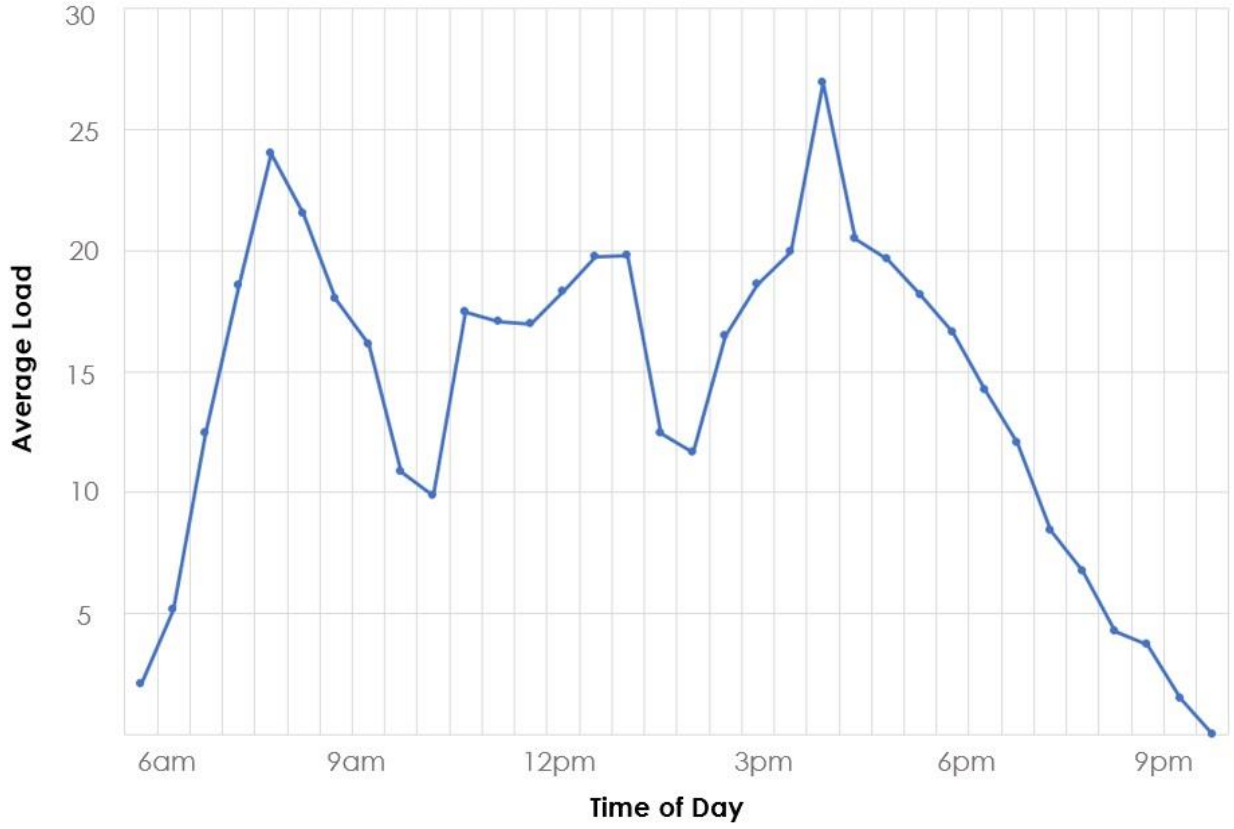
FIGURE 4.4: CTA AVERAGE WEEKDAY LOAD BY STOP AREA



Source: CTA, October 2017

Figure 4.5 shows similar CTA loads for routes 8A and 108 by time of day. The graph shows clear spikes in ridership during the morning and afternoon peaks as well as a more subtle and prolonged midday peak. Each point represents hours and half hours of the day during which CTA operates service.

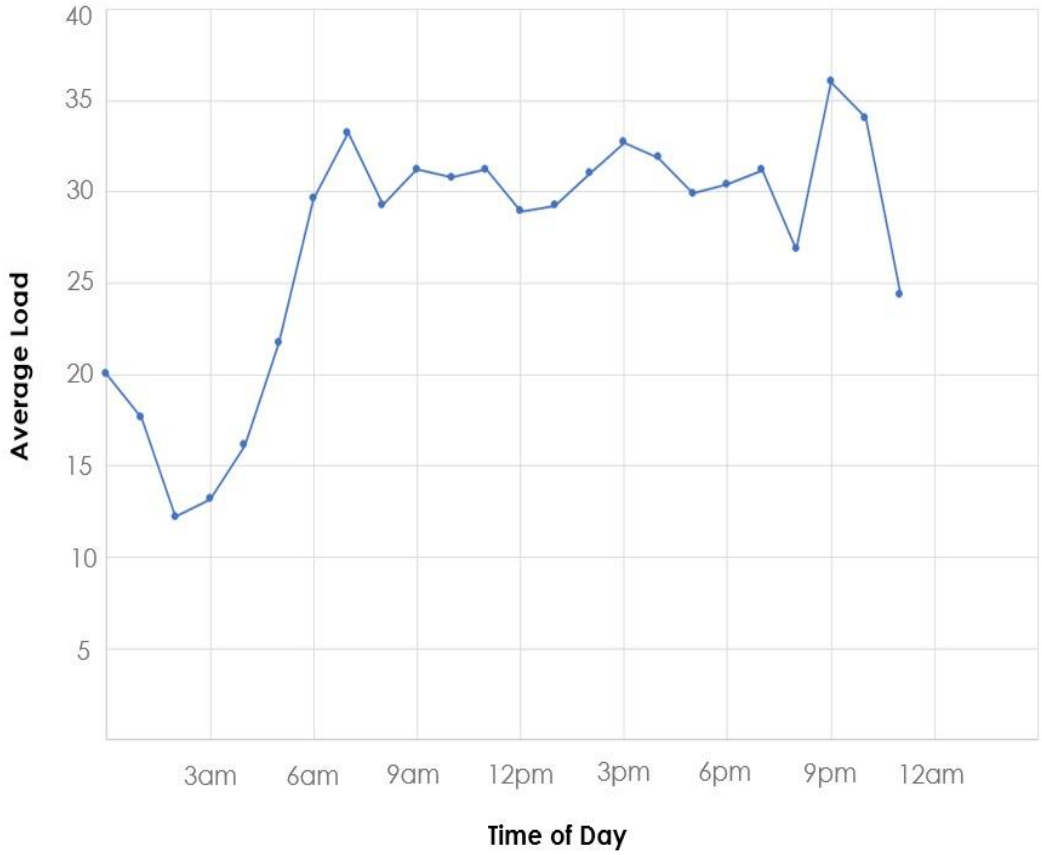
FIGURE 4.5: CTA WEEKDAY AVERAGE LOAD BY TIME (BOTH DIRECTIONS)



Source: CTA, October 2017

Figure 4.6 shows the average maximum load by time of day for Pace routes operating in the corridor, including routes 352 and 359. Each point represents hours of the day during which Pace operates service. The figure uses Pace's average *max* load, which is slightly different from the CTA average load data in Figure 4.5, however the data again shows the periods of highest ridership occur during the morning and afternoon peaks with a more sustained midday peak.

FIGURE 4.6: PACE WEEKDAY AVERAGE MAX LOAD BY TIME



Source: Pace, October 2017

ORIGIN & DESTINATION PATTERNS

In 2017, CTA conducted an origin-destination (OD) survey of bus and rail system users. Respondents were recruited both online via email and onboard buses and trains. Respondents who took the survey online were given the opportunity to report additional trips, whereas those recruited onboard only reported information about their current trip. Of the 261 surveyed trips that used CTA Routes 108 or 8A for at least part of the trip, Table 4.9 shows the trip purpose and the average number of transfers required to complete the journey.

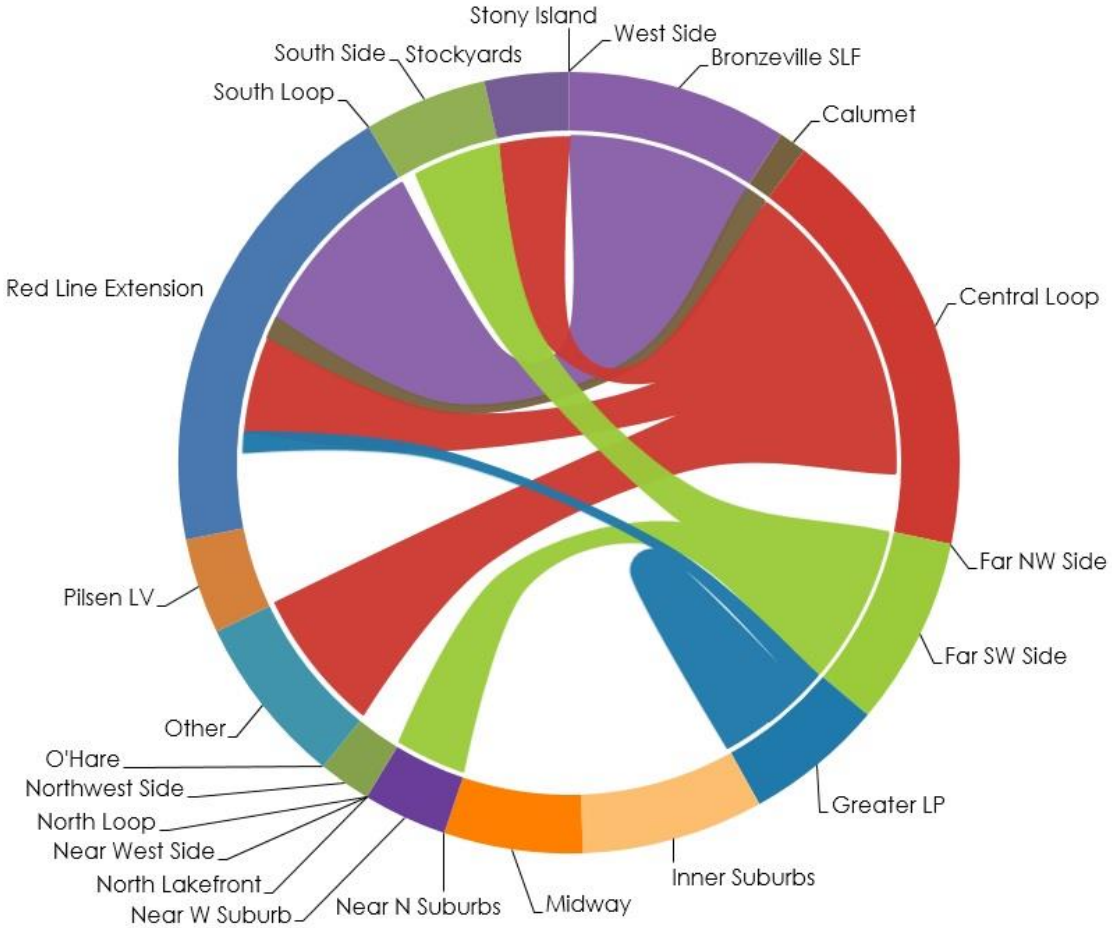
TABLE 4.9: SURVEY TRIPS BY TYPE AND TRANSFERS REQUIRED

Type	Trips	Avg. Transfers
Work	29%	1.24
Home	35%	1.34
School	9%	1.13
Medical Service / Hospital (non-work)	2%	1.33
Personal business / Errands / Shopping	15%	1.13
Recreation / Social / Other	10%	0.88
Total	**100%**	**1.21**

Source: CTA

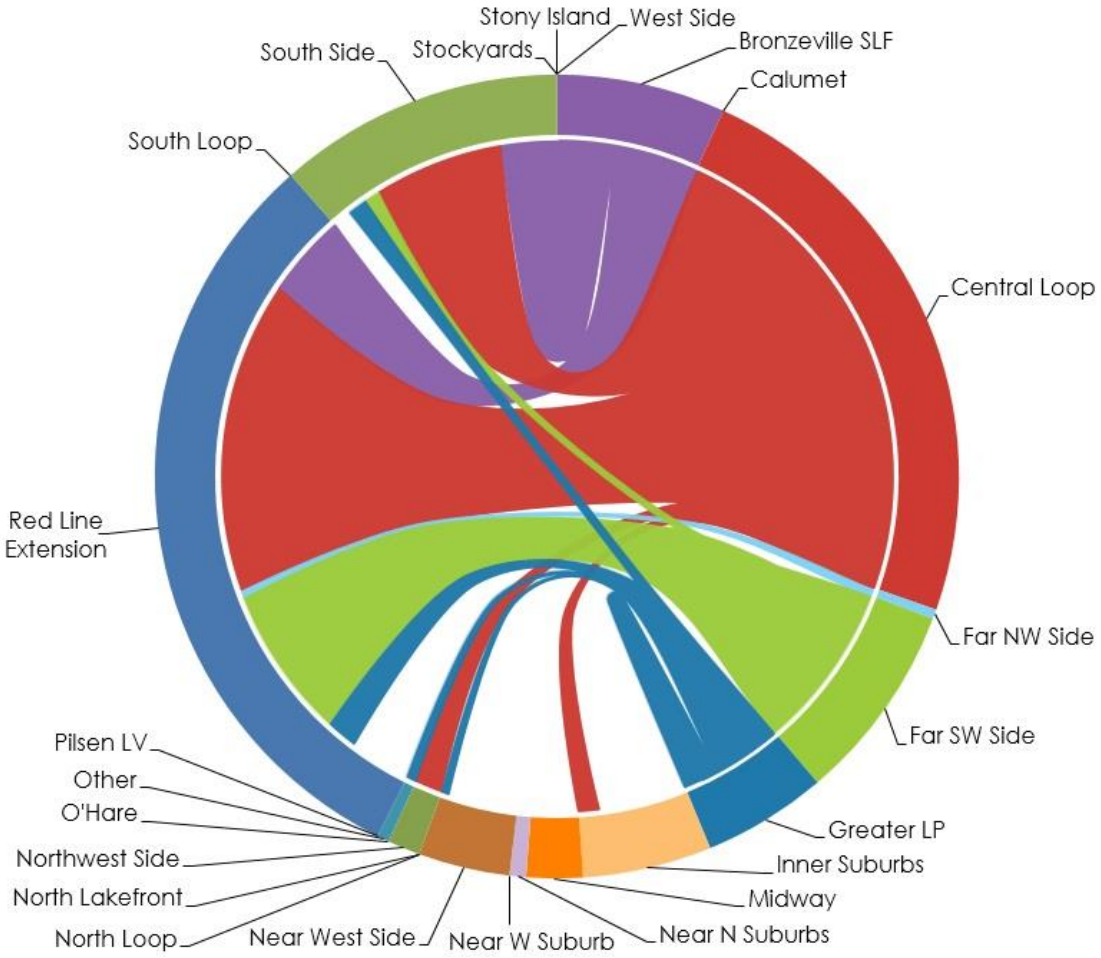
Figure 4.7 and Figure 4.8 show chord charts that visualize flows between Chicago neighborhoods for trips using the route 8A and 108. The circumference of each circle represents the total weighted trips and each component within the chart is scaled accordingly. In Figure 4.7, trips are organized by productions zone. It highlights the number of trips produced along the South Halsted Corridor including the adjacent Red Line Extension area, Far SW Side, and Bronzeville as well as the Central Loop. Similarly, Figure 4.8 organizes trips by attraction zone. It shows the large quantity of trips to the Central Loop, along the Red Line Extension area, and to a lesser extent, Bronzeville.

FIGURE 4.7: PRODUCTION-ATTRACTION CHORD DIAGRAM (BY PRODUCTION ZONE)



Source: CTA

FIGURE 4.8: PRODUCTION-ATTRACTION CHORD DIAGRAM (BY ATTRACTION ZONE)



Source: CTA

Table 4.10 shows the average number of transfers per weekday in 2017 that involved either CTA routes 108 and 8A or Pace routes 352 and 359 buses. The table is color coded to highlight the frequency of transfers with darker blue representing a high number of transfers and lighter blue representing a low number of transfers. Transfers that did not involve one of the corridor's four primary routes were not included in this estimate. The highest number of transfers were to the CTA rail network at the 95th Street Red Line Station. The most popular bus-to-bus transfers were between the Pace 352 and the 350 and 364 as well as between the CTA 8A and 79. Pace Route 352 also had significant transfers to CTA Routes 8A, 95, and 111. The CTA 8A had a significant number of transfers to the CTA 8 and 87. It should also be noted that riders on Route 8A, 108, 352, and 359 pay cash approximately 13, 9, 17, and 18 percent of the time, respectively. When using a Ventra Card, transfer fees between routes are $0.25 for CTA and

$0.30 for Pace. There are no transfers available for cash paying customers. Cash customers must pay an entirely new fare for each additional leg.

TABLE 4.10: AVERAGE TRANSFERS PER WEEKDAY BETWEEN CORRIDOR ROUTES AND OTHER ROUTES (2017)

First Tap / Second Tap	CTA Rail - Rail Network	CTA 8	**CTA 8A**	CTA 24	CTA 29	CTA 34	CTA 79	CTA 87	CTA 95	CTA 100	CTA 103	CTA 106	**CTA 108**	CTA 111	CTA 112	CTA 115	CTA 119	Pace 348	Pace 349	Pace 350	**Pace 352**	Pace 353	Pace 354	Pace 356	**Pace 359**	Pace 364	Pace 381	Pace 877	Pace 890
79th St Rail Station			135										1								1								
95th St Rail Station			3										240								882				223				
CTA 8			167										2								1				1				
CTA 8A	88	156		14	6	1	178	108	49	1	37	1	35	61	15	45	42	2	2	1	69	1	4	1	14	2	25		
CTA 24			14																		1								
CTA 29			8										6								21				4				
CTA 34			1										5								8				3				
CTA 79			164										1								1				1				
CTA 87			116										2								1				1				
CTA 95			61										23								63				11				
CTA 100			1										4								6				2				
CTA 103			38										13								21				3				
CTA 106			1										4								6				5				
CTA 108	234		44	1	6	3	1	2	25	2	17	4		28	4	20	18	1	1	1	24	1			5	1	10		
CTA 111			66										29								71				4				
CTA 112			23										3								6				2				
CTA 115			35										25								42				5				
CTA 119			44										29								47				15				
Pace 348			1										1								12				3				
Pace 349			1										2								65				14				
Pace 350			1																		206				2				
Pace 352	933	2	67	1	24	10	2	2	68	5	26	6	19	72	7	44	54	17	64	200		8	31	70	17	143	35	2	13
Pace 353			1										1								8				2				
Pace 354			1																		27				6				
Pace 356			1										2								75				8				
Pace 359	211	1	10		6	3	1	1	12	3	2	5	4	3	1	4	17	4	17	2	20	2	6	8		36	5	2	2
Pace 364			2										1								169				37				
Pace 381			34										7								36				6				
Pace 877																					1				4				
Pace 890																					9				1				

Source: CTA Ventra transactions

EXISTING LOCAL BUS PERFORMANCE

Weekday Travel Times

Bus performance was evaluated based on existing local bus speeds and schedule adherence. As a starting point in this analysis, Table 4.11 and Table 4.12 highlight weekday scheduled travel of times for CTA and Pace routes operating along the corridor, respectively. For each route, direction, and time period, the respective tables list the scheduled time points for a typical trip. For example, Table 4.11 shows that CTA Route 8A has a trip which is scheduled to begin service at 7:24 AM weekday mornings and arrive at the 79th Red Line Station at 7:57 am for a total travel time of 33 minutes. For each route, only available time points (e.g. a transit stop that a vehicle tries to reach at a scheduled time; time points are used by CTA and Pace to track schedule adherence) along the South Halsted Corridor were included in the table. CTA does not provide late night, known as "owl" service, for these routes.

