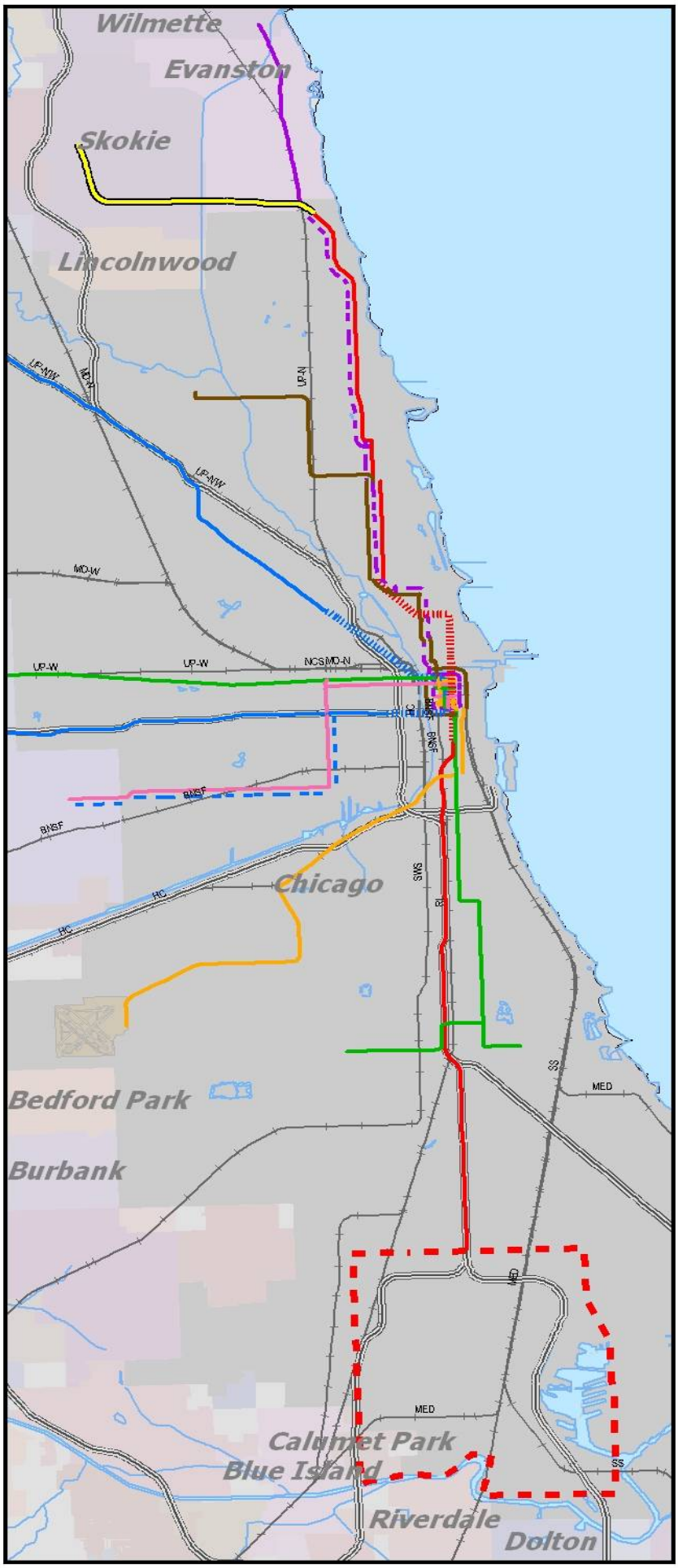
Appendix A
Alternatives Analysis - Locally Preferred Alternative Report



CTA Red Line Extension Alternatives Analysis

Locally Preferred Alternative Report

August 2009

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Acronyms Used in this Document

AA	Alternatives Analysis
ADT	Average Daily Traffic
AGT	Automated Guideway Transit
BRT	Bus Rapid Transit
CATS	Chicago Area Transportation Study
CDOT	Chicago Department of Transportation
CMAP	Chicago Metropolitan Agency for Planning
CN	Canadian National Railway
CREATE	Chicago Region Environmental and Transportation Efficiency Program
CTA	Chicago Transit Authority
dBA	Decibel Using A-Weighted Sound Level
EIS	Environmental Impact Statement
FTA	Federal Transit Administration
FY	Fiscal Year
HRT	Heavy Rail Transit
IHB	Indiana Harbor Belt Railroad
IDOT	Illinois Department of Transportation
LOS	Level of Service
LPA	Locally Preferred Alternative
LRT	Light Rail Transit
LUST	Leaking Underground Storage Tank
MED	Metra Electric District
MOE	Measures of Effectiveness
MWRDGC	Metropolitan Water Reclamation District of Greater Chicago
NEPA	National Environmental Policy Act
NICTD	Northern Indiana Commuter Transportation District
O&M	Operations and Maintenance
PE	Preliminary Engineering
PRT	Personal Rapid Transit
RA	Redevelopment Area
RTA	Regional Transportation Authority
SCC	Standard Cost Categories
TIF	Tax Increment Finance
TSM	Transportation System Management
TSP	Transit Signal Priority
UPRR	Union Pacific Railroad
V/C	Volume-to-Capacity Ratio
VdB	Vibration Decibels
VHD	Vehicle Hours of Delay
YOC	Year of Construction
YOE	Year of Expenditure

1.0 INTRODUCTION

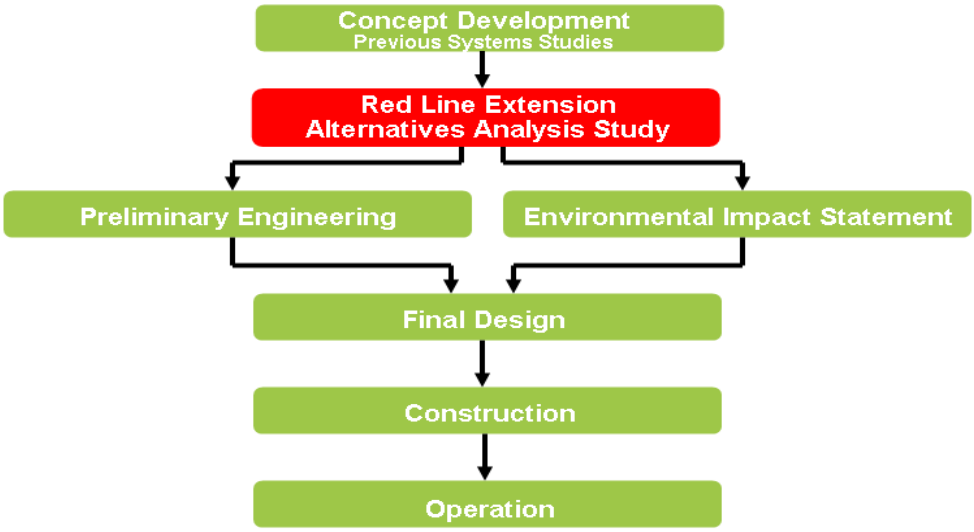
1.1 Context of the Alternatives Analysis

The Chicago Transit Authority (CTA) Red Line Dan Ryan rapid transit branch opened for service in September 1969. Proposed extensions of the CTA Red Line Dan Ryan branch to the south from its current terminus at 95th Street have been consistently included in the Chicago region's long range transportation plan developed by the Chicago Metropolitan Agency for Planning (CMAP), formerly the Chicago Area Transportation Study (CATS), since the mid-1970s.