TABLE 4.11: REPRESENTATIVE CTA CORRIDOR RUN TIMES BY TIME PERIOD

Route	Direction	Time Point	AM	Midday	PM	Evening
8A	North	Halsted & 120th St	7:24 AM	12:10 PM	5:39 PM	8:40 PM
		Halsted & 103rd St	7:35 AM	12:21 PM	5:49 PM	8:49 PM
		Halsted & 95th St	7:41 AM	12:26 PM	5:55 PM	8:54 PM
		Halsted & 87th St	7:46 AM	12:30 PM	5:59 PM	8:58 PM
		79th Red Line Station	7:57 AM	12:41 PM	6:10 PM	9:07 PM
		8A N Total Runtime	**33 min**	**31 min**	**31 min**	**27 min**
	South	79th Red Line Station	7:28 AM	12:11 PM	5:12 PM	8:05 PM
		Halsted & 87th St	7:39 AM	12:22 PM	5:26 PM	8:15 PM
		Halsted & 95th St	7:43 AM	12:27 PM	5:32 PM	8:19 PM
		Halsted & 103rd St	7:48 AM	12:32 PM	5:38 PM	8:23 PM
		Halsted & 120th St	7:59 AM	12:43 PM	5:51 PM	8:33 PM
		8A S Total Runtime	**31 min**	**32 min**	**39 min**	**28 min**
108	North	Halsted & 111th St	7:51 AM	2:14 PM	5:15 PM	8:38 PM
		Halsted & 103rd St	7:57 AM	2:19 PM	5:19 PM	8:41 PM
		95th Red Line Station	8:11 AM	2:27 PM	5:29 PM	8:50 PM
		108 N Total Runtime	**20 min**	**13 min**	**14 min**	**12 min**
	South	95th Red Line Station	7:25 AM	2:00 PM	5:24 PM	8:33 PM
		Halsted & 103rd St	7:33 AM	2:08 PM	5:34 PM	8:42 PM
		Halsted & 111th St	7:37 AM	2:12 PM	5:38 PM	8:46 PM
		108 S Total Runtime	**12 min**	**12 min**	**14 min**	**13 min**

Source: CTA

TABLE 4.12: REPRESENTATIVE PACE CORRIDOR RUN TIMES BY TIME PERIOD

Route	Direction	Time Point	AM	Midday	PM	Evening	Owl
352	North	Harvey TC	7:25 AM	12:00 PM	5:35 PM	8:45 PM	2:15 AM
		Halsted & 127th St	7:38 AM	12:12 PM	5:47 PM	8:56 PM	2:24 AM
		Halsted & 111th St	7:46 AM	12:21 PM	5:55 PM	9:03 PM	2:31 AM
		95th Red Line Station	8:00 AM	12:35 PM	6:09 PM	9:16 PM	2:43 AM
		352 N Total Runtime	**35 min**	**35 min**	**34 min**	**31 min**	**28 min**
	South	95th Red Line Station	7:25 AM	12:05 PM	5:35 PM	8:06 PM	2:09 AM
		Halsted & 111th St	7:35 AM	12:17 PM	5:47 PM	8:18 PM	2:20 AM
		Halsted & 127th St	7:43 AM	12:26 PM	5:56 PM	8:27 PM	2:28 AM
		Harvey TC	7:55 AM	12:40 PM	6:10 PM	8:40 PM	2:40 AM
		352 S Total Runtime	**30 min**	**35 min**	**35 min**	**34 min**	**31 min**
359	North	Halsted & 119th St	7:57 AM	11:52 AM	5:12 PM	8:41 PM	12:22 AM
		95th Red Line Station	8:10 AM	12:06 PM	5:26 PM	8:55 PM	12:32 AM
		359 N Total Runtime	**13 min**	**14 min**	**14 min**	**14 min**	**10 min**
	South	95th Red Line Station	7:32 AM	12:27 PM	5:34 PM	8:10 PM	
		Halsted & 119th St	7:47 AM	12:42 PM	5:48 PM	8:24 PM	
		359 S Total Runtime	**15 min**	**15 min**	**14 min**	**14 min**	

Source: Pace

Table 4.13 shows the combined weekday scheduled run time for a bus operating in the corridor. To provide an operational snapshot for the entire corridor, the table averages all available scheduled run times between time points regardless of route, including both the 79th Street and 95th Street sections of the corridor. Note that owl service run times are significantly shorter partially due to no service being provided to the 79th Street Red Line station during these hours. The table shows scheduled run times between various points along the corridor throughout the day in both directions. Average delay is also included. The table shows that PM southbound and AM northbound travel times are longer than other trips, particularly when factoring in delay.

TABLE 4.13: COMBINED RUN TIME IN THE CORRIDOR IN MINUTES

			Southbound					Northbound				
Segment Start	**Segment End**	**Distance (miles)**	**AM Peak**	**Mid-day**	**PM Peak**	**Even-ing**	**Owl**	**AM Peak**	**Mid-day**	**PM Peak**	**Even-ing**	**Owl**
79th Red Line	Halsted & 87th	2.0	11.0	11.3	14.0	11.0		10.7	11.0	11.0	9.7	
Halsted & 87th	Halsted & 95th	1.0	4.0	4.7	6.0	4.3		5.0	4.0	4.0	4.0	
95th Red Line	Halsted & 95th	1.0	4.0	3.9	4.1	3.9	3.7	5.1	4.1	4.3	4.0	4.0
Halsted & 95th	Halsted & 103rd	1.0	4.2	4.1	4.5	4.0	3.7	5.3	4.3	4.6	4.2	4.0
Halsted & 103rd	Halsted & 111th	1.0	4.3	4.2	4.2	4.0	3.7	4.4	4.1	3.9	3.4	4.0
Halsted & 111th	Halsted & 119th	1.0	4.5	4.4	4.5	4.1	3.9	3.7	3.8	3.6	3.3	3.4
Halsted & 119th	Halsted & 120th	0.1	0.6	0.6	0.7	0.6	0.5	0.5	0.5	0.5	0.4	0.4
Halsted & 120th	Halsted & 127th	0.9	3.5	4.0	4.0	4.0	3.5	3.3	3.6	3.2	2.9	3.1
Halsted & 127th	Harvey TC	3.7	12.0	14.0	14.0	13.0	12.0	12.7	12.0	12.0	11.0	9.0
Total Scheduled Run Time		**11.7**	**48.1**	**51.3**	**56.0**	**48.9**	**31.0**	**50.7**	**47.5**	**47.0**	**42.8**	**28.0**
Delay			**1.5**	**1.2**	**4.2**	**3.7**	**-**	**2.6**	**1.8**	**2.7**	**2.6**	**-**
Total with Delay		**11.7**	**49.6**	**52.5**	**60.1**	**52.6**	**31.0**	**53.3**	**49.2**	**49.7**	**45.5**	**28.0**

Weekday Bus Speed

Table 4.14 translates weekday run times shown in Table 4.13 to speed. The table shows that the slowest overall speeds are in the PM peak southbound direction (11.7 miles per hour including delay), followed by AM peak northbound direction. Regardless of the distance traveled, overnight buses can achieve average speeds over 20 miles per hour when few cars are on the road and fewer passengers require pick up.

Using this data, Figure 4.9 and Figure 4.10 show the average bus speed for routes in the corridor for the peak period hour, peak direction. Figure 4.9 shows AM peak northbound; Figure 4.10 shows PM peak southbound. The figures show that CTA and Pace move well south of 103rd street northbound during the morning peak and south of 95th for southbound trips in the PM peak. The slowest speeds occur PM southbound where on average buses run about two miles per hour slower (10 minutes total for the trip) than during the morning in that direction, as previously shown in Table 4.13.

TABLE 4.14: COMBINED BUS SPEED IN THE CORRIDOR

			Southbound (mph)					Northbound (mph)				
Segment Start	Segment End	Distance (miles)	AM	Mid-day	PM	Evening	Owl	AM	Mid-day	PM	Evening	Owl
79th Red Line	Halsted & 87th	2	11	11	8.6	11		11	11	11	12	
Halsted & 87th	Halsted & 95th	1	15	13	10	14		12	15	15	15	
95th Red Line	Halsted & 95th	1	15	15	15	16	16	12	15	14	15	15
Halsted & 95th	Halsted & 103rd	1	14	15	13	15	16	11	14	13	14	15
Halsted & 103rd	Halsted & 111th	1	14	14	14	15	16	14	15	15	18	15
Halsted & 111th	Halsted & 119th	1	13	14	13	15	15	16	16	17	18	17
Halsted & 119th	Halsted & 120th	0.1	13	12	12	13	15	16	15	17	19	17
Halsted & 120th	Halsted & 127th	0.9	15	14	14	14	15	16	15	17	19	17
Halsted & 127th	Harvey TC	3.7	19	16	16	17	19	18	19	19	20	25
Average Speed (Schedule)		**12**	**15**	**14**	**13**	**14**	**23**	**14**	**15**	**15**	**16**	**25**
Average Speed (Including Delay)		**12**	**14**	**13**	**12**	**13**	**23**	**13**	**14**	**14**	**16**	**25**

FIGURE 4.9 AVERAGE BUS SPEED – AM PEAK NORTHBOUND

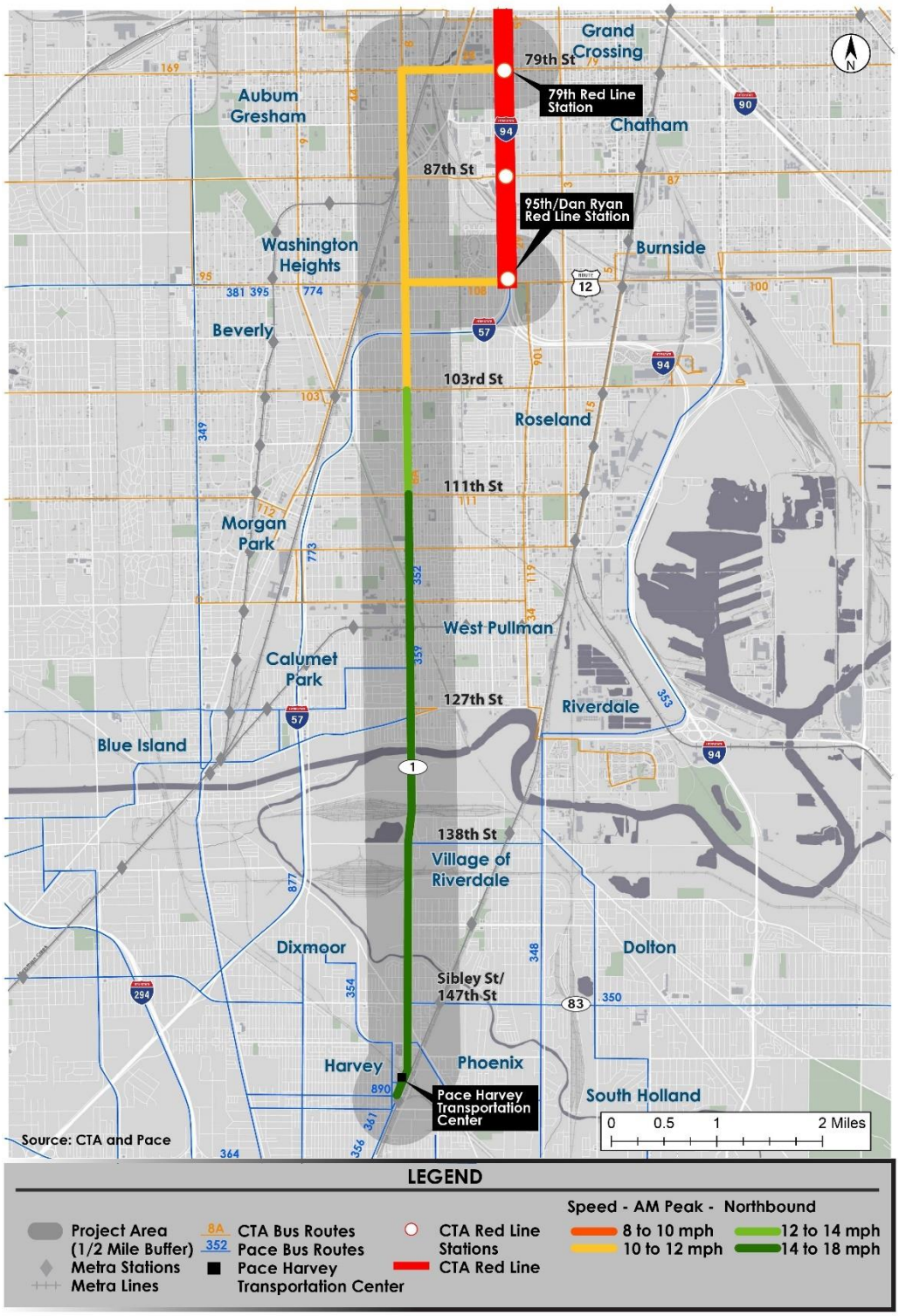
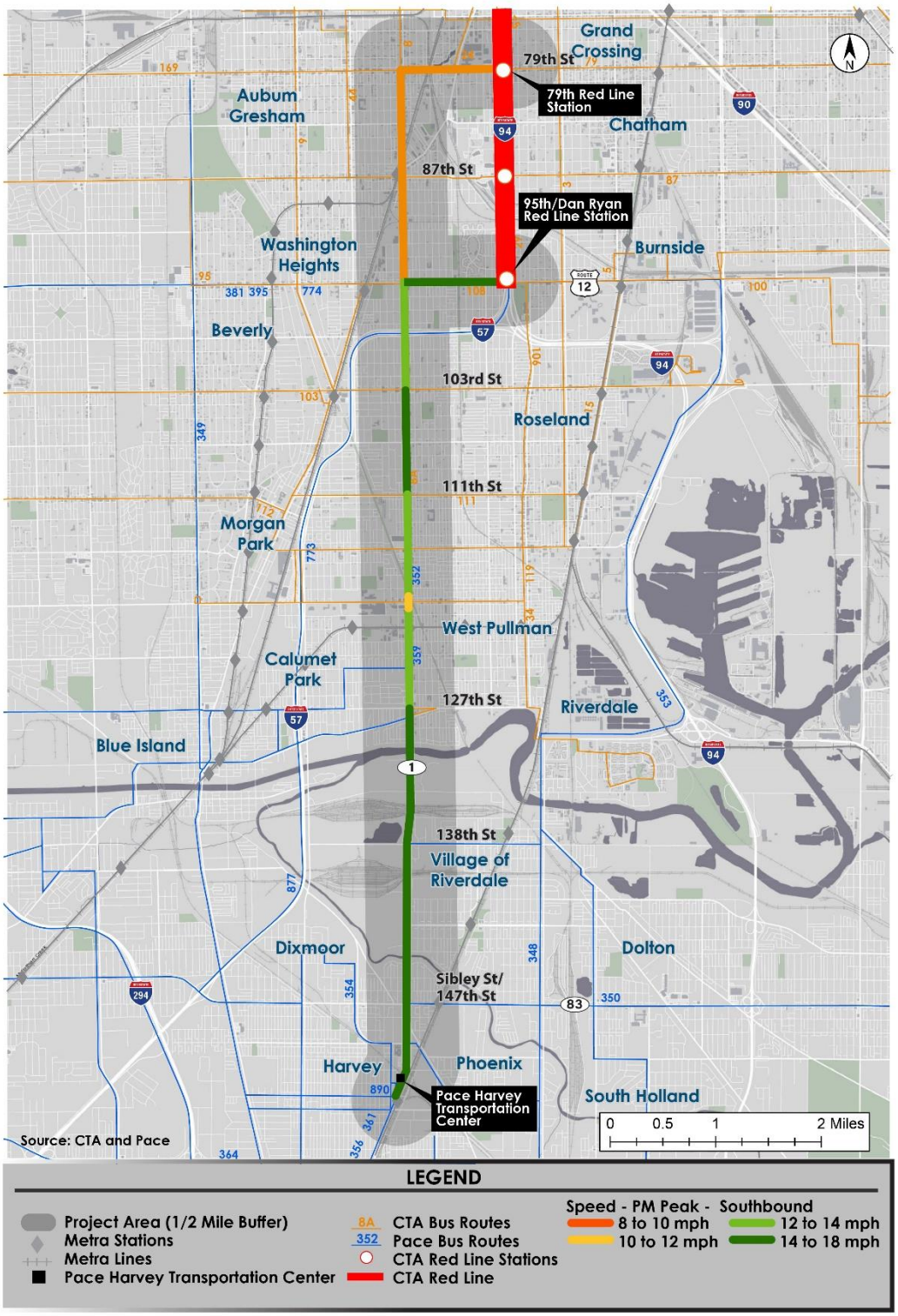


FIGURE 4.10 AVERAGE BUS SPEED – PM PEAK SOUTHBOUND



On Time Performance

Table 4.15 and Table 4.16 show the average number of minutes that CTA and Pace weekday trips in the corridor, are either early or late. Since a trip can begin running late before it enters the corridor, all available time points are included as part of the trip before it enters the corridor. However, only time points in the corridor are labeled. Positive numbers represent the bus running late; negative numbers represent the bus running early. CTA and Pace consider individual buses "on time" if they are no more than one minute early or five minutes late. However, the goal of this analysis is to note trends in where buses consistently run faster or slower than the scheduled runtime. A color scale from green (early/on-time) to red (very late) is used to highlight these trends. Layover arrival times are not included.