The Chicago Department of Transportation (CDOT) also completed a draft feasibility study of transportation needs for the Far South area of the City of Chicago that concluded that despite strong transit ridership, access to CTA transit services was challenging. This draft feasibility study examined several transit corridors for their potential to improve mobility for Far South area residents and businesses. This feasibility study was also intended to lay the ground work for an Alternatives Analysis (AA) study to formally identify a Locally Preferred Alternative (LPA).

In late 2006, the CTA initiated an AA study to identify and evaluate potential major fixed guideway transit solutions in the Far South area of Chicago. This AA report documents the identification, evaluation, and selection of a LPA for the CTA, consistent with the planning and project development process defined by the Federal Transit Administration (FTA). The Alternatives Analysis is the first major step in the FTA New Starts process (shown in Figure 1.1). Transit agencies across the country seeking federal New Starts funding must follow this process. The CTA used the results of past studies as a starting point for conduct of the AA study. The AA study is completed with the selection of a LPA.

Figure 1.1: FTA's New Starts Process



The next steps in the process are Preliminary Engineering (PE) and the preparation of an Environmental Impact Statement (EIS). The CTA must apply to FTA for entry into Preliminary Engineering. If the LPA from the AA study meets the New Starts criteria thresholds established by FTA for transit projects nationally, then permission can be granted to begin PE. PE consists of more detailed design and costing of the LPA to a much higher degree of confidence. At the

same time, an EIS is also prepared to evaluate all potential environmental impacts, as required by the National Environmental Policy Act (NEPA).

Final Design is the last phase of project development, and includes right-of-way acquisition, utility relocation, and the preparation of final construction plans for the LPA. Assuming all funding is in place, and the FTA issues a Full Funding Grant Agreement, construction can begin. After completion of construction and testing, the new transit service can begin operation.

Each of these steps in the New Starts process typically takes a minimum of two years although PE and preparation of an EIS can be completed concurrently. Public involvement is integral to each steps. For the AA study, CTA implemented a public involvement process that included a wide range of stakeholders from the study area, elected officials, agencies, and the general public.

1.2 Purpose of the Alternatives Analysis Report

The purpose of the Red Line Extension AA Study is to identify transit improvements that would provide improved mobility to residents and businesses located in the City of Chicago's Far South Side and surrounding suburbs. The report summarizes the results of an AA that followed FTA New Starts project development guidance. It provides information on the costs, benefits, and impacts of a wide range of alternatives that went through a three step screening process. The result of the Red Line Extension AA is a LPA that was adopted by the Chicago Transit Board.

1.3 Organization of this Report

This report is organized into eight sections. Section 2 describes the purpose and need of the project, including a description of the study area and the existing transportation system, planned growth and improvements in the study area, the need for an improved transit system. Section 3 describes the Screen 1 Evaluation of the Universe of Alternatives. Section 4 describes the Screen 2 Evaluation of the alternatives carried forward from Screen 1. Section 5 describes the Screen 3 Evaluation and the recommendation of a LPA. Section 6 describes the Locally Preferred Alternative (LPA) and how well the LPA achieved the project goals and objectives. Section 7 provides and overview of public involvement and Section 8 describes the next steps for the project.

2.0 PURPOSE AND NEED

2.1 Description of Study Area

The Chicago metropolitan region has the second largest transit system in the nation. The CTA bus and heavy rail system provides service to the City of Chicago and 40 suburbs. The CTA system served over 520 million trips in 2008. Coordination with Metra commuter rail, Pace suburban bus service, and private bus operations results in an integrated regional transit system. The region's transportation system -- both transit and highways -- support the economy of the region, provide access to jobs and other personal and business travel needs, and support development throughout the study area and region.

There are concentrations of established communities where accessibility to CTA rapid transit services is more challenging. The Far South area of Chicago is has high transit ridership, but access to the existing rapid transit network is challenging.

Pedestrian and bus congestion is a daily problem at the CTA's Red Line 95th Street station. Limited employment options in the Far South area require residents to travel long distances to the Chicago Central Area or other regional employment centers. The strong dependence on the Red Line to reach these opportunities, coupled with a constrained street network, result in many lengthy bus trips to access the 95th Street Station. According to the 2000 U.S. Census, commute times for the Far South area are longer than the region's average commute time.

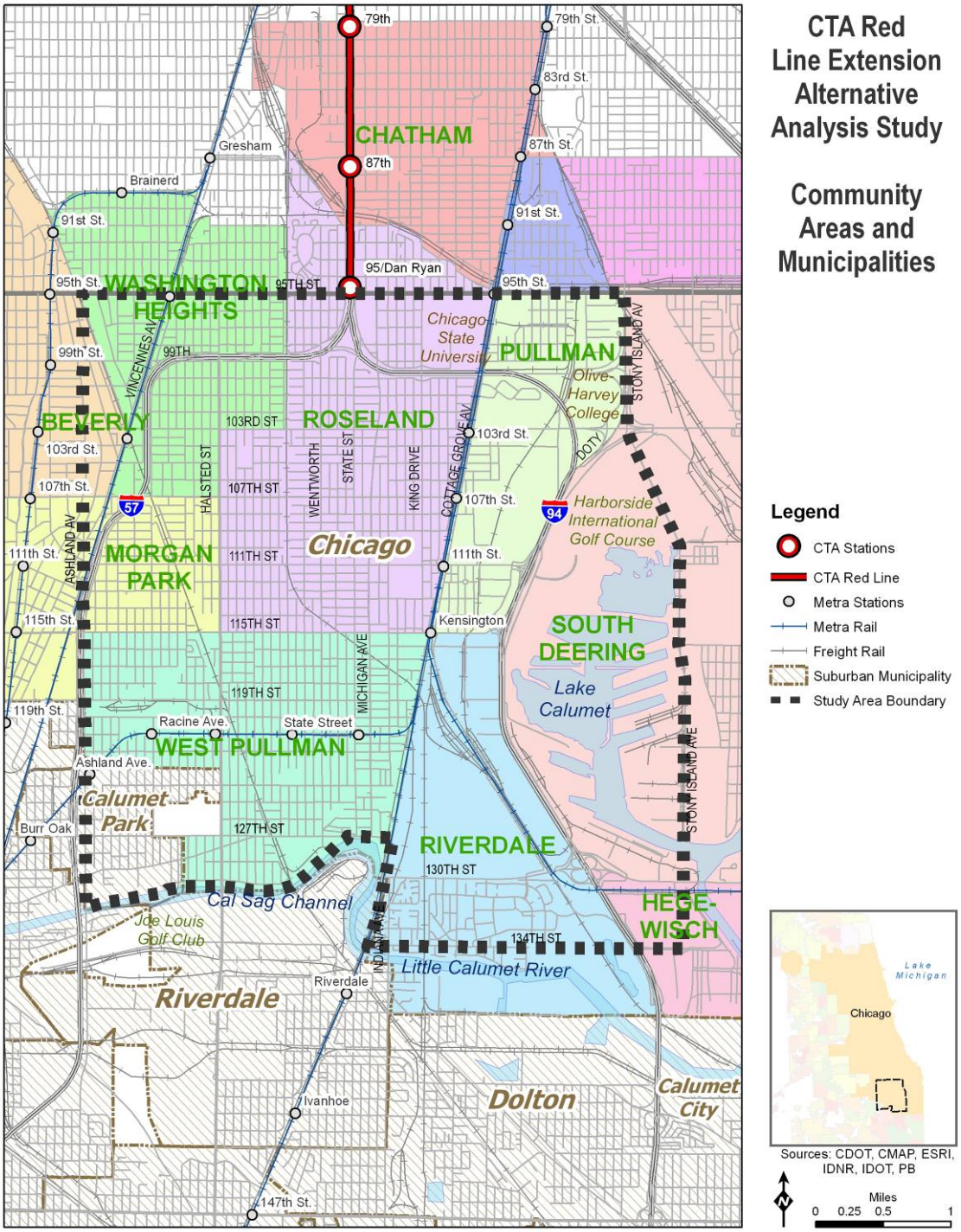
The purpose of the Red Line Extension Alternatives Analysis (AA) Study is to identify transit improvements that would provide improved mobility to residents and businesses located in the City of Chicago's Far South Side and surrounding suburbs.