Table 4.15 shows that Route 108 buses tend to run a few minutes late in both directions in the afternoon through the evening. Table 4.16 highlights that PM peak and evening off-peak trips on both Routes 352 and 359 often run late, though it is notable that many of these trips are already running late when they enter the South Halsted Corridor in the northbound direction. Afternoon southbound trips from the 95th Red Line Station on both routes also tend to run behind schedule, with buses averaging over five minutes late as they pass Halsted & 111th.

Table 4.17 and Table 4.18 highlight the percent of weekday trips on the CTA and Pace routes that were early or on time by route, direction, and time of day. One hundred percent indicates that all weekday trips were on time or early. The charts are colored coded with green symbolizing more on time trips and red symbolizing fewer on time trips. Table 4.17 shows the tendency for route 108 to run late in the evening hours. Table 4.18 highlights the degree to which trips run late in the PM peak and evening off-peak. Approximately half of the southbound trips are on time in the PM peak. Northbound PM peak, northbound evening off-peak, and southbound evening off-peak trips are on time less than 70 percent of the time.

Table 4.19 shows the standard deviation of arrival times for weekday trips on CTA routes 8A and 108 by direction, and time of day. Standard deviation measures the amount of variation of bus arrival times. Lower standard deviations (green) indicate that buses tend to arrive around the same time from day-to-day, while higher standard deviations (red) indicate that buses are arriving at differing times from day-to-day. Customers prefer more predictable and regular arrival times. Once again, route 108 shows consistently higher standard deviations during the evening hours in both directions. The 108 AM northbound in the midday and evening also shows unusually high deviations. This data was only available for CTA trips.

In each table, Table 4.15 to Table 4.19, blank cells indicate that no data is available or the time point is not applicable to the period of day.

TABLE 4.15: CTA 108 & 8A – AVERAGE WEEKDAY MINUTES EARLY (-) / LATE (+) BY ROUTE, DIRECTION, AND TIME OF DAY (OCTOBER 2017)

Direction	Route	Time Point	AM	Midday	PM	Evening	Owl
North	108	5 - 95th Red Line Station	0.4	2.9	2.8	3.5	
		6 - Halsted & 95th	2.2	4.8	4.2	4.8	
		7 - Halsted & 103rd	2.0	4.0	3.5	4.6	0.2
		8 - Halsted & 111th	2.3	4.6	4.1	4.6	1.1
		10	1.7	3.4	3.5	4.2	1.9
		11					
	8A	1 - 79th & Perry	1.1	(0.0)	(0.2)	0.5	
		2 - 79th & Emerald	2.0	0.8	0.5	1.4	
		3 - 82 & Vincennes					
		4 - 87th & Halsted	2.2	1.3	0.5	1.8	
		6 - Halsted & 95th	2.1	1.3	0.8	1.7	
		7 - Halsted & 103rd	1.9	1.1	0.7	1.7	
		8 - Halsted & 111th	1.8	1.3	1.1	1.8	
		9 - 120th & Halsted	1.1	2.2	1.0	1.9	(0.1)
		10					
South	108	5 - 95th Red Line Station					
		6 - Halsted & 95th	2.7	4.6	3.3	4.3	
		7 - Halsted & 103rd	2.5	5.7	4.7	4.7	2.0
		8 - Halsted & 111th	2.4	4.8	5.7	5.2	4.2
	8A	1 - 79th & Perry	1.0	0.9	0.8	0.6	0.3
		2 - 79th & Emerald	0.9	1.2	0.8	0.8	0.6
		3 - 82 & Vincennes		1.0	1.3		
		4 - 87th & Halsted	0.9	1.2	1.2	0.8	0.6
		6 - Halsted & 95th	1.2	1.1	2.1	1.4	0.9
		7 - Halsted & 103rd	1.2	1.1	3.2	2.8	0.6
		8 - Halsted & 111th	1.1	1.3	3.3	3.2	1.0
		9 - 120th & Halsted	0.2	1.1	3.3	2.1	(0.0)

Source: CTA

TABLE 4.16: PACE 352 & 359 – AVG MINUTES EARLY (-) / LATE (+) BY ROUTE, DIRECTION, AND TIME OF DAY (WEEKDAYS 2017)

Direction	Route	Time Point	AM	Midday	PM	Evening	Owl
North	352	1 - 95th St Red Line Station	2.81	(0.21)	1.39	2.45	(0.13)
		2 - Halsted & 111th	2.63	2.08	3.38	3.85	2.08
		3 - Halsted & 127th	2.40	3.41	3.90	4.08	2.35
		4 - Harvey Transportation Center	(1.84)	(0.07)	2.30	1.89	(2.06)
		5	3.75	3.16	5.83	4.74	1.68
		6	3.92	3.22	4.85	4.63	2.43
		7	3.22	3.21	4.89	5.31	2.55
		8	2.12	2.31	3.75	5.25	3.89
		9					
	359	1 - 95th St Red Line Station	5.24	3.03	5.76	2.86	1.14
		2 - Halsted & 119th	3.71	4.25	6.67	4.97	1.80
		3	3.90	4.92	7.28	5.29	2.23
		4	1.71	2.96	4.74	4.21	1.49
		5	1.37	2.36	4.57	4.23	1.58
		6	1.25	2.05	4.19	3.86	1.26
		7	(0.06)	0.99	2.30	2.57	0.46
		8	0.81	1.81	3.65	4.37	1.82
		9	0.68	1.08	2.88	4.13	0.52
		10					
South	352	1 - 95th St Red Line Station					
		2 - Halsted & 111th	5.01	3.23	6.22	5.50	3.31
		3 - Halsted & 127th	3.75	1.64	5.03	3.92	(5.00)
		4 - Harvey TC	1.58	(2.31)	2.20	1.11	(5.00)
	359	1 - 95th St Red Line Station	0.94	(0.72)	5.24	(5.00)	(5.00)
		2 - Halsted & 119th	1.00	1.21	5.48	5.15	0.63

Source: Pace

TABLE 4.17: CTA 108 & 8A – PERCENT EARLY OR ON TIME WEEKDAY TRIPS BY ROUTE, DIRECTION, AND TIME OF DAY (OCTOBER 2017)

Direction	Route	Time Point	AM	Midday	PM	Evening	Owl
North	108	5 - 95th Red Line Station	100%	100%	100%	86%	
		6 - Halsted & 95th	100%	100%	100%	57%	
		7 - Halsted & 103rd	100%	100%	100%	57%	100%
		8 - Halsted & 111th	100%	100%	100%	71%	100%
		10	100%	100%	100%	57%	100%
		11		100%	100%		
	8A	1 - 79th & Perry	100%	92%	100%	100%	
		2 - 79th & Emerald	100%	92%	100%	100%	
		3 - 82 & Vincennes					
		4 - 87th & Halsted	100%	100%	100%	100%	
		6 - Halsted & 95th	100%	100%	100%	100%	
		7 - Halsted & 103rd	100%	100%	100%	100%	
		8 - Halsted & 111th	100%	100%	100%	100%	
		9 - 120th & Halsted	100%	100%	100%	100%	100%
		10		100%			
South	108	5 - 95th Red Line Station	100%	67%	100%	100%	
		6 - Halsted & 95th	100%	100%	100%	67%	
		7 - Halsted & 103rd	100%	100%	100%	50%	100%
		8 - Halsted & 111th	100%	100%	100%	67%	100%
	8A	1 - 79th & Perry	100%	100%	100%	100%	100%
		2- 79th & Emerald	100%	100%	100%	100%	100%
		3 - 82 & Vincennes		50%	50%		
		4 - 87th & Halsted	100%	100%	100%	100%	100%
		6 - Halsted & 95th	100%	100%	100%	100%	100%
		7 - Halsted & 103rd	100%	100%	100%	80%	100%
		8 - Halsted & 111th	100%	100%	100%	100%	100%

Source: CTA

TABLE 4.18: PACE 352 & 359 – PERCENT EARLY OR ON TIME WEEKDAY TRIPS BY ROUTE, DIRECTION, AND TIME OF DAY (OCTOBER 2017)

Direction	Route	Time Point	AM	Midday	PM	Evening	Owl
North	352	1 - 95th St Red Line Station	74%	91%	79%	79%	95%
		2 - Halsted & 111th	70%	76%	64%	63%	87%
		3 - Halsted & 127th	79%	68%	65%	68%	87%
		4 - Harvey TC	68%	53%	47%	58%	81%
		5	74%	78%	42%	60%	92%
		6	69%	74%	50%	60%	93%
		7	80%	80%	59%	56%	89%
		8	87%	88%	76%	58%	67%
		9	98%	100%	94%	76%	96%
	359	1 - 95th St Red Line Station	52%	77%	54%	72%	90%
		2 - Halsted & 119th	54%	62%	39%	55%	89%
		3	61%	61%	39%	58%	87%
		4	85%	69%	53%	67%	92%
		5	92%	78%	63%	67%	95%
		6	91%	70%	59%	68%	98%
		7	92%	77%	66%	71%	97%
		8	98%	93%	75%	62%	95%
		9	97%	92%	75%	58%	94%
		10	97%	92%	77%	54%	
South	352	1 - 95th St Red Line Station	92%	95%	93%	79%	93%
		2 - Halsted & 111th	57%	76%	45%	52%	76%
		3 - Halsted & 127th	66%	82%	48%	63%	83%
		4 - Harvey TC	77%	95%	71%	77%	92%
	359	1 - 95th St Red Line Station	69%	76%	25%	58%	89%
		2 - Halsted & 119th	88%	90%	49%	48%	94%

Source: Pace

TABLE 4.19: CTA 108 & 8A – STANDARD DEVIATION OF WEEKDAY ARRIVAL TIME BY ROUTE, DIRECTION, AND TIME OF DAY (OCTOBER 2017)

Direction	Route	Time Point	AM	Midday	PM	Evening	Owl
North	108	5 - 95th Red Line Station	3.47	4.16	4.16	5.26	
		6 - Halsted & 95th	2.83	5.21	4.09	5.20	
		7 - Halsted & 103rd	2.71	6.47	4.21	5.05	1.14
		8 - Halsted & 111th	2.47	6.70	4.36	5.04	1.54
		10	2.77	3.97	4.27	5.40	1.95
		11		1.29	0.80		
	8A	1 - 79th & Perry	2.45	3.23	2.85	3.34	
		2 - 79th & Emerald	2.40	3.07	2.37	2.88	
		3 - 82 & Vincennes					
		4 - 87th & Halsted	2.41	3.10	2.03	2.51	
		6 - Halsted & 95th	2.33	3.16	1.97	2.90	
		7 - Halsted & 103rd	1.97	3.01	1.65	2.93	
		8 - Halsted & 111th	1.97	2.91	1.54	3.17	
		9 - 120th & Halsted	1.76	2.80	1.33	3.44	0.13
		10		3.05			
South	108	5 - 95th Red Line Station	2.74	2.84	3.49	4.53	
		6 - Halsted & 95th	3.19	3.88	3.37	4.52	
		7 - Halsted & 103rd	2.93	2.60	3.57	5.08	1.85
		8 - Halsted & 111th	2.90	3.21	3.89	5.30	3.50
	8A	1 - 79th & Perry	2.63	2.42	1.49	1.41	1.18
		2- 79th & Emerald	2.26	2.81	1.73	1.84	1.23
		3 - 82 & Vincennes		1.51	0.48		
		4 - 87th & Halsted	2.37	3.03	2.39	2.03	0.69
		6 - Halsted & 95th	2.46	3.03	2.83	2.55	0.83
		7 - Halsted & 103rd	2.65	2.92	3.35	3.22	1.14
		8 - Halsted & 111th	2.64	2.81	3.39	3.12	1.13

Source: CTA

MULTI-MODAL CONNECTIONS

CTA and Metra Rail Service

Several connections to CTA and Metra rail stations are available throughout the corridor, as shown in Table 4.20. Metra rail service connects to the corridor via the Metra Electric (Harvey and West Pullman stations) and the Rock Island District (Gresham station) lines.

The Main Line of the Metra Electric provides service from University Park, Illinois to Millennium Station in the Chicago Loop, including service to the Harvey Metra Station. The Harvey Metra Station is located approximately 0.2 miles south of the Pace Harvey Transportation Center, which has been identified as the southern terminus for the South Halsted Corridor. Service to

the West Pullman station is provided via the Metra Electric's Blue Island Branch, which provides service between Blue Island, Illinois and Millennium Station. The Rock Island District Line provides service from Joliet, Illinois to the LaSalle Street Station in the Chicago Loop. Metra provides its most frequent service for commuters travelling in the peak direction weekday mornings and afternoons, though more limited reverse commute, off-peak, and weekend service is also provided. The Harvey, West Pullman, and Gresham stations all have commuter parking spaces available.

TABLE 4.20: CONNECTING RAIL SERVICE

Operator	Line	Station	Boardings	Alightings	Parking Spaces
Metra	Metra Electric	Harvey	640	744	828
Metra	Metra Electric	West Pullman	21	32	27
Metra	Rock Island District	Gresham	395	415	86
CTA	Red Line	79th Street	7,170	6,481	0
CTA	Red Line	95th Street/Dan Ryan	10,974	9,814	0

Source: Metra (2014)[5] and CTA (2017)[6]

CTA rail connections include Red Line service, which is the busiest among CTA rail lines. The Red Line provides north-south service in Chicago, from Howard Station on the north side, through the Chicago Loop, south to 95th/Dan Ryan Station. 95th/Dan Ryan and/or the 79th Street Red Line stations have been identified as potential northern termini for the South Halsted Corridor. No parking is available at either station.

Bicycle and Trails

As noted previously in Table 2.1, bicycle lanes are located on Halsted Street between 79th Street and 85th Street. Chicago's Divvy bike share program includes three stations located near the project corridor including at 79th Street and State Street, 83rd Street and Wabash Avenue, and 87th Street and Wabash Avenue. Bicycle racks are located sporadically throughout the corridor. The Cal-Sag Trail follows the west side of South Halsted Street from the Little Calumet River to Frontage Road/Emerald Avenue. The Major Taylor Trail crosses South Halsted Street at West 119th Street.

The City of Chicago is conducting a pilot program to learn about the potential demand for dockless bikes and related impacts to the city, including how dockless bikeshare might assist in

[5] Metra, Commuter Rail System Station Boarding/Alighting Count, Train-by-Train Detail, Spring 2014; https://metrarail.com/sites/default/files/assets/about-metra/2014count_t-b-t10.pdf

[6] CTA, Monthly Ridership Report, October 2017; https://www.transitchicago.com/assets/1/6/Monthly_Ridership_2017-10.pdf

expanding biking options in areas not served by Divvy. Dockless bikeshare allows riders to begin and end their rides without needing a docking station, unlike Chicago's Divvy system. The dockless bikeshare pilot area includes all or part of Wards 6, 7, 8, 9, 10, 17, 19, 21, and 34 South of 79th Street and West of I-90 and will run from May 1 to November 1, 2018. Other cities are in various stages of identifying the role dockless bikeshare will play in their public and/or private bikeshare networks.[7]

[7] CDOT, Chicago Dockless Bikeshare Pilot Program, https://www.cityofchicago.org/content/dam/city/depts/cdot/Misc/Dockless_Bikeshare_Brief_abridged.pdf

5. Land Use & Parking

This section provides a summary of land uses, aldermanic wards, neighborhoods, and suburban government boundaries.

LAND USE

Land uses along the project corridor are mixed, with various residential, commercial, and industrial uses along Halsted Street, 95th Street, and 79th Street. In general, land directly adjacent to the corridor is primarily commercial, though areas around the corridor are largely residential. Land designated as forest preserve is located at the southern end of the corridor outside the Chicago city limits including Whistler Woods Forest Preserve in Riverdale and Kickapoo Meadows in Harvey.

Recent development projects within a half mile of the corridor include the renovation of the Woodson Regional Library and the Hancock House senior living center. Other prominent South Side developments include Gotham Greens Urban Farms, the Method Soap Production Plant, and a Whole Foods distribution center, as well as the Pullman National Monument. Other potential projects include the conversion of a West Pullman Elementary School into affordable senior apartments and a charter school in Chatham at 87th Street and Lafayette. Parcels located along Halsted Street near 103rd Street (northwest corner of intersection), 115th Street (northwest corner of intersection), and 119th Street (northwest/southwest corner of intersection) are actively being considered for potential new development. There are many vacant properties within a half mile of the corridor, including a total of 568 acres of vacant land and 293 parcels of at least ¼ acre that may be available for redevelopment opportunities. Enhanced transit service is an asset for communities and a potential attractor for redevelopment.

East of the Pace Harvey Transportation Center there are areas zoned for industrial land use and vacant areas. There are two railyards located west of Halsted Street between 134th Street and 142nd Street, encompassing approximately 400 acres. Areas characterized as mixed-use exist along Halsted Street from north of the Pace Harvey Transportation Center to 79th Street, and along 95th Street and 79th Street from Halsted Street to State Street. There are many commercial land uses, such as restaurants, stores, and strip malls along the project corridor. The largest vacant parcels along the corridor are zoned industrial or transportation/utilities and are mostly open space including around West Pullman and Harvey Metra stations. Additionally, there is a large vacant industrial parcel at 138th Street, though there is a retention pond at this site which may present some challenges to development.

The Chicago Metropolitan Agency for Planning (CMAP) 2013 land use data was used to inventory the uses in the project area. Figure 5.1 provides an overview of the primary land uses which include residential, commercial, industrial, and vacant land. Table 5.1 shows each land use as a percentage of the total area within one half mile of the project corridor. Data for Cook County are also shown for comparison.