2.1.1 Study Area Boundaries

The study area (Figure 2.1) is situated 11 miles south of the Chicago Central Area (commonly referred to as the "Loop") and encompasses approximately 20 square miles. The boundaries of the study area are 95th Street on the north, Ashland Avenue on the west, Stony Island Avenue on the east, and the Calumet-Sag Channel/Little Calumet River and 134th Street on the south. The I-57 Expressway and I-94 Bishop Ford Freeway traverse the western and eastern edges of the study area, respectively. Lake Calumet is located in the eastern portion of the study area.

The study area encompasses parts of nine community areas in the City of Chicago and the eastern section of the City of Calumet Park (area east of Ashland Avenue). Community areas include Washington Heights, Beverly, Morgan Park, Roseland, Pullman, West Pullman, South Deering, Hegewisch and Riverdale (Figure 2.1). The study area has significant residential (primarily single family), industrial (existing and vacant), transportation and commercial development. The study area boundaries are major, recognizable streets, used to clearly define where possible alternatives would be considered. However, travel patterns and analyses beyond the study area are integral components to the project study and included as necessary.

Figure 2.1: Study Area and Community Area Boundaries



2.1.2 Demographic Characteristics

The six-county northeastern Illinois region is the third most populated metropolitan region in the nation. The City of Chicago, with 2.9 million residents, is the nation's third largest municipality. In 2000, the study area had over 133,000 residents living in nearly 42,000 households. Study area population is expected to grow by 5 percent and households by 9 percent between 2000 and 2030.

Table 2.1: 2000 and 2030 Population

Area	2000 Population	2030 Population	Growth	2000 Households	2030 Households	Growth
Six-County NE Illinois Region	8,092,145	10,050,860	+24%	2,907,201	3,636,108	+25%
City of Chicago	2,897,715	3,261,464	+13%	1,062,683	1,222,082	+15%
Red Line Ext. Study Area	133,364	139,820	+5%	41,515	45,349	+9%

Source: Northeastern Illinois Planning Commission (now CMAP) 2030 Forecasts, approved 9/27/2006.

As seen in Figure 2.2, population density in the study area generally ranges from 5,000 to 20,000 persons per square mile and is consistent with the population density around the existing CTA Red Line service.

The study area population is almost entirely minority. In 2000, 93.8 percent of the study area population was African American (see Figure 2.3), 2.7 percent Hispanic, 1.9 percent Caucasian, and 1.6 percent other minorities.

A large share of the study area population is low income, as shown in Figure 2.4. In 2000, 21 percent of the population had incomes below the poverty level – double the population of low income residents in Cook County, at 11.5 percent. Just south of 130th Street and to the west of the I-94 Bishop Ford Freeway, 3,400 residents live in the Altgeld Gardens/Murray Homes public housing development.

2.1.3 Employment and Economic Development

The Far South area of Chicago has seen many of its major employment centers close since the 1980s, with a loss of around 20,000 jobs. Despite these losses, the area has remained an active industrial center in the region. Since the late 1990s employment has been increasing. Several Far South area businesses have expanded, including the Ford Motor Company in South Deering, offsetting some of the job losses from previous years. As shown in Table 2.2, the 2000 employment in the Red Line Extension study area is approximately 17,000 jobs, with CMAP 2030 employment projections at 27,000 jobs (58 percent increase).

Figure 2.2: 2000 Population Density (Persons per Square Mile)

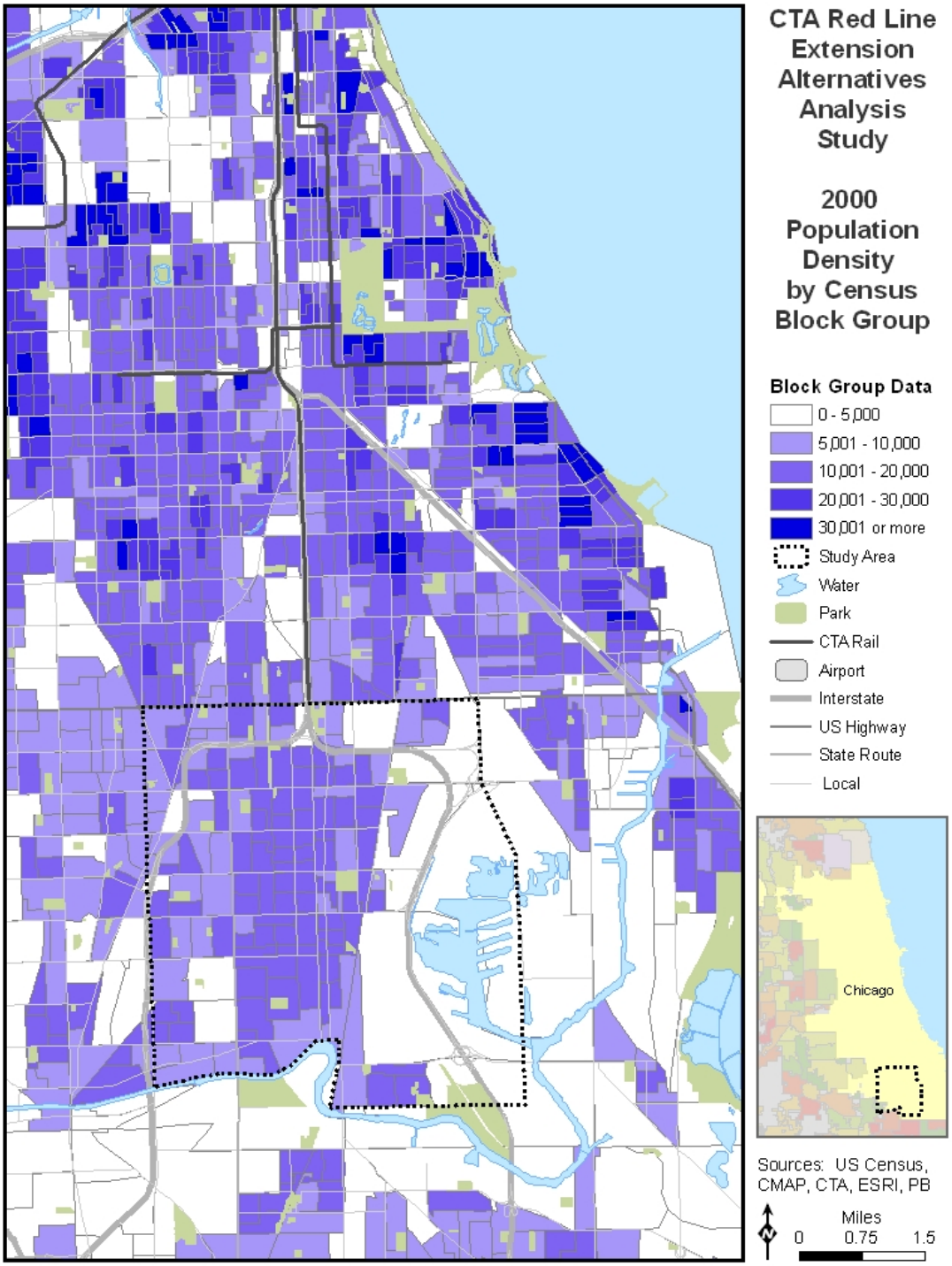


Figure 2.3: 2000 Study Area African American Population (Persons)

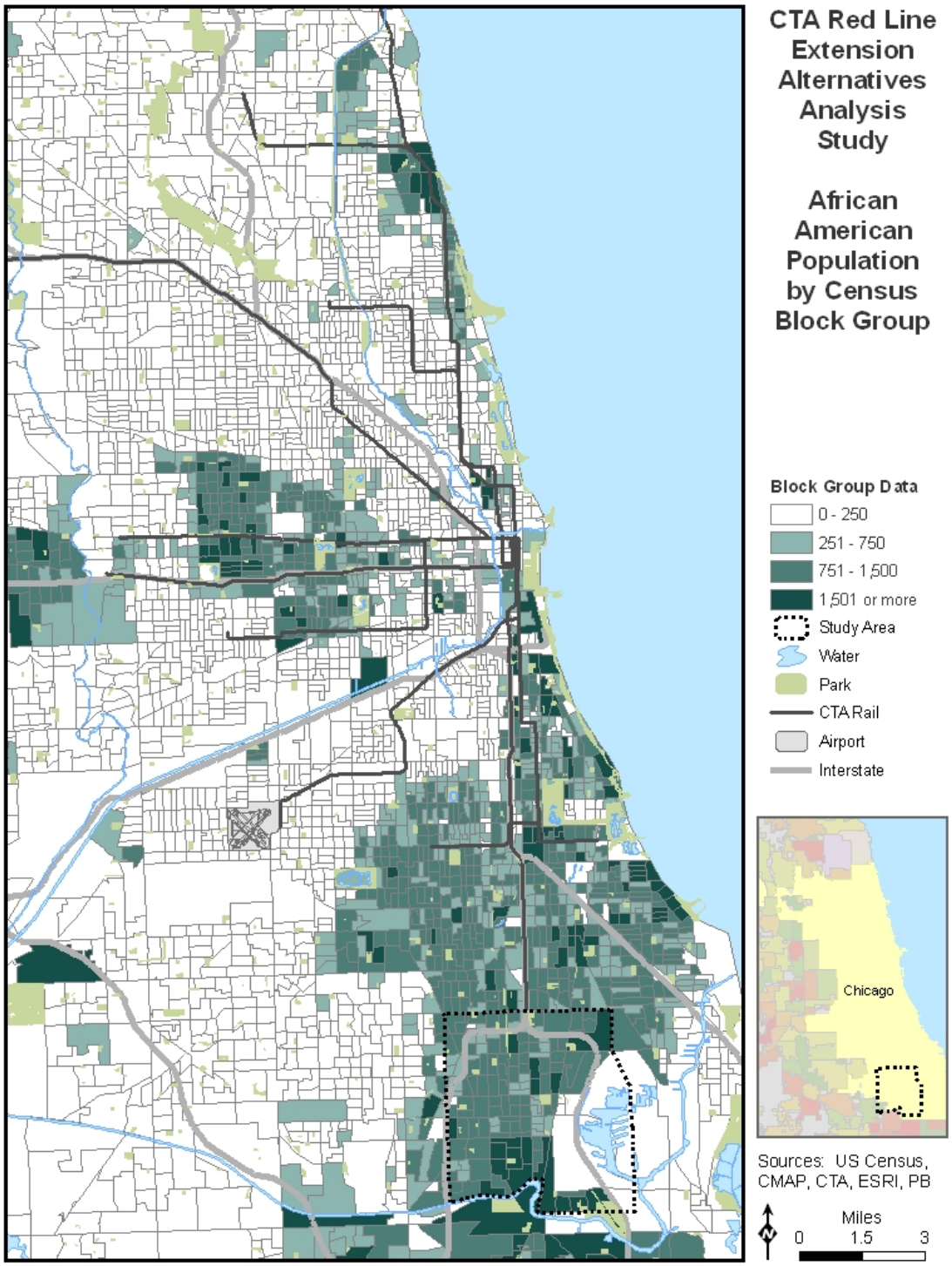


Figure 2.4: 2000 Study Area Low Income Population (Persons)