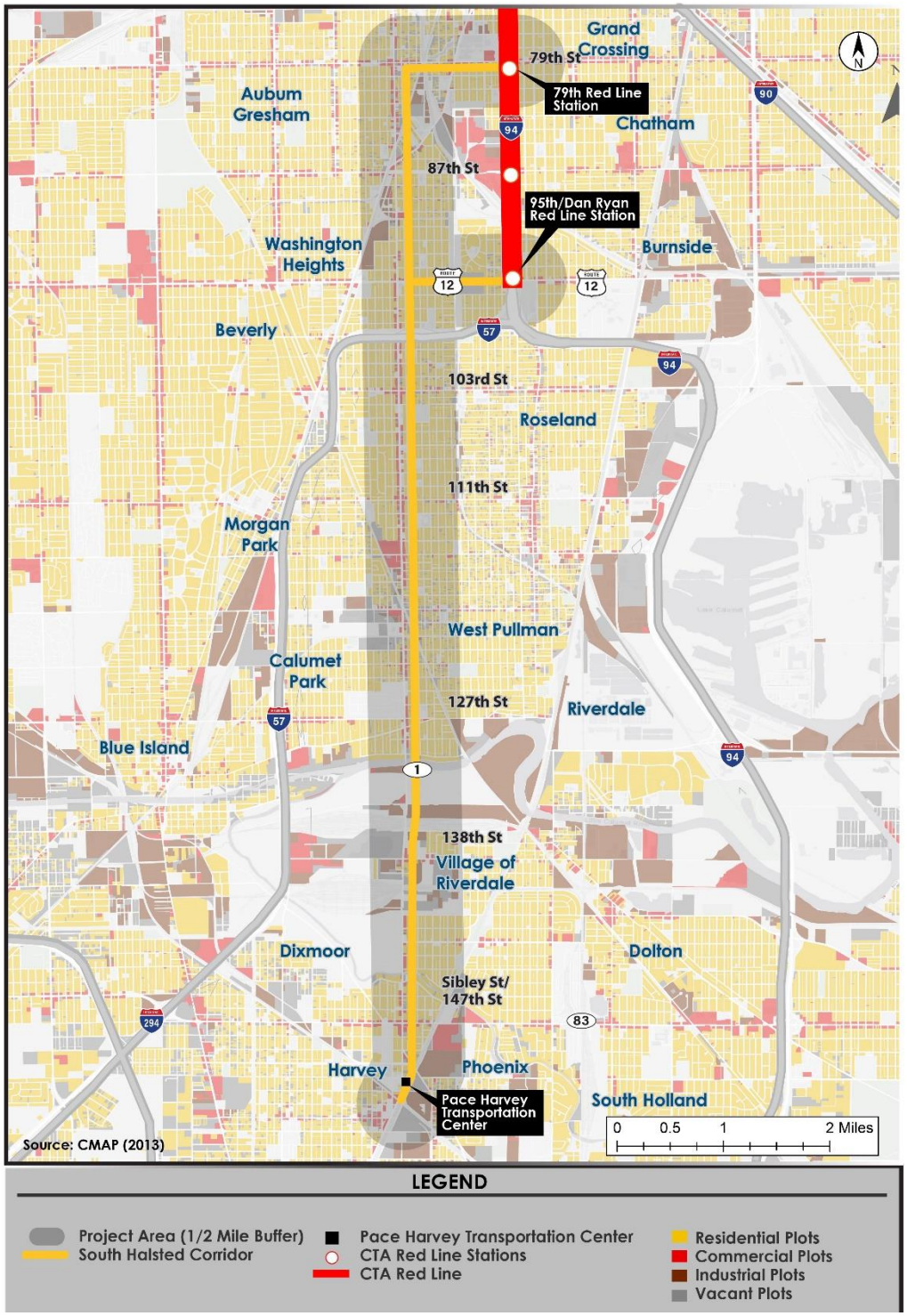
TABLE 5.1: LAND USE MIX STUDY AREA VS. COOK COUNTY

Land Use	Project Corridor	Cook County
Residential	51%	41%
Transportation/Utilities	13%	9%
Recreational/Open Space	10%	20%
Vacant	10%	5%
Institutional	7%	7%
Commercial/Mixed Use	5%	7%
Industrial	5%	7%
Agricultural	0%	4%

Source: CMAP Land Use 2013

Note: Percentages are rounded to the nearest percent and may not total to 100%

FIGURE 5.1: LAND USE THROUGHOUT THE PROJECT CORRIDOR



ALDERMANIC WARDS & NEIGHBORHOODS

The South Halsted Corridor crosses various political and community boundaries including:

- Five City of Chicago aldermanic wards: 6, 9, 17, 21, and 34 as shown in Figure 5.2
- Seven neighborhoods within the City of Chicago: Chatham, Roseland, West Pullman, Grand Crossing, Morgan Park, Auburn Gresham, and Washington Heights as shown in Figure 5.3
- Six municipalities outside the City of Chicago: Village of South Holland, Village of Phoenix, Village of Calumet Park, Village of Dolton, Village of Riverdale, and City of Harvey as shown in Figure 5.4
- Two townships: Thornton Township and Calumet Township, also shown in Figure 5.4.

FIGURE 5.2: ALDERMANIC WARDS OF CHICAGO

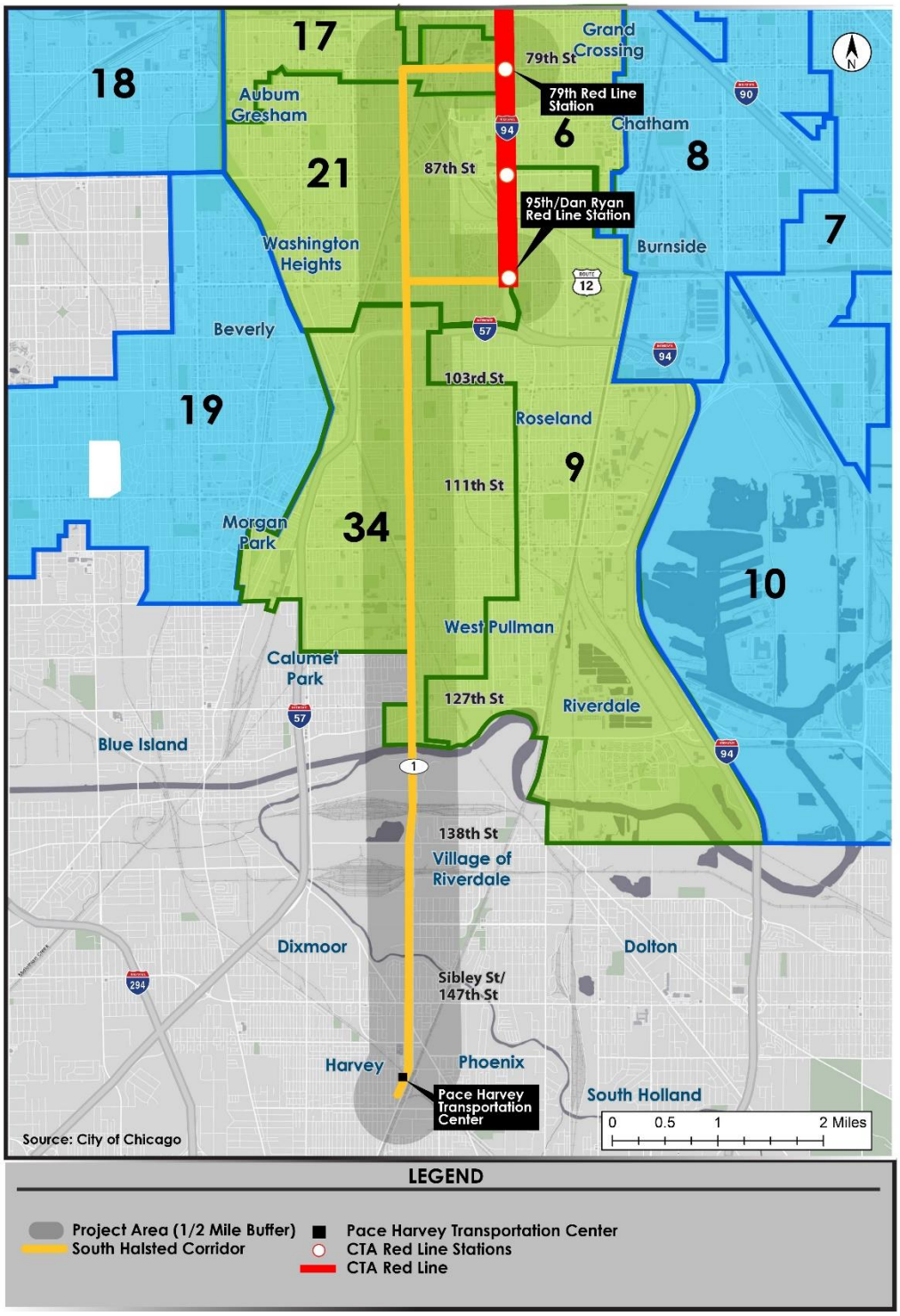


FIGURE 5.3: NEIGHBORHOODS IN CHICAGO

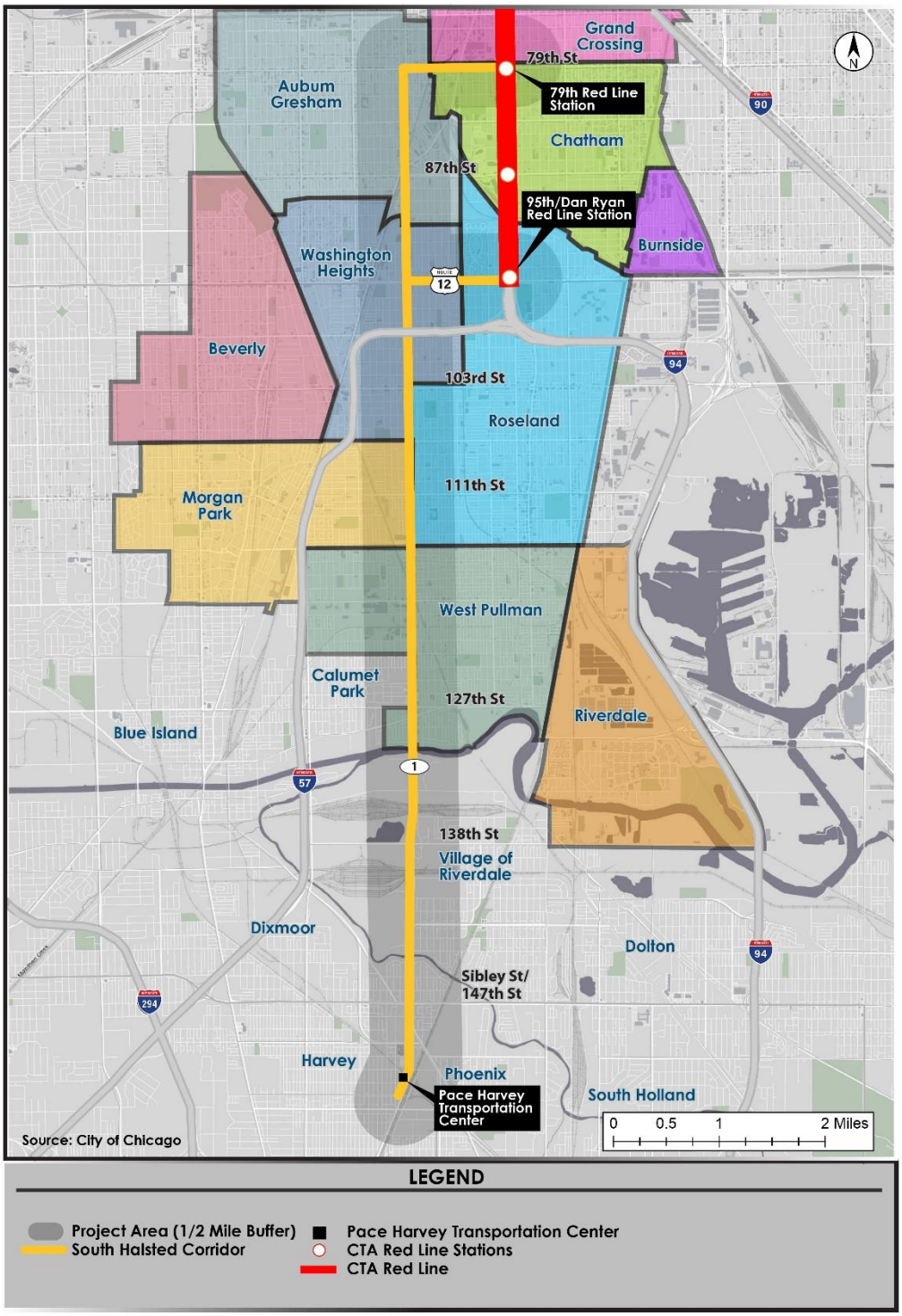
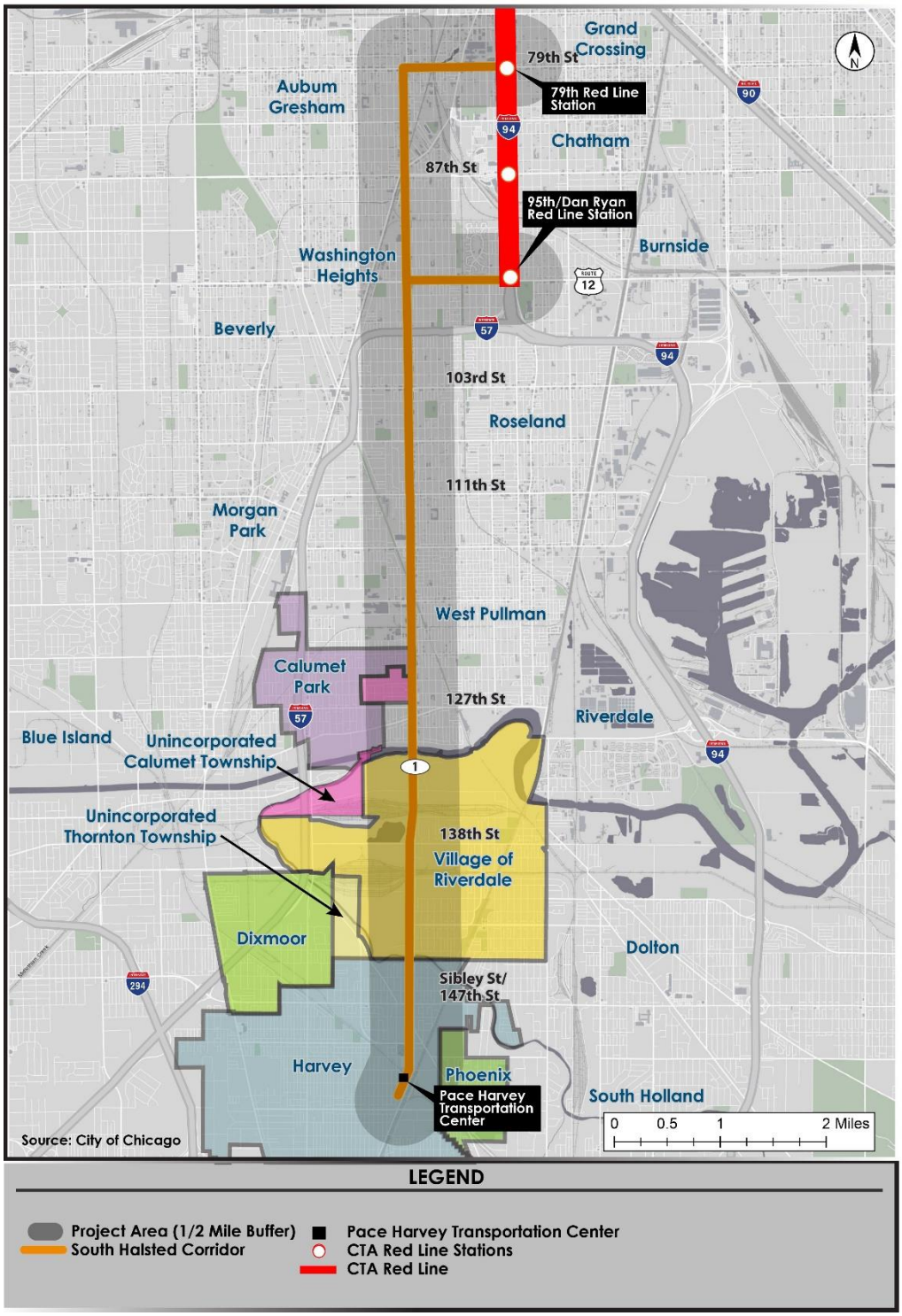


FIGURE 5.4: SUBURBAN AREAS OF COOK COUNTY



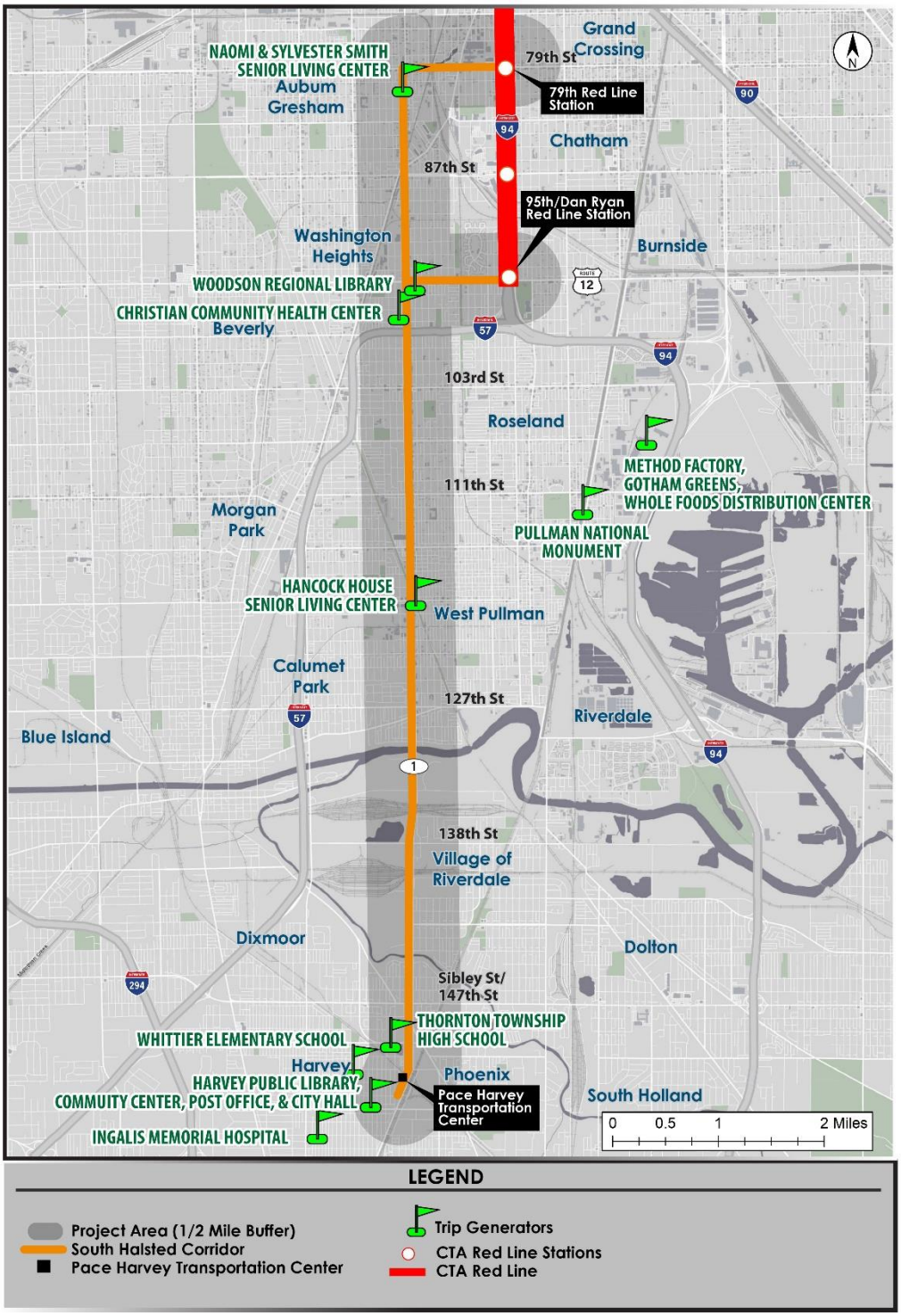
TRIP ATTRACTORS/GENERATORS

Schools, libraries, and hospitals exist along this corridor in addition to strip malls spread throughout. Below is a list of major trip generators and their locations, as shown in Figure 5.5:

- Ingalls Memorial Hospital – approximately one mile from the Pace Harvey Transportation Center
- Whittier Elementary School, Thornton Township High School, and Bryant Elementary School – near the Pace Harvey Transportation Center
- Harvey Public Library District, Harvey Community Center, Harvey Post Office, and Harvey City Hall – between 153rd Street and 155th Street, and Turlington Avenue and Broadway Avenue
- Christian Community Health Center – between 97th Street and 98th Street
- Naomi & Sylvester Smith Senior Living Center – between 80th Street and 81st Street
- Woodson Regional Library – at the corner of 95th Street and Halsted Street
- Hancock House Senior Living Center – between 120th Street and 122nd Street
- Pullman National Monument – east of Halsted Street at 112th Street and Cottage Grove Avenue
- Gotham Greens Urban Farms – east of Halsted Street at 111th Street
- Method Soap Production Plant – east of Halsted Street at 111th Street
- Whole Foods Distribution Center – east of Halsted Street at 111th Street

Potential trip-generating projects include the conversion of a West Pullman Elementary School into affordable senior apartments, as well as a charter school in the Chatham neighborhood at 87th Street and Lafayette Avenue.

FIGURE 5.5: TRIP GENERATORS

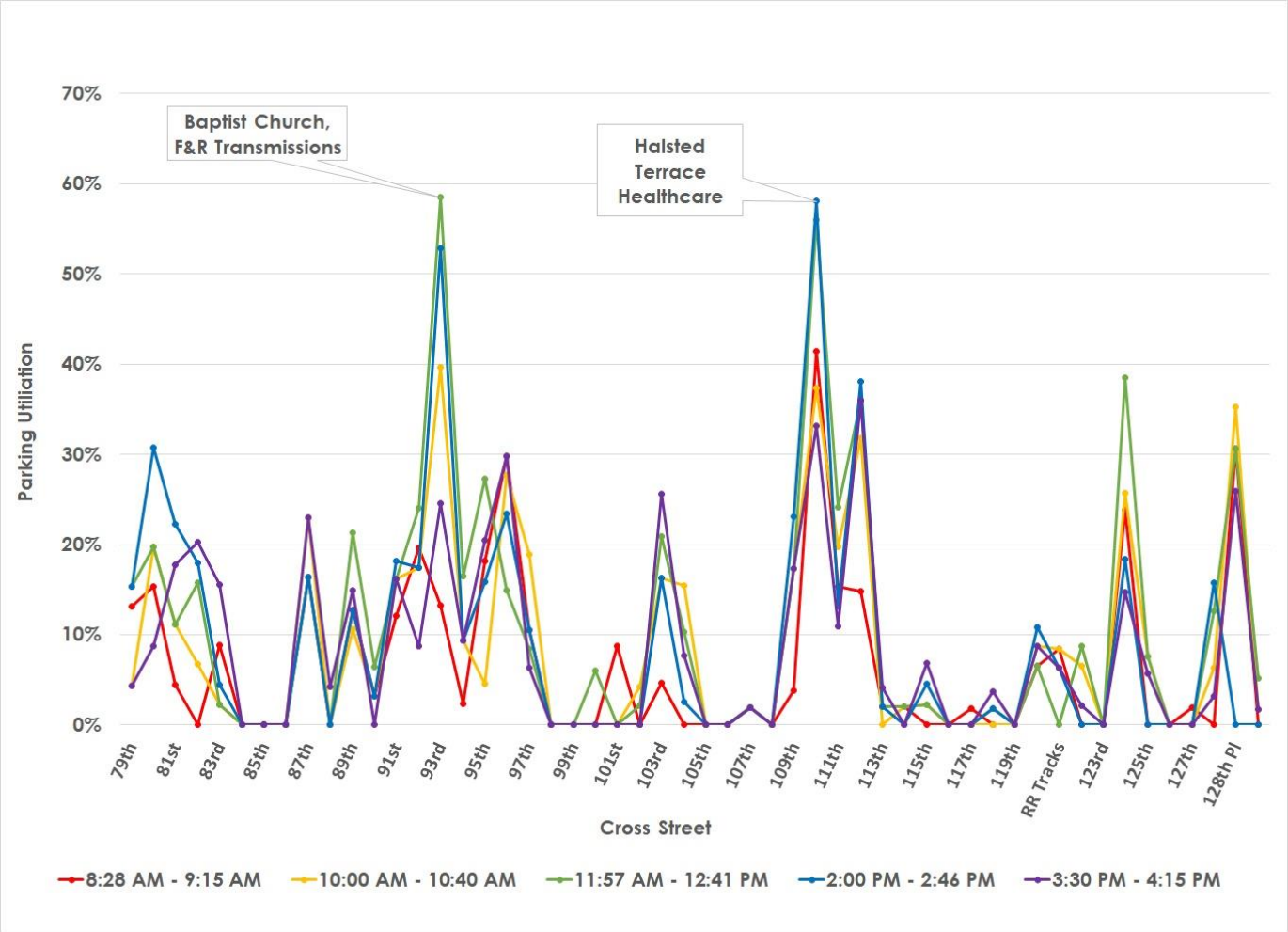


ON-STREET PARKING

To make informed decisions about parking tradeoffs, such as moving a bus stop, an inventory of available spaces was conducted. There are several different types of parking restrictions along the South Halsted Corridor, which includes approximately 2,000 total on-street parking spaces. About 88 percent of these spaces are open parking with a stipulation for no parking when over two inches of snow is present. Approximately 8 percent of spaces have some other type of restriction including no parking during peak hour periods (7-9 AM or 4-6 PM, Monday through Friday), and during evenings (10 PM-6 AM, Thursday through Sunday), Sundays (9 AM-9 PM, Sundays only), and handicapped-only parking. About four percent of spaces are paid parking including on 79th Street from Halsted Street to Emerald Avenue, as well as along Halsted Street from 79th Street to 80th Street. Other restrictions such as one taxi only parking and five loading zones in front of certain businesses can be found along the corridor.

On-street parking along Halsted Street varies based on the number and type of businesses nearby. Parking stalls are not striped, resulting in inefficient parking of vehicles because vehicles use more space than if parking spaces were delineated with paint. Actual vehicle parking on each block varies widely with 0 to 58 percent of spaces available, as shown in Figure 5.6. This figure illustrates the observed number of vehicles parked at different time periods throughout the day on October 4, 2018. The highest number of parked vehicles observed during a walkthrough of the corridor occurred near a Baptist church between 93rd and 94th Streets and the Halsted Terrace Healthcare Center located between 109th and 110th Streets. The percentage of utilization is based on block length of 590 feet and 25 feet per parking space. Additional parking utilization surveys may be performed as requested to provide supplemental data.

FIGURE 5.6: SOUTH HALSTED STREET ON-STREET PARKING UTILIZATION



6. Demographics

This section contains a description of the South Halsted Corridor's demographics related to population, households, and employment in the project area as it compares to broader Cook County.

POPULATION & HOUSEHOLDS

A demographic profile of the area near the project corridor was developed using census tracts through which the project corridor passes. This includes 38 census tracts, representing 127,688 residents and 55,015 housing units. Figure 6.1 and Figure 6.2 show population and household density, respectively, per square mile in the area surrounding the corridor, with darker areas showing higher density. Overall population density in the census blocks along the corridor is 6,461 per square mile, which is higher than the 5,506 persons per square mile for Cook County. Similarly, housing unit density is greater in the corridor (2,784 units per square mile) than in broader Cook County (2,317 units per square mile).

FIGURE 6.1: POPULATION PER SQUARE MILE

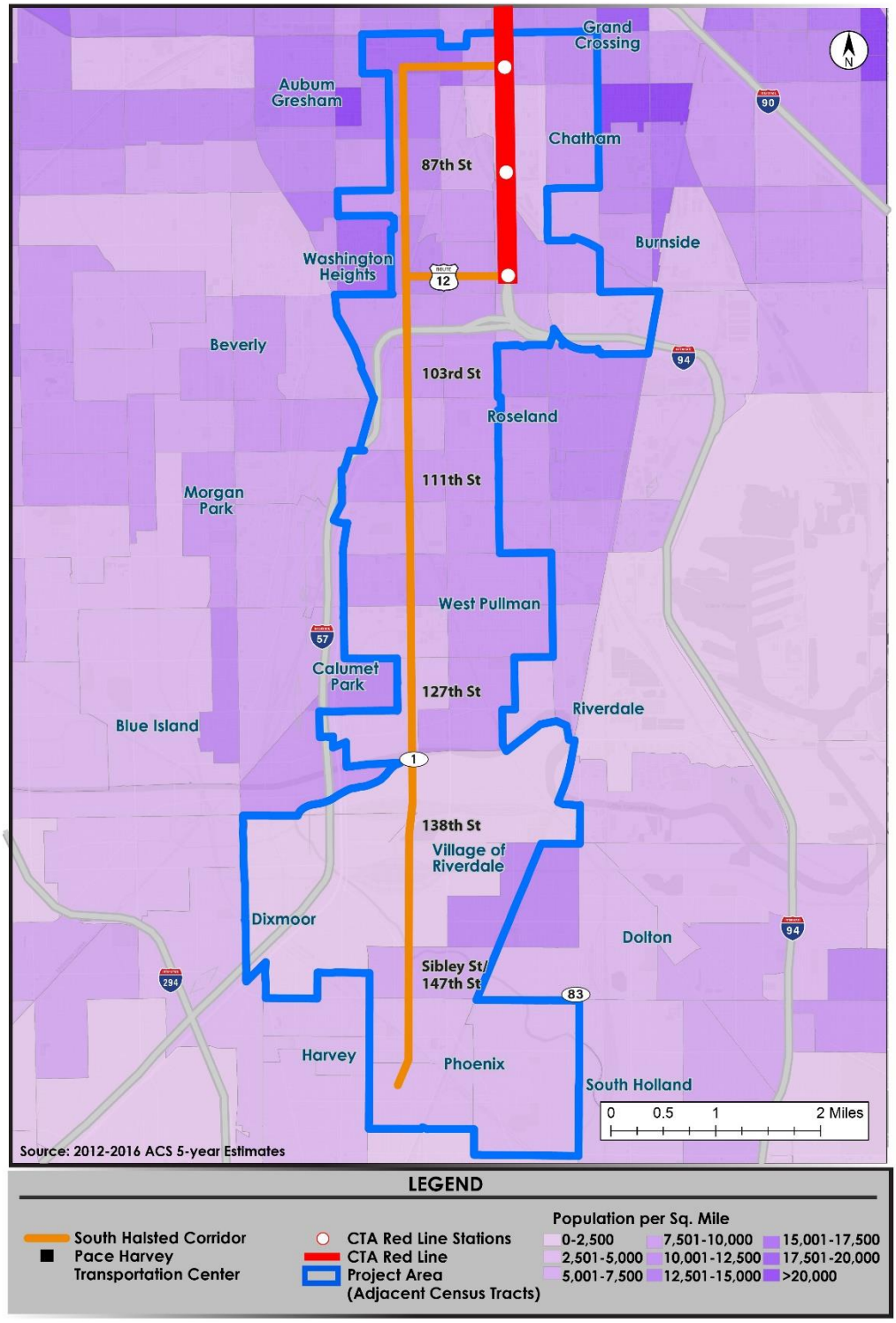
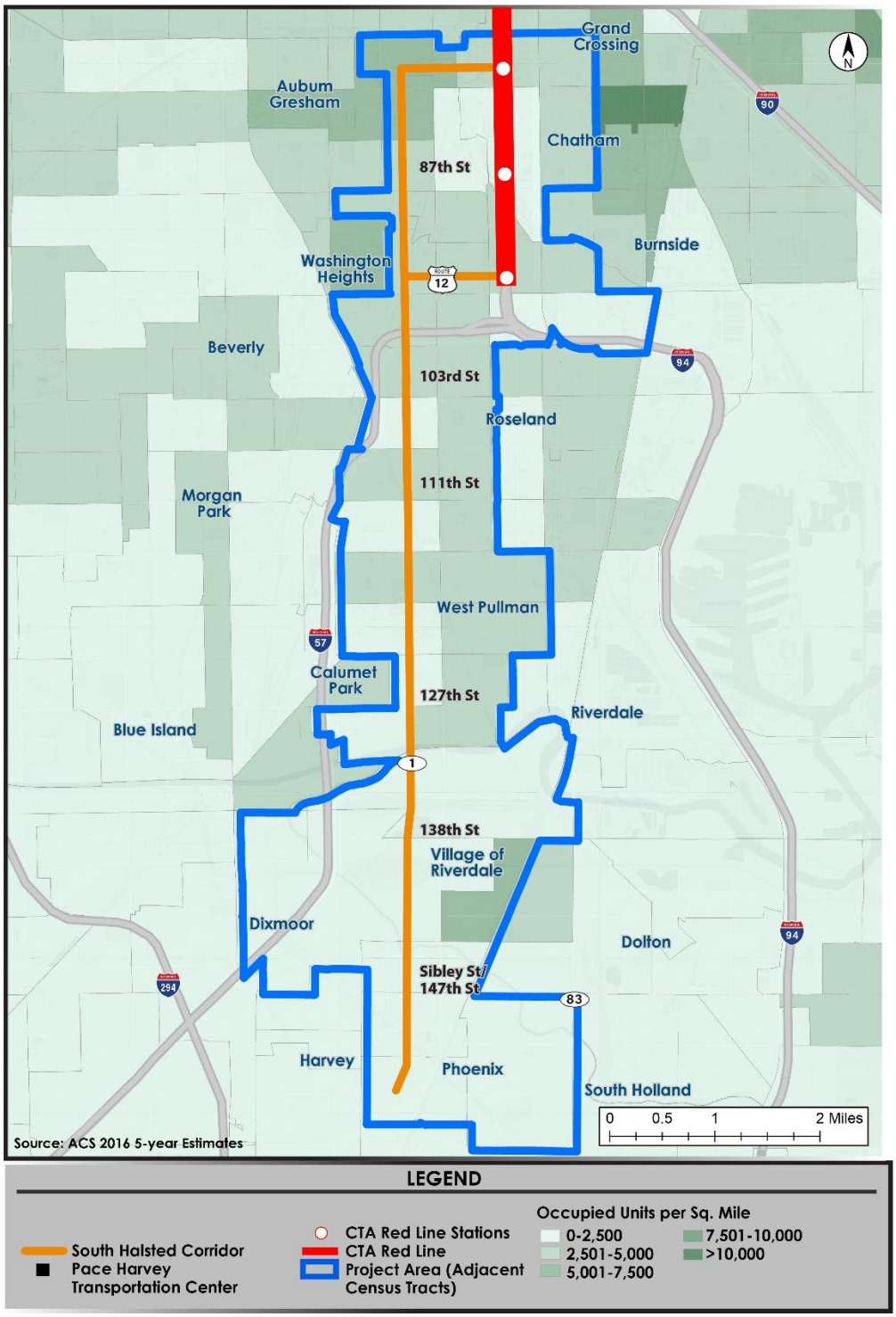


FIGURE 6.2: TOTAL HOUSEHOLDS PER SQUARE MILE



The racial and ethnic composition of the corridor is shown in Figure 6.3. The entire project corridor is comprised of census tracts where minority (non-white) populations make up a significant portion of all corridor residents, as shown in . All 38 of the census tracts that are part of the project corridor are greater than 90 percent non-white, with 20 of the 38 tracts being greater than 99 percent non-white and seven tracts being 100 percent non-white. Of the 120,560 study area residents (age 5 years and over), approximately five percent speak a language at home that is not English. Approximately two percent of corridor residents (age 5 years and over) speak English less than “very well”.

TABLE 6.1: RACE AND ETHNICITY

Race/Ethnicity	Corridor	Cook County
Black or African American alone	92.3%	24.0%
Hispanic or Latino	4.2%	25.5%
White alone, not Hispanic or Latino	1.7%	42.3%
Other	1.5%	2.70
Asian alone	0.3%	7.7%

Source: 2012-2016 ACS 5-year Estimates

Figure 6.4 displays the percentage of families residing in census tracts within the project corridor whose income in the past 12 months is below the poverty level. According to the U.S. Census Bureau, the poverty thresholds in 2016 were $12,486 for an individual under the age of 65 and $24,339 for a family of four with two children. Across all 38 census tracts, 14.5 percent of households have an income of less than $10,000 and 37.9 percent of households have an income of less than $25,000. Across all 38 census tracts, the average percentage of families below the poverty level is approximately 25 percent, with a minimum of 6.9 percent and a maximum of 67.6 percent. Figure 6.5 shows the transit dependent population, measured by the percentage of people who do not have access to a vehicle. The population with no vehicle available in the corridor is 13 percent, higher than the 10 percent rate for Cook County as a whole.