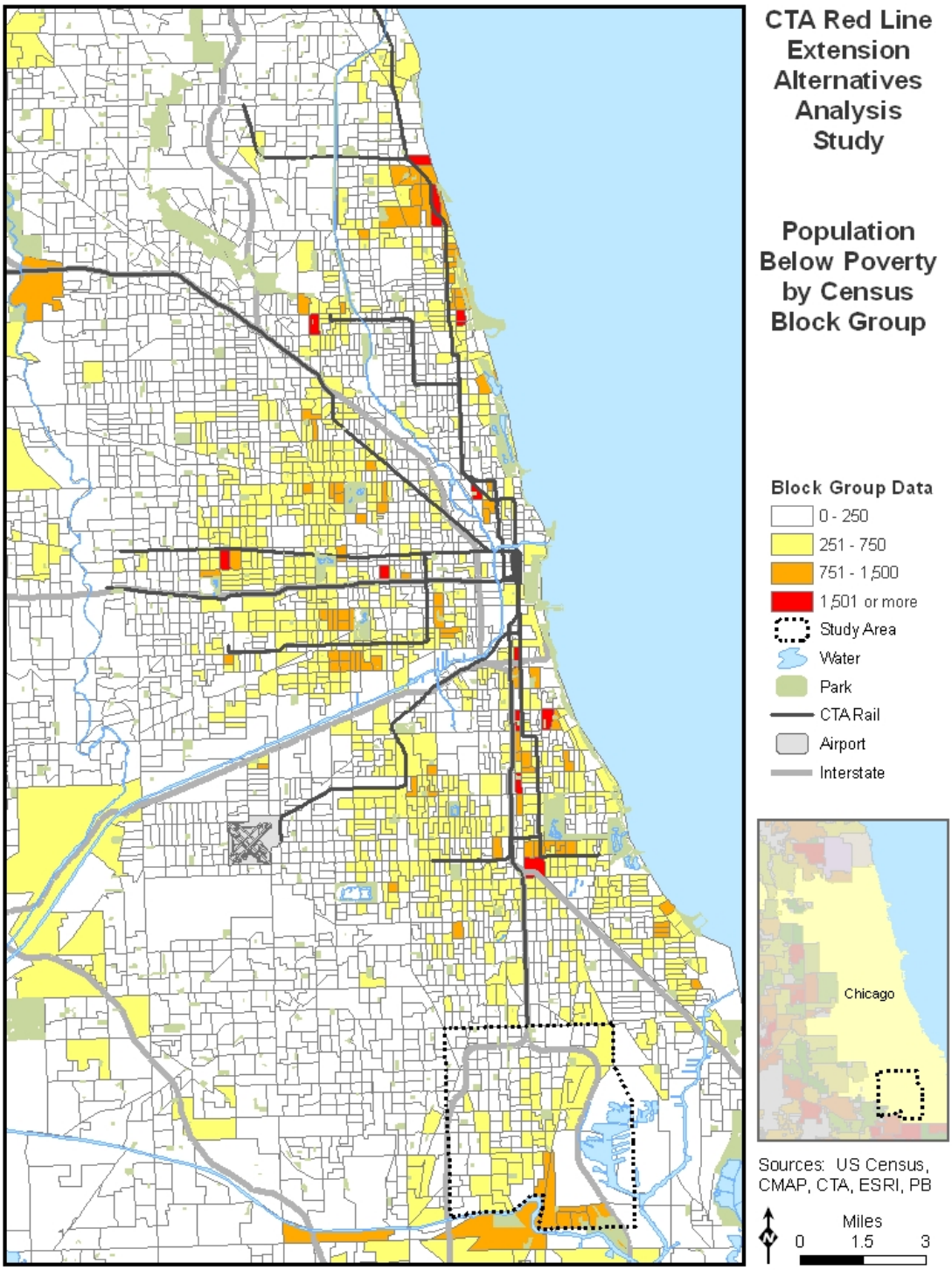


Table 2.2: 2000 and 2030 Employment

Area	2000 Employment	2030 Employment	2000-2030 Change
Six-County NE Illinois Region	4,297,686	5,535,236	+29%
City of Chicago	1,499,255	1,745,101	16%
Red Line Study Area	17,290	27,108	58%

Source: Northeastern Illinois Planning Commission (now CMAP) 2030 Forecasts, approved 9/27/2006.

In 2000, the Far South study area had one job for every eight residents. This compares to one job for every two residents for the City of Chicago and the six-county northeastern Illinois region as a whole. As a result, many residents must travel to downtown Chicago or other major employment centers for work, resulting in long commutes for many Far South residents. By 2030, the jobs to population balance is expected to improve for the study area to one job for every five residents, but will still remain far below the city and regional averages.

The City of Chicago is focusing on stabilizing, improving and redeveloping communities in the Far South area. The City has designated several Tax Increment Finance (TIF) districts, Redevelopment Areas (RA), and Industrial Corridors in the study area. TIF districts direct future tax revenue increases back to the district for development assistance, infrastructure improvements, environmental remediation, building demolition, land acquisition, and employment training. RAs allow for building acquisition and demolition, assembling lots into viable parcels, and improving community facilities, infrastructure, and transportation facilities. Industrial Corridors are designated to improve opportunities for manufacturers and other industrial users. Major incentive zone areas in the study area include the 119th/Halsted RA, the Roseland/Michigan Avenue RA, the Pullman Industrial Corridor, and several smaller TIF districts.

There have been numerous market studies[1] performed in the study area to identify economic development opportunities. These studies have recommended:

- increase the supply of sites available to retain growing companies and attract new ones,
- develop large parcels to overcome perceptions of disinvestment,
- assemble large sites near intermodal facilities and market to major regional distributors,
- provide transportation support to TIF development projects,
- create proactive programs to identify and retain companies faced with expansion,
- develop comprehensive labor force development efforts,
- increase presence of commercial services franchises,
- explore potential for back-office development, and
- address unmet retail and grocery store demand.

[1] Chicago Industrial Market and Strategic Analysis, Strategies for Business Growth in Chicago Neighborhoods, Commercial Market Assessment Michigan Avenue Corridor in Roseland, Residential Market Analysis for the 9th Ward (Draft), Moving Chicago Far South District Analysis (Draft)

2.1.4 Land Use Characteristics

The study area's land use is diverse, as depicted in Figure 2.5. Approximately 44 percent of the study area is residential and 11 percent industrial. Retail and commercial areas are located north-south along the Halsted Street and Michigan Avenue corridors. Large tracts of vacant or underutilized industrial land remain in the eastern portion of the study area in the vicinity of Lake Calumet.

The study area is rich in educational facilities, including Chicago State University (7,200 students), Olive-Harvey College (4,300 students), and several high schools including Harlan, Corliss, Fenger, Julian, Brooks and Carver.

Other activity centers in the study area include South Michigan Avenue Shopping District, Halsted Street Commercial Corridor, Roseland Hospital (162 beds), Sherwin-Williams, Ryerson, the Illinois International Port District, and Metron Steel. The Ford Motor plant, with 2,800 employees, is located at 130th Street and Torrence Avenue, just east of the study area.

2.1.5 Travel Patterns[2]

More than 282,000 total daily trips originated or were destined to the study area in 2000. By 2030, daily trips are projected to increase by over 26 percent to over 356,000 trips.

Of the total daily study area trips in 2000, approximately 17 percent of these trips were home-based work trips. By 2030, home-based work trips increase 14 percent from 2000.

As seen in Figure 2.6, compared to other districts, the study area (District 1) exhibits a strong tie to the Chicago Central Area (District 7), and other districts accessible by CTA rapid transit, for work trips. Of the 48,000 daily work trips originated or were destined to the study area in 2000, 24.4 percent of these trips were to/from the Chicago Central Area. Other 2000 major work trip flows to/from the study area include the district surrounding the study area (District 2) at 9 percent, the south lakefront (District 16) at 9 percent, the mid-south (District 15) at 7 percent, the west side (District 14) at 6 percent, the internal study area (District 5) at 5 percent, and major employer areas such as northwest Cook County (District 8) and DuPage County (District 20) at 3.4 percent and 2.5 percent respectively.

Of the total study area daily trips in 2000, approximately 71 percent of these trips were home-based other trips. By 2030, home-based other trips increase 30 percent from 2000. Major home-based other trip flows to/from the study area in 2000 include the district surrounding the study area (District 2) at 29 percent, the internal study area (District 1) at 16 percent, the south lakefront (District 16) at 12 percent, the southwest side (District 18) at 9 percent, the mid-south (District 15) at 7 percent, Will County (District 21) at 5 percent, and the Chicago Central Area (District 7) at 4 percent.

Non-home based trips are 12 percent of total trips for the study area in 2000. By 2030, non-home based trips increase 25 percent from 2000. Of the total home-based work trips in 2000 to/from the study area, 9 percent or nearly 4,500 work trips were made by households with zero-car ownership. By 2030, the number of home-based work trips by households with zero-car ownership increases 5 percent to 4,700.

[2] Travel data from 2000 and 2030 CTA ROY New Starts travel model runs (AECOM)

Figure 2.5: Study Area Land Use

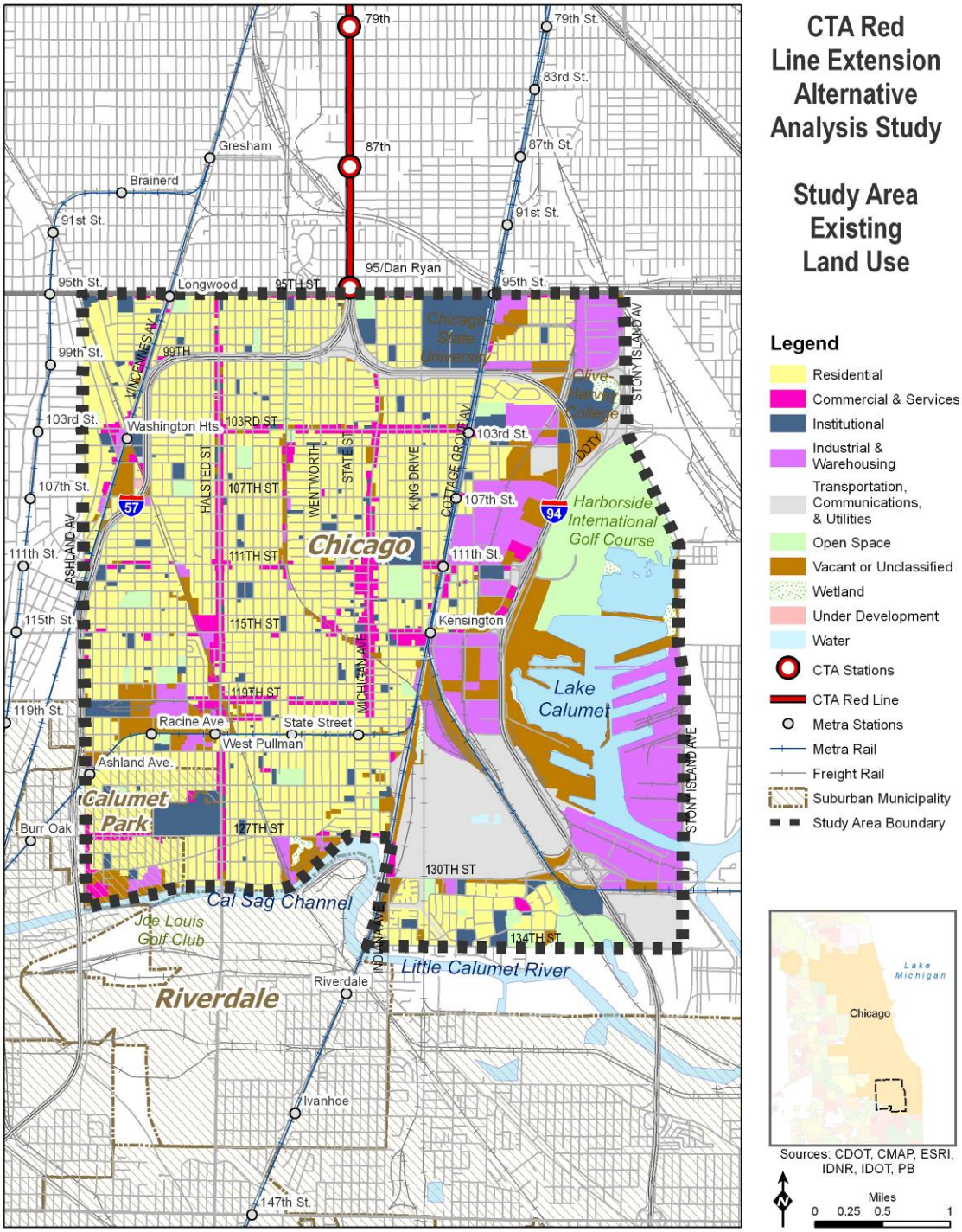
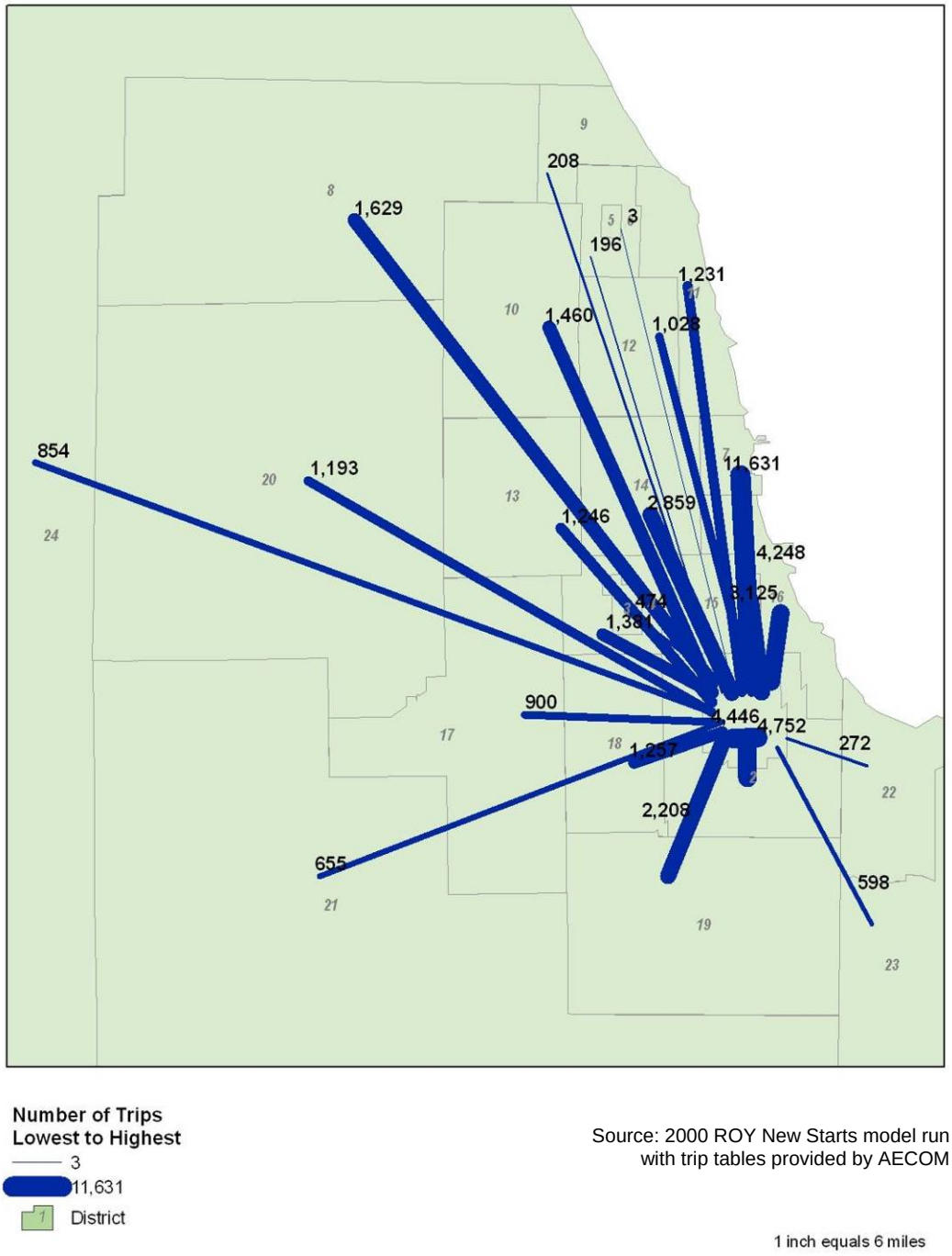