FIGURE 6.3: MINORITY POPULATION DENSITY

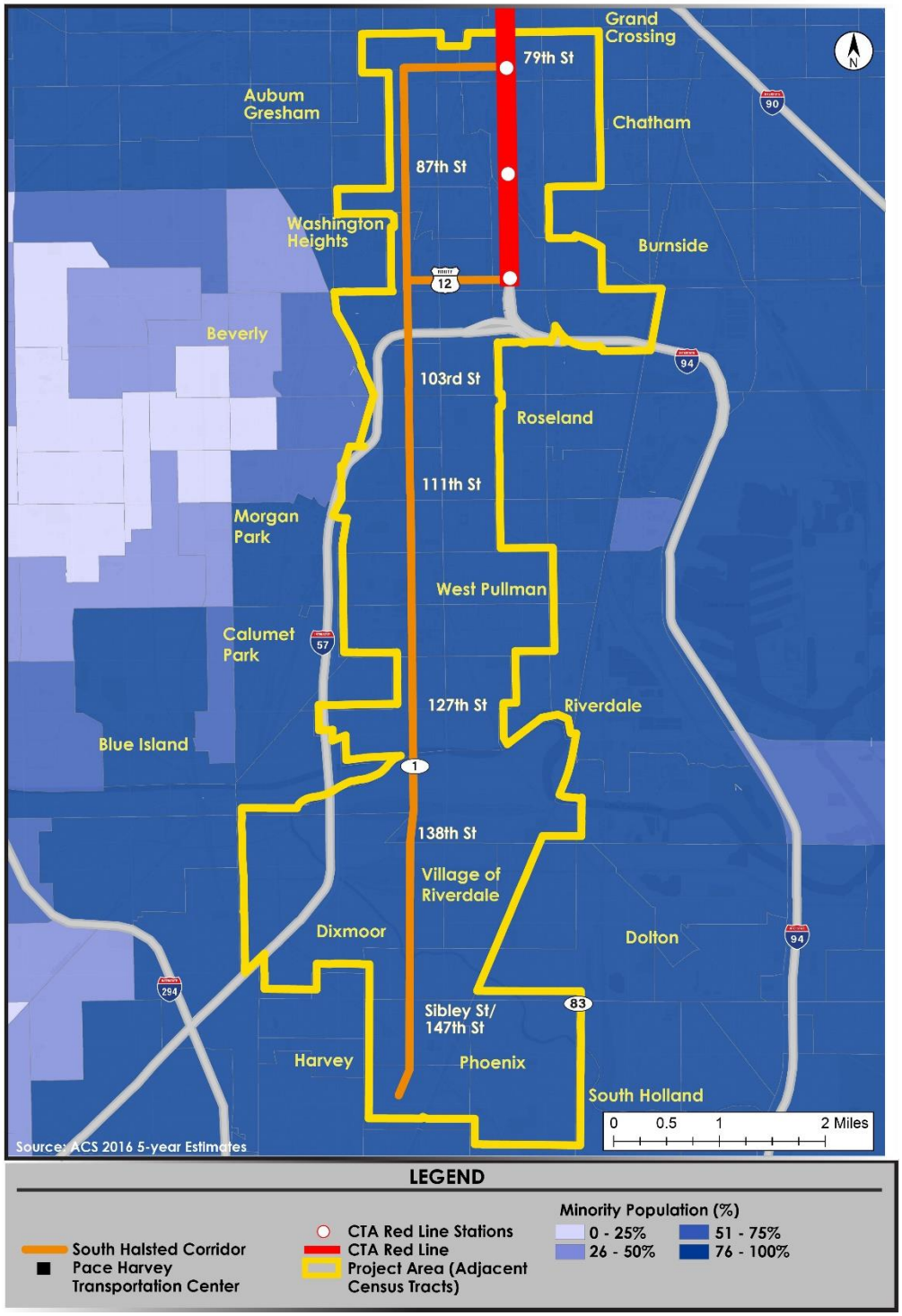


FIGURE 6.4: FAMILIES BELOW POVERTY LEVEL

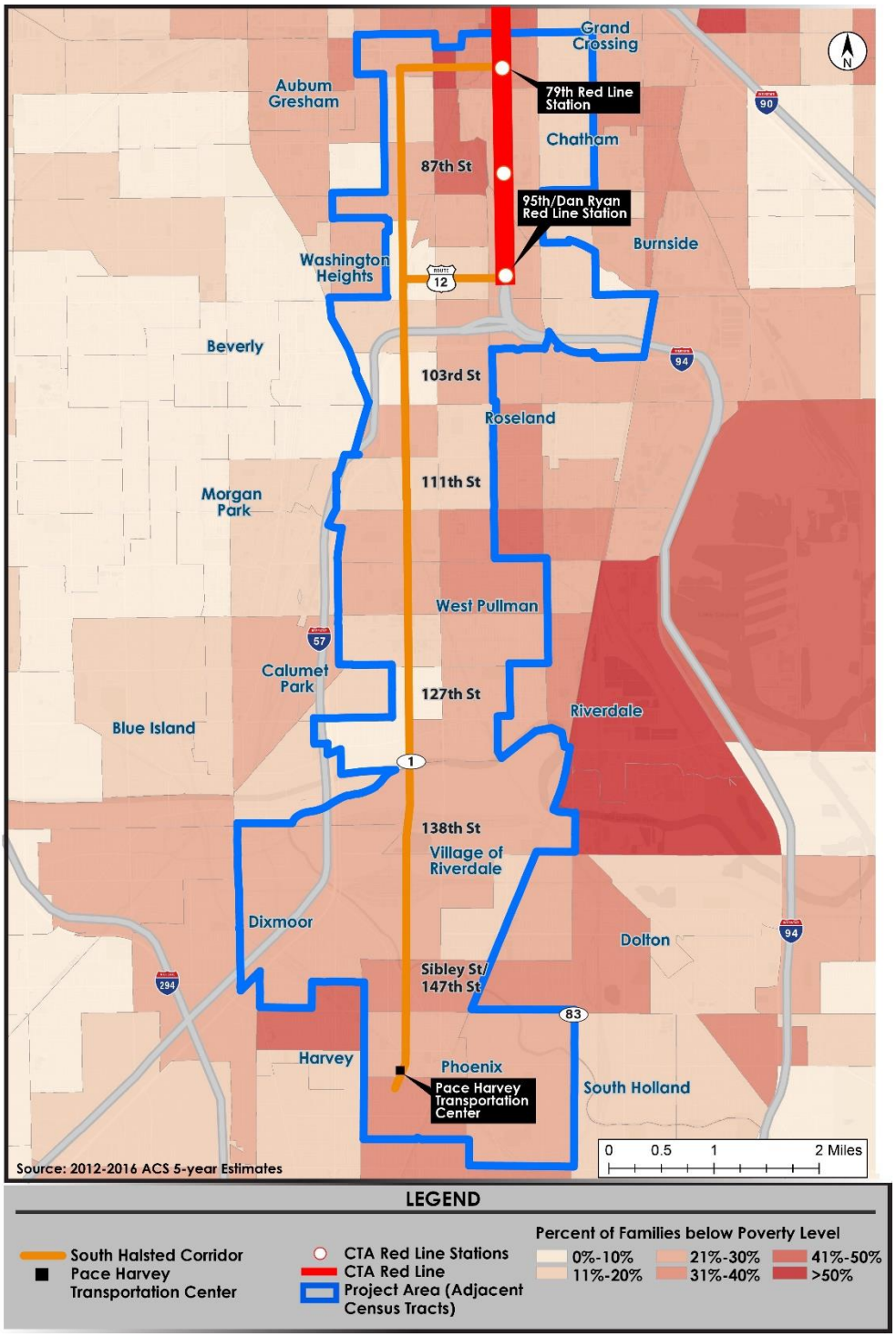
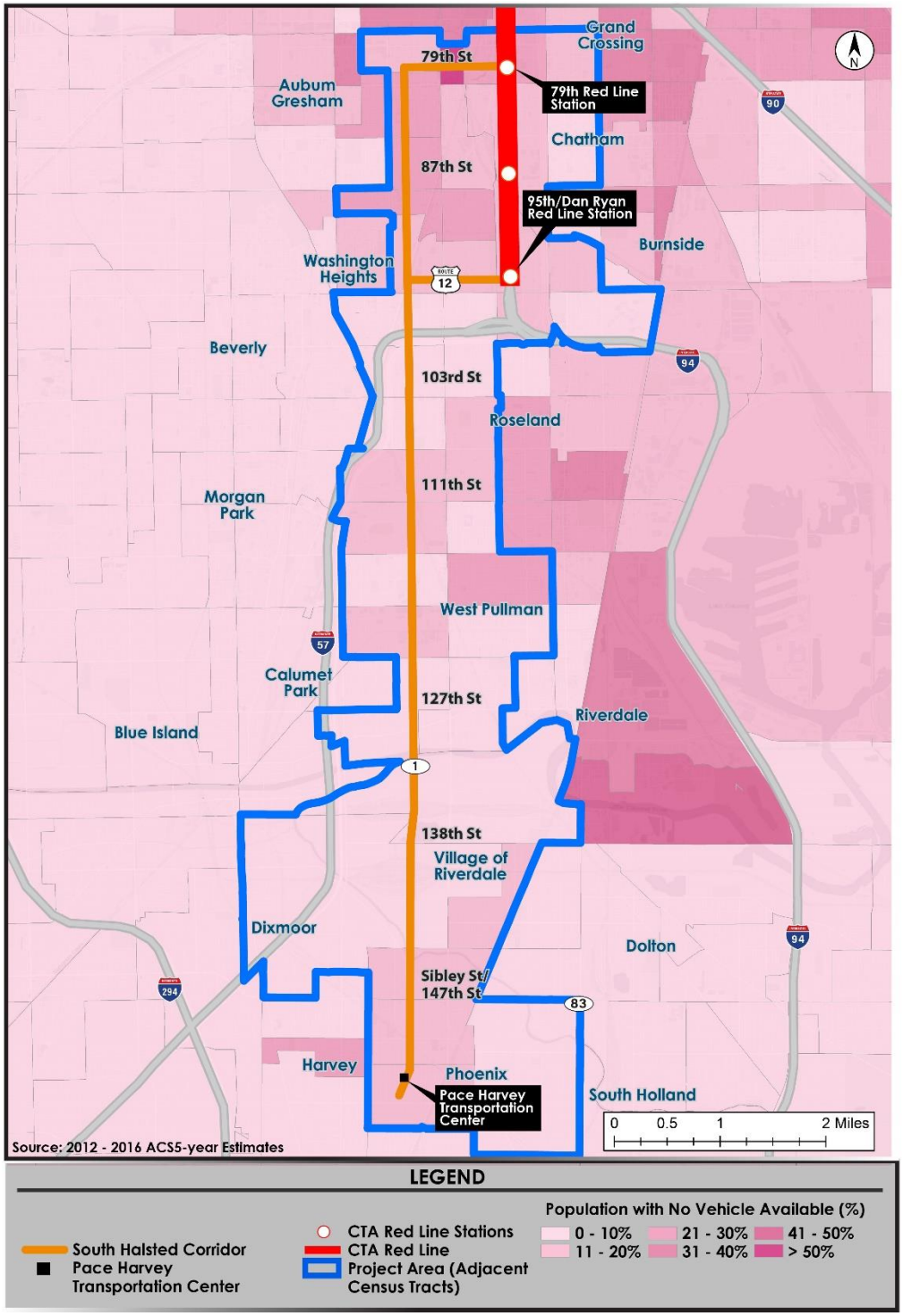


FIGURE 6.5: POPULATION WITH NO VEHICLE AVAILABLE



EMPLOYMENT

Figure 6.6 shows the number of jobs per square mile in the area surrounding the corridor. The figure shows there are significant swaths along the corridor where there are fewer job opportunities, which may cause residents to commute outside of the local area to access employment. As shown in Table 6.2, employment density within a half mile of the corridor is less than half that of Cook County as a whole. Furthermore, the table shows several metrics related to the employment status of individuals living in census tracts through which the project corridor passes including Labor Force Participation Rate, Employment/Population Ratio, and Unemployment Rate. Each are 9 to 15 percent worse in the corridor than in Cook County as a whole. It should be noted that these numbers are an average from the years 2012-2016, a time during which the national economy was recovering from the previous recession. Current Cook County jobs numbers show improvement since this timeframe. While this is likely true for the corridor as well, more recent numbers were not available at the time of this publication.

TABLE 6.2: CORRIDOR JOBS AND EMPLOYMENT

Demographic Topic	Project Corridor	Cook County
Number of Jobs*	14,584	2,379,923
Jobs per sq. mile*	1,111	2,482
Labor Force Participation Rate†	56%	64%
Employment/Population Ratio†	44%	56%
Unemployment Rate†	22%	13%

*Sources: *CMAP 2010 (project area); †2012-2016 ACS 5-year estimates (census tracts through which the project corridor passes)*

FIGURE 6.6: JOBS PER SQUARE MILE

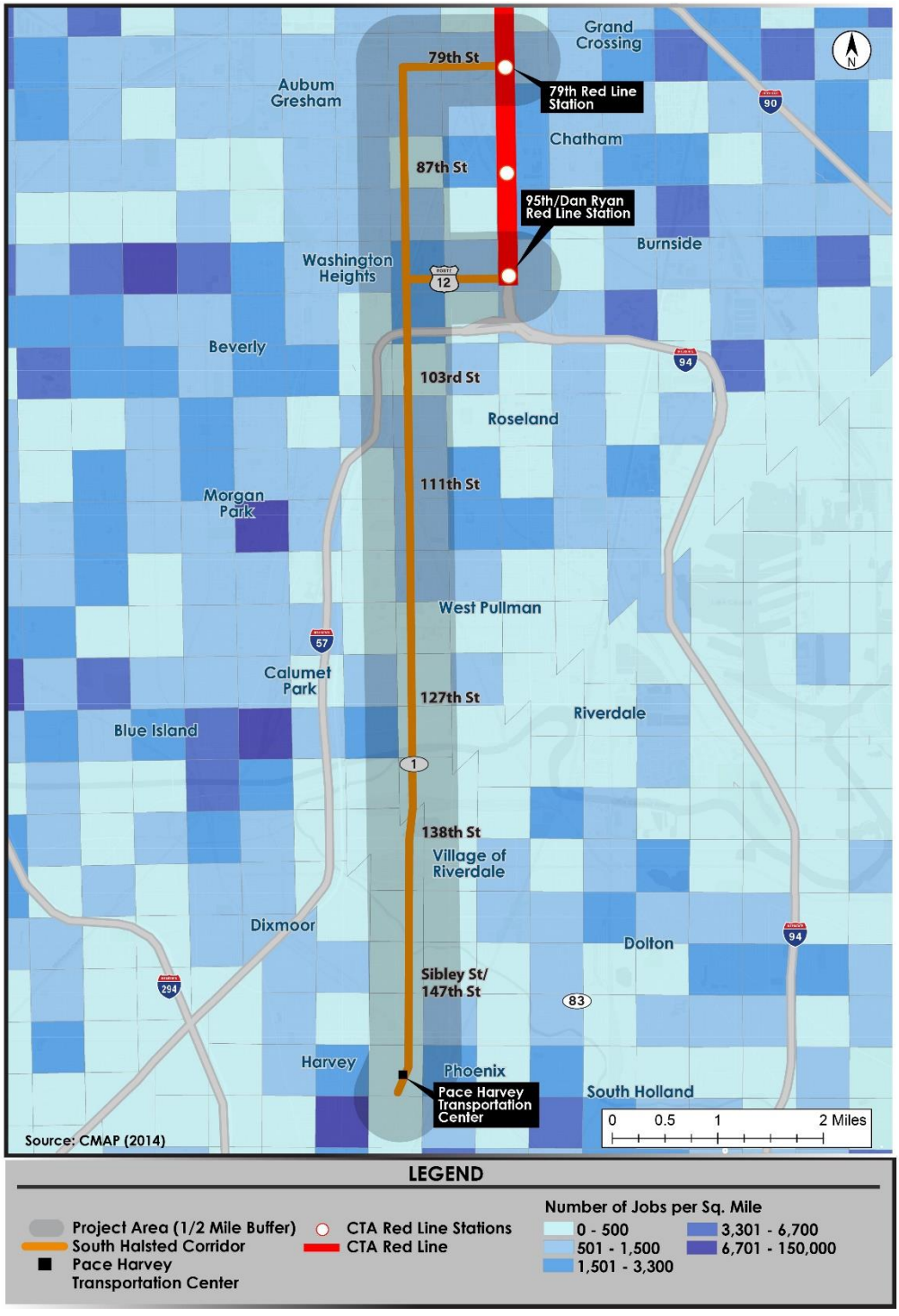
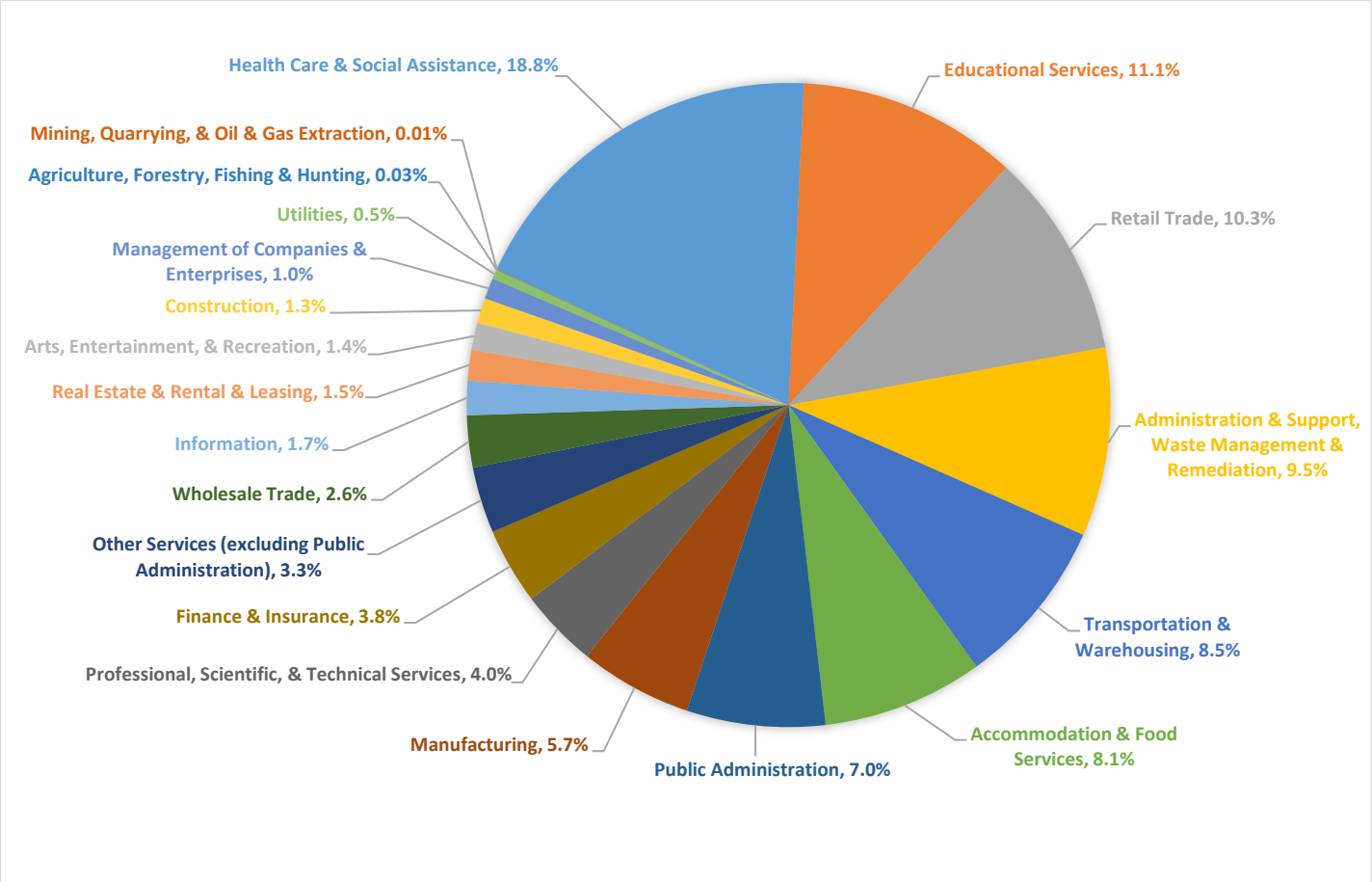


Figure 6.7 provides the percentage of people employed within the corridor for each of the North American Industry Classification System (NAICS) sectors. Top job categories include health care and social assistance, education, and retail trade.