Figure 2.6: 2000 Home-Based Work Trip Flows by District



The Far South study area had a 26 percent overall home-based work transit mode share in 2000. In particular, the study area shows very strong transit usage to the Chicago Central Area for these work trips at 57.6 percent in 2000, with the transit mode share projected to increase to 60.3 percent by 2030.

Home-based other transit mode share for the study area is 3.5 percent in 2000. Non-home based transit mode share for the study area is 3 percent in 2000.

2.2 Transportation Facilities and Services

The study area is served by roadway and transit systems, and pedestrian and bicycle facilities. Figure 2.7 depicts the roadway and rail transit systems within the study area, while Figure 2.8 provides additional details for CTA and Pace bus service within the study area.

2.2.1 Roadway System

The study area includes expressways, regional arterials, truck routes, intermodal connectors, secondary arterials and local streets. Expressways within the study area include I-57 and I-94 Dan Ryan/Bishop Ford. Average daily traffic (ADT) on I-94 Bishop Ford ranged from 129,000 west of King Drive to 156,800 north of 130th Street. The ADT on I-57 ranged from 145,900 north of 119th Street and 125,300 north of 127th Street. Leading to downtown Chicago, the I-94 Dan Ryan Expressway is one of the busiest expressways in the nation with an ADT of 300,000.[3]

Lake Calumet and the Calumet River are natural barriers resulting in no through-roads that would connect the eastern and western parts of the study area between 103rd and 130th Streets. Halsted Street is the only through north-south arterial road in the study area that crosses the Calumet-Sag Channel. ADT on Halsted Street is 26,000.

Based on CMAP 2030 traffic forecasts, projected traffic increases for Far South roads were approximately 10 percent for expressways and between 20 to 30 percent for arterials, with east-west travel demand growing slightly higher than north-south travel demand.

2.2.2 Transit System

The CTA's Red Line 95th Street terminal is at the northern boundary of the study area. Average frequency of service (headway) during the peak periods is 5 minutes, and service is provided around the clock, as seen in the Table 2.3 below. Entering weekday passengers at the 95th Street station was 14,240 in April 2008, or an estimated total of 28,500 passengers entering and exiting the station. The 95th Street station is CTA's highest entering station traffic outside of the Loop and is second overall in the system (excluding cross-platform transfers).

Table 2.3: CTA Red Line Service Summary

Service Period	Hours	Time Period	Average Frequency (minutes)	Train Length	Vehicles Required
Weekday					
Early Morning	3.0	03:00 - 06:00	13	4 or 8	
AM Peak	3.0	06:00 - 09:00	5	8	304
Base	6.0	09:00 - 15:00	7	4 or 8	184
PM Peak	3.0	15:00 - 18:00	5	8	304
Evening	4.0	18:00 - 22:00	7.5	4	
Late Evening/Owl	5.0	22:00 - 03:00	15	4 or 2	48
Weekday Total Hours	24.0				