FIGURE 6.7: PRIMARY JOBS FOR ALL WORKERS BY NAICS INDUSTRY SECTOR (2015)



Source: US Census, 2015

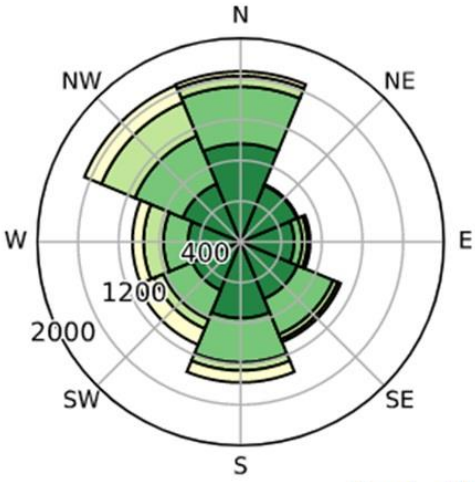
COMMUTING

A larger percentage of people who live within a half mile of the project corridor commute via transit (23 percent) than compared to the rest of Cook County as a whole (18 percent), though a larger percentage of people also drive alone to work in the corridor (67 percent) as compared to Cook County as a whole (62 percent). Additional insight regarding where people are traveling to work is available using U.S. Census Bureau's Longitudinal Employer-Household Dynamic (LEHD) data in conjunction with its web-based mapping application "OnTheMap." The OnTheMap application displays LEHD data and LEHD Origin-Destination Employment Statistics (LODES) to understand commuting patterns across different geographies.

Figure 6.8 highlights commuting patterns in the corridor. The compass on the left shows that workers commuting to the corridor are primarily coming from the north and northwest, though smaller numbers of commuters come from other directions. Over half (55 percent) of workers in the corridor commute less than 10 miles to work. The compass on the right illustrates the movement of workers from their homes in the project area to wherever their workplace may be. It highlights that significant numbers of workers head north (into Chicago and beyond) to work. Most residents in the corridor commute less than 10 miles (39 percent) and between 10 and 24 miles (47 percent) to work. Figure 6.9 shows the density of jobs for workers who live in the project area. The highest density of jobs can be found in the Loop and the surrounding areas, reiterating the distance/direction analysis shown in Figure 6.8.

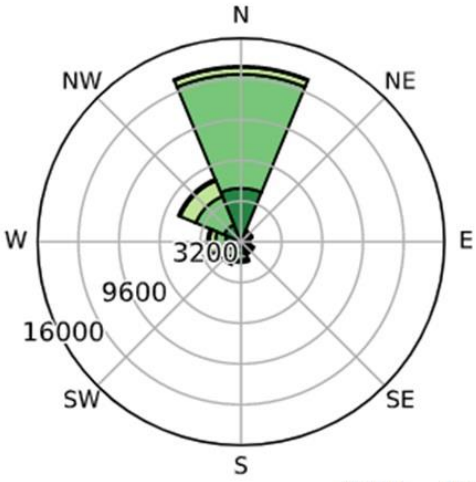
FIGURE 6.8: JOB COUNTS BY DISTANCE/DIRECTION (2015)

Work to Home



	Count	Share
Total Primary Jobs	28,140	100.0%
Less than 10 miles	11,001	39.1%
10 to 24 miles	13,424	47.7%
25 to 50 miles	2,606	9.3%
Greater than 50 miles	1,109	3.9%

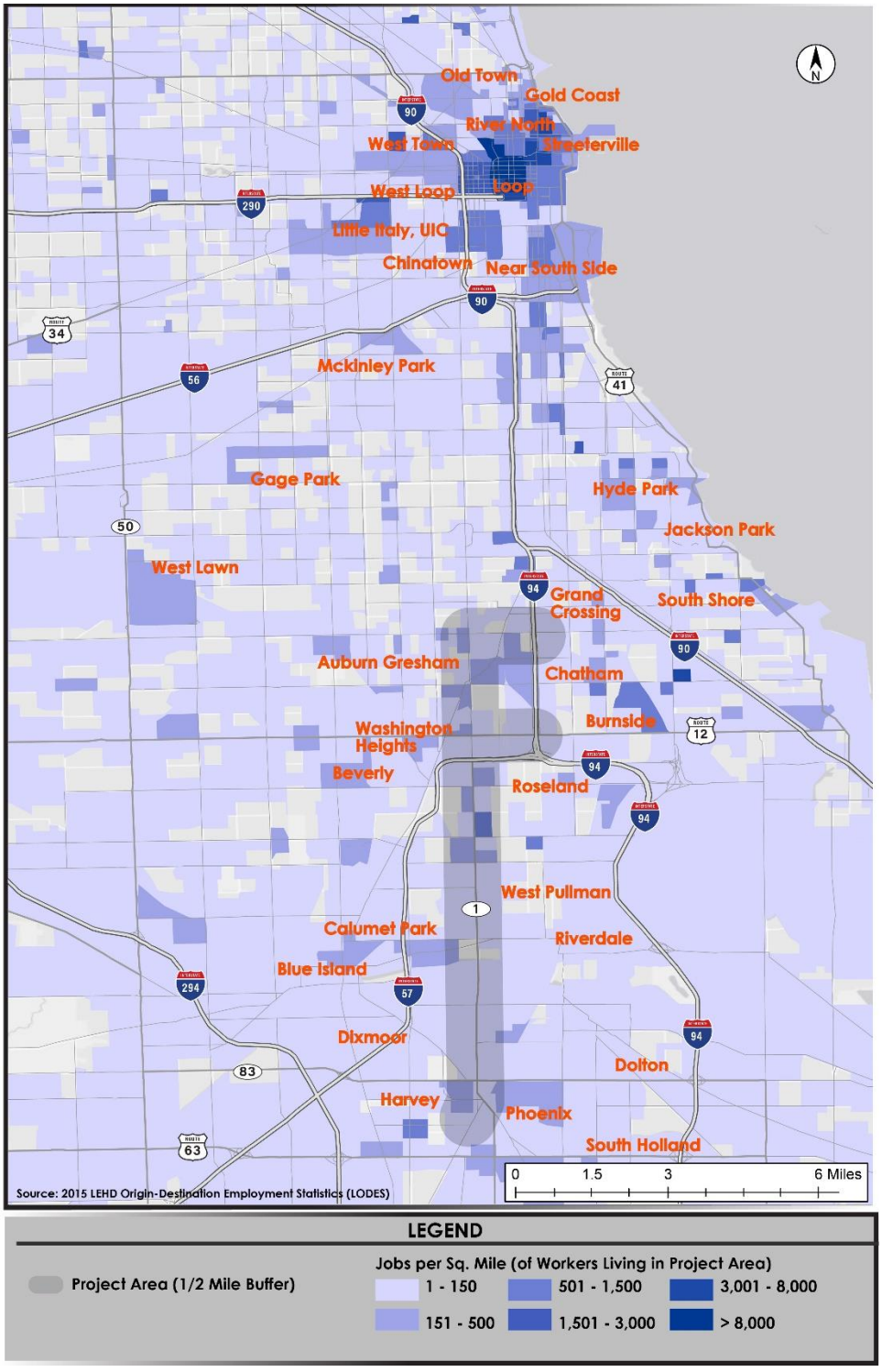
Home to Work



	Count	Share
Total Primary Jobs	9,235	100.0%
Less than 10 miles	5,099	55.2%
10 to 24 miles	2,515	27.2%
25 to 50 miles	935	10.1%
Greater than 50 miles	686	7.4%

Source: US Census; LEHD OnTheMap Application

FIGURE 6.9: JOB LOCATIONS PER SQ. MILE (OF WORKERS LIVING IN PROJECT AREA)



7. Public Involvement

Three Corridor Advisory Group (CAG) meetings are planned for this project. The first CAG Meeting for the South Halsted Bus Corridor Enhancement Project took place on Thursday, June 7, 2018, at 10 AM at Woodson Regional Library. Twenty-two CAG members attended the meeting, including representatives from four City of Chicago ward offices, three municipalities, and two state congressional districts.

The project team introduced the study and provided an in-depth review of existing conditions in the corridor. The team then posed questions to the group and sought feedback regarding the project and the existing condition elements that were presented. Common themes from the group discussion included:

Pedestrian infrastructure

- A need for upgraded pedestrian infrastructure, including crossings;
- Project team should look more closely at sections with missing sidewalks; The southern portion of the corridor, near Pace Harvey Transportation Center was noted as an area of concern.

Community and Agency Coordination

- Ensure aldermen and representatives from all communities are involved in the planning process;
- Need to work with communities to coordinate projects, including lining up plans for transit stations and redevelopment;
- Investigate other roadway plans, including current/upcoming complete streets plans, and integrate where feasible.

Bus Shelters and Stations

- 79th Street turnaround needs upgrades. Including a station that is ADA accessible, enhanced amenities to increase customer safety and comfort;
- Bus shelters throughout the corridor, including for local bus service, should be upgraded; there should be consideration for consistency throughout the corridor as well as equitable distribution amongst wards;

- Garbage bins are needed where passengers are waiting for transit service including at existing local stops; need to be cognizant of current plantings in the improvement design;
- Community focuses on keeping the corridor attractive, clean, and safe; with that in mind, need to keep bus shelter glass from being easily vandalized or shattered, which is sometimes a problem. Pace is exploring the use of tougher materials if needed;
- Bus pads are needed to keep roadway from deteriorating from heavy use. Bus pads are standard for Pace Pulse stations. CDOT installs bus pads when possible at CTA bus stops during street resurfacing;
- Coordinate redevelopment, bus shelters and Pulse station siting with the 34th Ward including at Halsted Street & 115th, 119th, and 121st Streets.

Additional Considerations

- Confirm if any schools are located directly on the corridor;
- Note the presence of the Cal-Sag Trail (west side of street from Little Calumet River to Frontage Road/Emerald Avenue);
- Catalogue bike lanes and bike sharing locations;
- Excess off-street parking is generally available at locations including Pace Harvey Transportation Center (although small increase occurred with Amazon presence), 147th terminal, etc.;
- Keep safety and high crash areas in mind through planning process; intersection of Halsted & 147th was noted as a high crash area;
- With consideration for right-of-way availability, suggest reviewing converting a lane of traffic and using as a bus-only lane, and considering pre-paid boarding.

Following the large group discussion, two aerials of the project corridor were displayed on tables in the back of the room and in the hallway. CAG members were encouraged to review the aerials and provide comments on current conditions and potential improvements. A project team member was present at each table to facilitate the conversation and record comments. Comment themes are included below:

- Attendees were curious about relationship between this project and CTA Red Line Extension

- Continue to maintain Metra stations and connections to them on the corridor
- Current east-west Metra stations near West Pullman on the Metra Electric have very low ridership; Metra is currently reviewing
- Review planned freight improvements (grade separation), as this will benefit transit

8. Needs & Deficiencies

This section describes the issues that affect current transit customers, pedestrians, cyclists, and auto traffic in the corridor. For each group of travelers, it discusses specific needs and deficiencies which to the extent possible, should be addressed to make travel in the corridor safer, faster, more efficient, more equitable, and more comfortable for all users.

ISSUES AFFECTING CURRENT TRANSIT CUSTOMERS

The following issues were identified as affecting current transit customers in the corridor.

Transit Travel Time

There is need to improve transit travel time in the corridor. On average, commute times in the South Halsted Corridor are 7 minutes (20 percent) longer for project area residents than for other commuters in Cook County, as shown in Table 8.1. This may be due to residents commuting outside of the local area to access employment.

TABLE 8.1: MEAN TRAVEL TIME TO WORK (2012–2016)

Area	Mean Travel Time to Work (Minutes)
Cook County	36
Project Area	43

Source: US Census, Cook County Travel Time to Work, 2012-2016 ACS 5-year Estimates

Further, the northern portion of the corridor on 79th and South Halsted Street from 103rd and north have slower bus travel times than other areas of the corridor.

On Time Performance

CTA and Pace operate buses on schedules that account for heavy traffic in the peak period. For example:

- Southbound Route 8A in the PM peak is scheduled to take 8 minutes (26 percent) longer than the Southbound Route 8A in the AM peak
- Northbound Route 108 in the AM peak is scheduled to take 6 minutes (43 percent) longer than the northbound 108 in the PM peak
- Southbound Route 352 in the PM peak is scheduled to take 5 minutes (17 percent) longer than southbound Route 352 in the AM peak

Though CTA may adhere to its posted schedule, service may still be perceived as inconsistent and/or unreliable from the customer perspective. Conversely, scheduled run times for the Pace Route 359 are consistent throughout the day, which may account for the route's poor on-time performance such that only 44 percent of PM peak and 51 percent of off-peak evening trips are on time. While Pace Route 359 has the lowest percentage of early or on-time trips of routes that operate on the corridor, all routes experience at least some unexpected delay.

Interviews with CTA and Pace operations staff suggest that several at-grade rail crossings along the corridor cause bus delays. Four crossings (South Halsted Street between 90th and 91st Streets, 95th Street between South Eggleston Avenue and South Harvard Avenue, South Halsted Street between 120th and 122nd Streets, Park Avenue between 152nd and 153rd Streets) are identified by the Illinois Commerce Commission as contributing to a combined annual delay of 32 hours, though it is difficult to quantify this impact on overall bus performance.[8] To improve traffic and transit service through the at-grade rail crossing at 95th Street and Eggleston Avenue, CDOT is pursuing a project to grade separate the intersection. As of July 2018, the project has entered Phase I: Preliminary Engineering. It is unknown when the grade separation will be completed.

As part of the Slow Zones study for CTA Route 79, CTA and CDOT examined six intersections along the corridor, including Halsted Street. The study identifies that bus bunching results in slow boarding and delays for the leading bus. The study also identifies the all-way stop-controlled intersection at 79th Street & Union Avenue as a source of delay for buses in both directions. The study recommends removing the stop signs on 79th Street to reduce bus delays. Signs should still be included to enhance pedestrian safety. The study also notes an opportunity to consolidate bus stops at Union Avenue and Lowe Avenue. There is a need to examine opportunities to improve performance by increasing bus speed and reliability in congested areas and investigating at-grade crossing improvements.

Station Safety and Security

During this study, there is a need to consider safety and security at station locations. Some existing bus shelter locations need security improvements where crashes of broken glass exist. This could include installing security cameras and enhanced lighting as well as ensuring the use of durable station materials (e.g. Gorilla Glass). Pedestrian safety near stations can also be

[8] Illinois Commerce Commission, Motorist Delay at Highway-Rail Grade Crossings, Illinois, 2017; https://datahub.cmap.illinois.gov/en/dataset/motorist-delay-at-highway-rail-grade-crossings

enhanced through improved infrastructure. Pace and CTA should work with local communities to identify the best solutions to improve security at individual stop/station locations.

Place Making Opportunities

When making recommendation for station and other infrastructure improvements, the study should also identify opportunities to improve place making, including streetscaping/landscaping, stations that can be customized by local communities, and the application of neighborhood art. Where feasible, trash receptacles should be installed to help keep station areas clean.

Transit Station Operations

79TH STREET RED LINE STATION

Of the four primary routes that serve the corridor, only CTA Route 8A provides service near the 79th Street Red Line Station. However, the route does not directly stop at the station. Rather, the route's terminal stop is located at 79th Street & Perry Avenue. Unlike the 95th Street station described below, there is no bus terminal at the 79th Street Station. As such, buses are unable to dwell at the stop closest to the 79th Street Station location for longer than it takes to board and alight passengers. For transit service to stop in front of the 79th Street Red Line Station, buses would have to turnaround up to a half mile to the east, north, or south of the station. Operationally, there is not a practical path near the 79th street station for buses to layover/ turn around except at Perry Avenue. Also, it is unclear if any of these other potential areas would have a bathroom for operator use. There is a need to consider improvements at the Perry Avenue layover to enhance bus operations and/or pedestrian access and comfort.

79TH STREET BUS LAYOVER & STATION

Stakeholder feedback indicated that improvements are needed at the 79th Street Bus Turnaround, located at the corner of Halsted Street and 79th Street. Suggested improvements included ADA accessibility, enhanced security (cameras, etc.), improved customer seating, lighting, and heating in the winter months. In addition, the facility's location on the southeast corner of the intersection means that southbound 8A buses are required to turn left out of the driveway onto South Halsted Street. Traffic at the intersection can create delays for buses needing to complete this pull out into traffic.

CTA currently has a project in design to provide some of these improvements. The existing bus turnaround at Halsted Street and 79th Street serves CTA bus routes 8 and 8A and includes a concrete platform bus stop in the middle of the driveway where buses pull into and out of the turnaround drive. There are currently no ADA compliant pedestrian accommodations to connect

the sidewalk along Halsted Street to the concrete platform bus stop. CTA is seeking funding to upgrade the 79th Street bus turnaround stop to make it ADA compliant.

The preliminary concept plan includes improvements to the existing concrete platform as well as a sidewalk along the south side of the driveway which connects to the existing sidewalk along Halsted Street. Within the existing concrete platform, the concept plan includes a striped ADA lift deployment zone and a ramp from the platform to the driveway level which includes guardrail with a handrail on both sides. The concept plans include crosswalks with detectable warnings from the platform ramp to the new sidewalk as well as south side of the driveway and across the entire driveway along Halsted Street. The new sidewalk includes a guardrail with a handrail along the south side and vehicular guard rail along the north side. The concept plan utilizes the existing columns and roof over the concrete platform with some adjustments to the windbreak walls. These improvements ultimately help to safely lead pedestrians between the sidewalk along Halsted Street to the concrete platform bus stop and upgrades the stop to ADA compliance. There is a need to identify opportunities to prioritize the remaining improvements and identify potential funding sources.

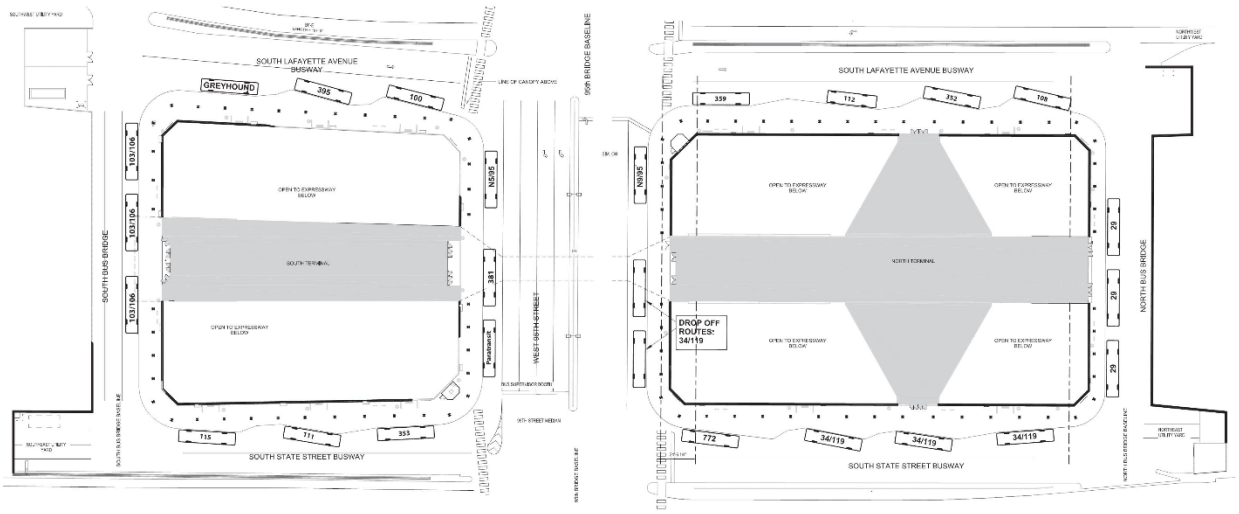
95TH STREET RED LINE STATION

CTA is currently undergoing renovations of its 95th Street Bus Terminal, which provides a direct connection to the 95th Street Red Line Station. The site features two terminals. The south terminal is open for service; the north terminal is scheduled to be completed later in 2018. The terminals feature approximately 26 bus bays, of which three on the west side of the north terminal are planned to be reserved for CTA route 108 and Pace routes 352 and 359, as shown in Figure 8.1. The new and expanded terminal will offer more space and better amenities and improve the walking flow of passengers. The terminals basic features include:

- Expanded platforms to provide more room and easier flow of passengers
- Station will be largely enclosed in glass for maximum light and protection from the elements
- Wider bus lanes and increased spacing between bus bays to reduce congestion
- Wider sidewalks and waiting areas in bus terminal for increased passenger comfort and safety
- Sound panels at platform level to provide a more comfortable, less noisy space
- Additional escalators and elevators
- Additional space in front of ticket vending machines and fare gates

- CTA's largest public art installation

FIGURE 8.1: 95TH TERMINAL – PROPOSED BUS ASSIGNMENT PLAN



Source: CTA

Pace and CTA Operations staff discussed the need for improved coordination and scheduling buses leaving the 95th street station during staff interviews. This is an item to consider as the study continues to identify ways to minimize bus bunching along the corridor.

MULTIMODAL CONNECTIONS

The Pace Harvey Transportation Center is the southernmost terminus of the project. The transportation center has a park-n-ride lot that is lightly used. Within a mile there are a significant amount of residential properties, 11 local schools, a hospital, and a college. Given their proximity to the Pace Harvey Transportation center, there is a need to consider opportunities to increase the use of this important public space.

Service Coordination

CTA and Pace operate overlapping service along the South Halsted Corridor as described in the existing condition section. Considerations are discussed below related to coordination and service operations. Though the footprint of their respective services overlap and there is high level coordination of service planning between agencies, there is little daily on-going coordination of bus operations. Depending upon real-time conditions, this can create situations during which CTA and Pace service may leave a terminal within a few minutes of each other, causing bus bunching and longer gaps with no buses coming. There is a need to consider

operating scenarios where there is increased schedule coordination to improve service and customer experience on the corridor.

Further, there are also some notable differences between the types of service provided. Pace is the only agency that provides owl service along the corridor up to 95th street, while CTA generally provides service until 8:30 pm on the northern segments of the corridor. Pace service currently ends at 95th Street. Similarly, CTA service does not extend past 127th Street, just north of the Little Calumet River, the boundary of the City of Chicago on South Halsted Street. Conversely, Pace's service continues to the Pace Harvey Transportation Center and beyond. However, Route 352 is the only route that provides owl service in the corridor, though it only provides late night service to the Pace Harvey Transportation Center rather than Chicago Heights. Furthermore, it is one of few late-night routes that services the transportation center, so customers arriving on the Route 352 are left with limited travel options once they reach the terminus. There is a need to evaluate which agency may best deliver service for a given area and time period to improve the overall effectiveness. Precedent exists for shifting service between agencies. CTA and Pace recently completed the North Shore Transit Coordination Study and Market Analysis Plan in December of 2017, which recommends restructuring several Pace routes to replace CTA bus service along corridors in Evanston, Lincolnwood, and Chicago.

Finally, the slight fare difference may impact the travel choices of low-income riders, particularly those that use the corridor regularly. However, while this information will be considered in evaluating operations, no fare recommendations will be considered as part of this study.

Rapid Service

The South Halsted Corridor is a good candidate for rapid transit service due to its high ridership and the current long commute times required of area residents. Pace has already identified the South Halsted Corridor from the 95th Red Line Station to the Pace Harvey Transportation Center as one of seven near-term priority corridors for implementing Pulse service. The Pulse Program focuses on providing rapid transit features. The following includes features that comprise the Pulse program, as well as other elements that may provide benefits to the study corridor:

- Bus Stop Consolidation and construction of Pulse Stations– As part of the Pulse program, Pace looks to install stations approximately every half mile reducing the number of stops. Fewer stations with greater spacing mean that the bus is required to stop less often, and its travel time is reduced. While some riders may have to walk farther to or from the bus stop, station placement is optimized such that most existing riders would have a station within a close walk of their current boarding location. Upgraded shelters are heated and feature

vertical markers with real time and static information, bicycle racks, and trash receptacles. Some station features can be customized based on community input.

- Near-level boarding – Near-level boarding also speeds up the boarding process, especially for disabled, elderly, or other passengers with limited mobility who may have otherwise required the bus to extend a ramp or use its suspension system to lower its height. Pace is pursuing a standard of 12-inch near-level boarding platforms at Pulse stations, based on the floor heights of Pace vehicles. CTA utilizes 11-inch near-level boarding platforms at their Loop Link stations. At shared stations, an 11-inch curb would be used to accommodate both fleets.

- Articulated Buses – If warranted by ridership demands, articulated buses allow for additional capacity increasing seated capacity from approximately 45 passengers to upwards of 70 passengers. However, Pace does not currently have articulated vehicles in its fleet or the maintenance facilities to accommodate them, , though they are common in CTA's fleet. Currently, no routes that operate on the South Halsted Corridor use articulated buses.

- Dedicated or Peak Hour Transit Lanes – Dedicated or peak hour transit lanes provide designated space within the roadway for use by transit, greatly improving reliability and speed. A dedicated lane is exclusively designated for transit use all the time while a peak hour lane designates defined times during the day when the lanes are for transit use only. Transit lanes adjacent to the curb may also allow right turning vehicles to access businesses; such lanes are known as Business Access and Transit (BAT) lanes. These options may be explored where available roadway space and general traffic flow would allow. Dedicated transit lanes are not currently included as part of the Pulse program.

Local Bus Service and Shelters

During the first CAG meeting, a stakeholder suggested that in addition to improvements at rapid transit stops such as those proposed by Pace, consideration should be made for improvements to local stops. Furthermore, it was suggested to try to balance improvements between geopolitical borders and neighborhoods. Therefore, there is a need to examine a holistic approach to improving the corridor by considering shelter improvements that will continue to be used by local bus service so that they are clean, safe, and attractive. It is noted that these improvements will need to be balanced with local policies and available and funding.

Bus Storage

Improvements in bus service often result in changes in the number of buses on a route. This requires evaluation of bus storage needs. Currently, Pace buses that operate on the corridor including Route 352 operate out of the South Division garage facility. There are currently 99 buses dispatched out of this garage, which is beyond the facility's capacity of 84 buses. If additional buses were added for the South Halsted Corridor, they would likely need to be stored at another location, or the facility would need to be expanded. Land is available for expansion at the South Division though there are currently no plans to increase capacity at this location. CTA buses that operate on the corridor are stored at 77th and 103rd garages. Currently the 77th garage has capacity for new vehicles, but 103rd garage is over capacity.

ISSUES AFFECTING PEDESTRIAN AND CYCLE ACCESS

The following issues were identified as affecting pedestrians and cyclists in the corridor.

Sidewalks Conditions

Based on field observations noted in the existing condition section, sidewalks at many locations along South Halsted Street are in poor condition and in need of replacement, with large cracks, uneven surfaces, broken or missing pieces, or obstructions caused by vegetation or other debris. Sidewalk conditions are generally worse in the southern section of the project corridor. There is no sidewalk at several locations, particularly south of 129th Place, the section with multiple bridges. Detailed sidewalk conditions and locations are listed in Appendix A: Field Observations. There are no crosswalks at the intersection of Forest View Avenue/Halsted Street and 138th Street/Halsted Street. Furthermore, no intersections south of 127th Street have ADA compliant ramps in place. Therefore, there is a need to consider improvements to sidewalks and ADA ramps providing access to new and/or existing bus shelters along the corridor. There are no major issues found along 95th Street and 79th Street between Halsted Street and Lafayette Avenue. 95th Street is under construction at Lafayette Avenue and further investigation is needed after the construction is complete.

Further, IDOT has established a 25-year ADA Transition Plan for public facilities to enhance access and safety for persons with disabilities. This plan envisions re-evaluating agency policies, programs, and facilities to ensure compliance with the latest accessibility guidelines. IDOT has included several projects along South Halsted Street for resurfacing and ADA improvements as part of its FY 2019-2024 Proposed Highway Improvement Program, including:

- Vincennes Ave to 99th Street (1.61 miles)

- 99th Street to 123rd Street (3.04 miles)
- 130th Street to 159th Street (3.96 miles)
- 159th Street to Ridge Road (2.62 miles)
- 147th Street intersection (ADA and signal modifications).

Therefore, coordination is needed with these future IDOT projects to ensure integration of this program with South Halsted improvements.

Pedestrian Crossings

The South Halsted Corridor has many signalized and unsignalized pedestrian crossings as described in the existing conditions section. No mid-block crossings were observed. However, where there are new and/or existing bus stops along the corridor, it is necessary to review existing signage to confirm whether current best practices are in place for pedestrian crossings. This is especially critical at unsignalized crossing locations and stops with high transfers. Improvements may include signage and pavement markings depending upon CDOT and IDOT policies. These elements should be coordinated with IDOT's ADA Transition Plan discussed above.

ISSUES AFFECTING TRAFFIC

The following issues were identified as affecting general traffic in the corridor.

Geometrics

Halsted Street is a relatively straight roadway running north-south. There is a tangent angle break in the alignment toward the southwest where the road becomes Park Avenue south of 152nd Street. Two through lanes are found from 85th Street to 154th Street and one through lane north of 85th Street. The intersection of the 149th Street/Morgan Street and Halsted Street has a skewed approach from Morgan Street. 79th and 95th Streets are also generally straight roadways. Based on a walk-through of the project corridor, no geometric issues or need for geometric improvements were observed. Note that traffic and lane configurations items are discussed elsewhere in this report.

Signing & Pavement Markings

Most pavement markings, including crosswalks, along Halsted Street, 79th Street, and 95th Street need continued maintenance, re-striping as necessary. Many parking signs are observed to be in poor condition. Where new bus facilities are proposed, pavement striping and signing

will need to be upgraded to current standards. Striping at these locations may need modification to provide rapid transit enhancements as discussed above.

Signalization

Most intersections in the project corridor operate at an acceptable level of service. There are few intersections which operate at a LOS of D or worse. Signal timing changes can be considered at most of these intersections to improve the delay. Most intersections in the corridor do not have a Leading Pedestrian Interval (LPI), in which pedestrians are provided with a three to seven second head start when entering an intersection with a corresponding green signal in the same direction of travel. LPIs enhance the visibility of pedestrians in the intersection and reinforce their right-of-way over turning vehicles, especially in locations with a history of conflict. They serve as a low-cost countermeasure to improve pedestrian safety. The intersections without LPIs should be analyzed further for suitability of LPI implementation.

To improve bus operations along the corridor, strategies that prioritize buses should be considered for implementation, including transit signal priority (TSP) and queue jumps. TSP helps buses keep up with the schedule by extending green times or shortening red times for buses operating behind schedule. Two types of TSP are currently being implemented in Chicago region:

- Early Green TSP: Early green TSP takes excess green time, if available, from the cross street, and adds it to the green time for Halsted Street while maintaining the normal cycle length.
- Green extension TSP: Green extension TSP provides additional green time for Halsted Avenue by extending the cycle length.

Extended TSP and/or Early Green TSP could be considered for any signalized intersections on the corridor.

Queue jumps are a strategy applied for the buses to bypass the queueing at the intersection. Buses have dedicated signals that prioritize buses. These signals will help buses get a jump start before general vehicles. This can improve the bus delays. Queue jumps can be applied at near side bus stops. The City of Chicago Loop Link project implements a version of queue jump for buses. Similar operations can be considered on the South Halsted Corridor.

Pace has already collaborated with RTA and IDOT to deploy TSP near the Pace Harvey Transportation Center, including 30 signalized intersections along 159th Street, Sibley Boulevard, Halsted Street, and Park Avenue and signals on the project corridor between the

Pace Harvey Transportation Center and the intersection of Halsted Street and 138th Street. Following Phase 1, bus travel times were reduced up to 15 percent (by a range of 25 seconds to 3.3 minutes). Cumulative daily delay for buses reduced by 27 minutes at TSP-equipped intersections during AM and PM Peak Periods while average travel time for all traffic was reduced by as much as six minutes during peak hours. The Harvey TSP Demonstration Project was successful both in terms of benefits to Pace riders and technology implementation.

Rail Crossings

There are four at-grade railroad crossings along Halsted Street as described in the existing conditions section. These crossings, especially on 95th Street and Park Avenue as well as 95th Street and Eggleston Avenue, can result in significant delays to transit in the corridor. Where delays occur, particularly at the Pace Harvey Transportation Center and 95th Street Red Line Station, there is a need to investigate technology solutions that would indicate that the driver should use an alternate route. This option would require new operating procedures. As described above, the City of Chicago and IDOT are pursuing grade separation at the 95th Street and Eggleston Avenue crossing.

Drainage

There are several locations along Halsted Street where there appear to be drainage issues resulting in standing water or washed out areas. There are a few locations where drainage structures are in poor condition, in addition to curbs that are damaged or are not of adequate depth. These locations are listed in in Appendix A: Field Observations. Where new stations or other transit amenities are planned, drainage should be updated to provide riders adequate access and comfortable station areas.

9. Summary

The South Halsted Corridor is a high ridership corridor with an average daily ridership of approximately 11,600. CTA Routes 8A and 108 and Pace Routes 352 and 359 provide customers with multiple important connections to the CTA Red Line and Metra Commuter Rail. Despite some overlap, CTA is the only provider north of 95th Street; while Pace service extends out of the City of Chicago limits serving multiple suburban communities. The Pace Route 352 is also the only overnight service. Transit service is responsible for ensuring that 23 percent of residents in the project area can commute to work each day, which is higher than the Cook County average.

The northern segment of the corridor, located north of 103rd Street is defined as higher density and has a more transit dependent population, however buses operate at slower travel speeds, particularly southbound during the PM peak. The corridor's land uses are primarily commercial/mixed use, but the surrounding area is 50 percent residential and 10 percent vacant. These vacancies provide an opportunity to continue to encourage development, which has occurred to some extent in recent years.

A number of opportunities exist to provide improved high quality, rapid transit service, as well as address other issues facing pedestrians and general traffic. Commuter travel times are longer than other areas of Cook County and buses often travel at slow speed and/or frequently fall behind schedule during peak periods, a common occurrence for local bus service operating in urban areas. Transit service would be enhanced by providing updated infrastructure and increased service coordination to provide for faster, more reliable trips and an improved overall customer experience. Sidewalks and pedestrian crossings are present but require rehabilitation for comfort, connectivity, and safety. While no major roadway geometrics are required, the introduction of transit signal priority, queue jumps, and possibly dedicated or peak hour transit lanes could be leveraged to increase speed and improve reliability for buses without harming overall traffic flow.

Appendix A: Field Observations

See Attachment

Appendix B: Crashes by Intersection

See Attachment