Source: Red Line Extension Service Plan, PB and MKC Associates

[3] ADT's from IDOT website. http://www.gettingaroundillinois.com/

Figure 2.7: Existing Transportation Facilities and Services

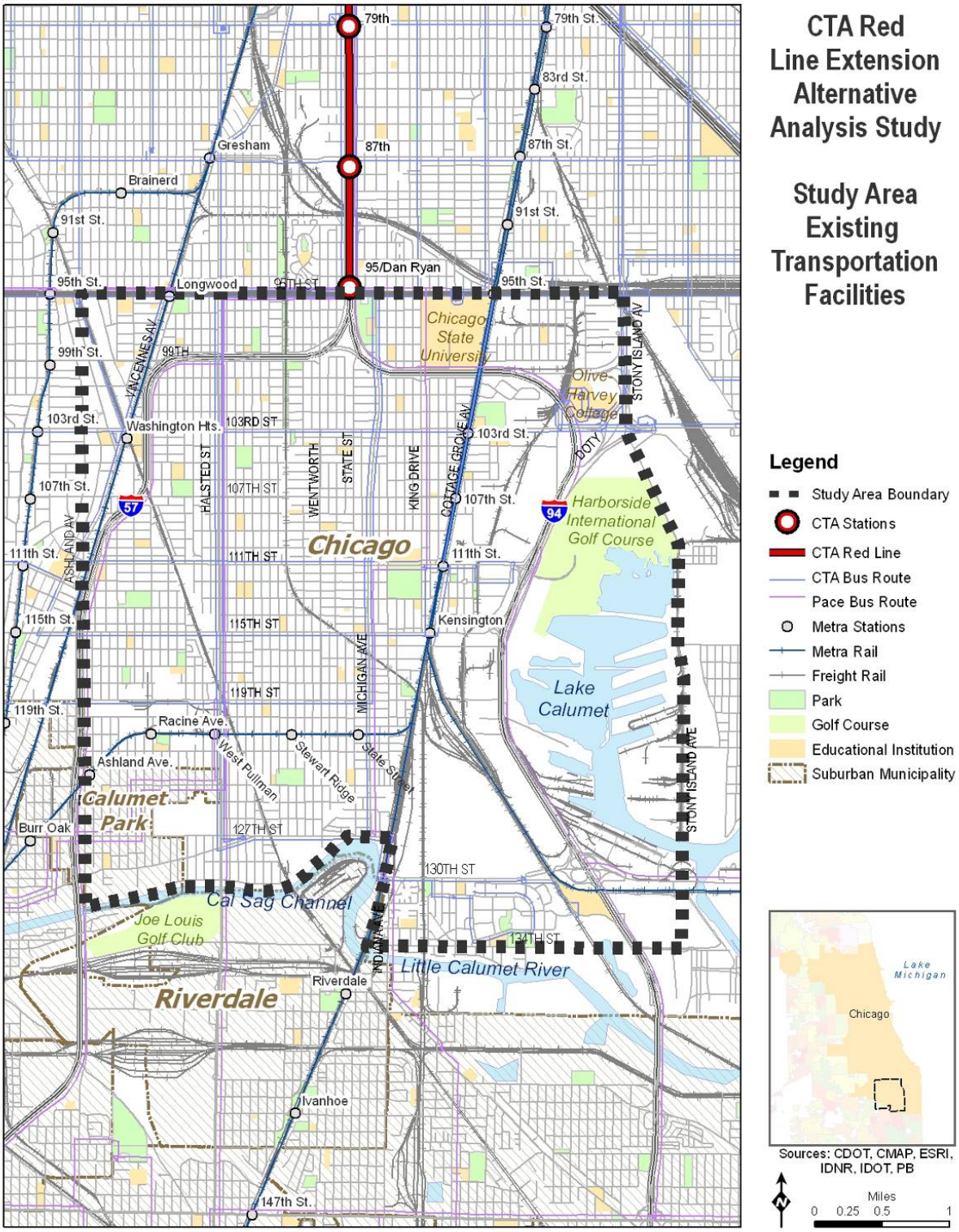
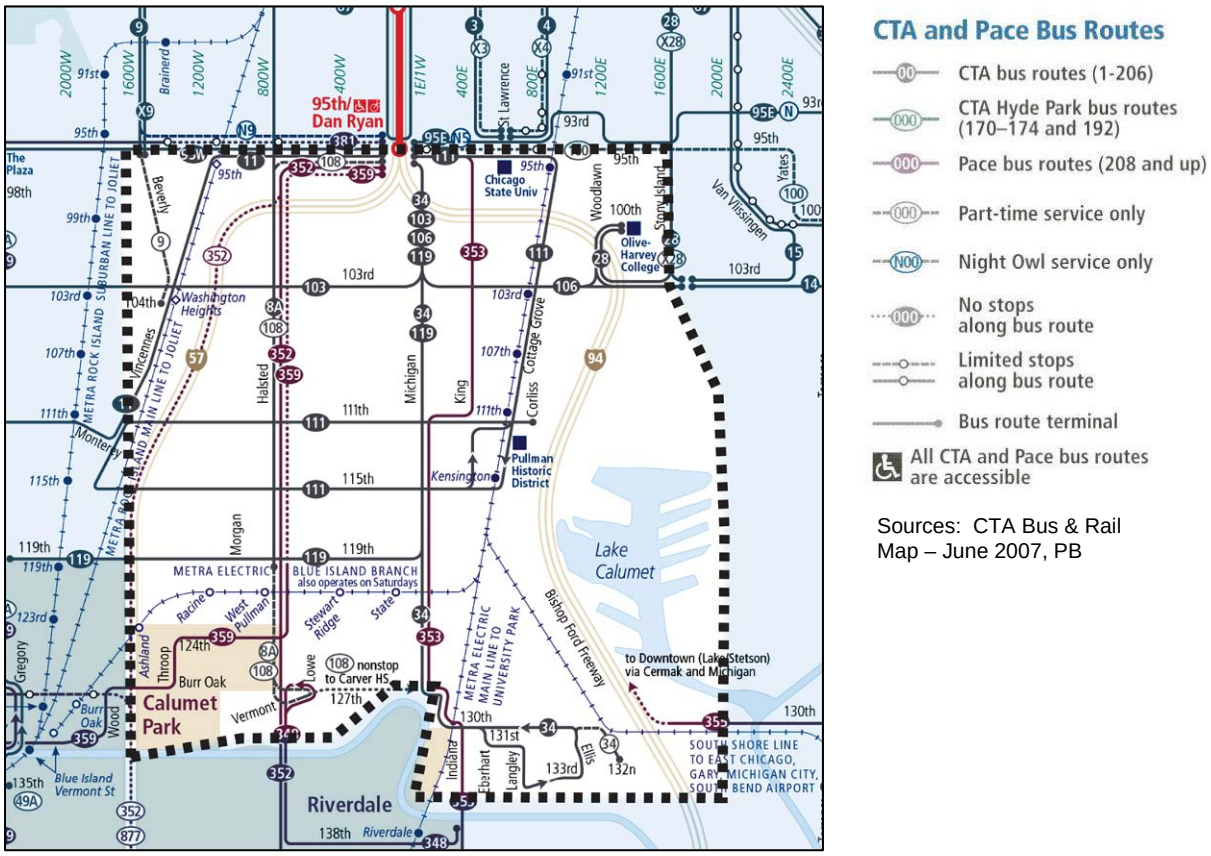


Figure 2.8: Existing Transit System



No CTA park-and-ride facilities are located on the Red Line Dan Ryan branch. The Red Line Dan Ryan branch and Lake Street branch of the Green Line are the only two rapid transit branches without park-and-ride facilities.

There are currently two yard and shop facilities located on the Red Line; Howard yard and shop at the north terminus of the Red Line, and 98th Street yard and shop at the south end of the line in the study area. Currently, all Red Line cars are operated and maintained from the Howard and 98th Street facilities. In addition, Yellow Line cars are stored and maintained at the Howard Yard and Shop, and the Purple Line cars are operated and maintained at yards and shops at both Linden and Howard. The 98th Street shop facility is now 40 years old, having been constructed in 1969 as part of the Dan Ryan Line construction project. The 98th Street shop is cumbersome for CTA operations due to its constrained location within an expressway median and access to the facility for materials delivery is difficult because of its grade separation from local streets. The CTA has long recognized the 98th Street shop as being an inadequate facility to support the current and future maintenance needs of the south end of the Red Line and have included the need for an expanded or new 98th Street shop in past capital programs although funding for replacement has not yet been identified.

Metra and the Northern Indiana Commuter Transportation District (NICTD) provide commuter rail service in the study area. Metra commuter rail service in the study area includes the Metra Electric District (MED), which has 10 commuter rail stations in the study area. Of the five MED

mainline stations, the Kensington/115th Street station is a major transfer station and is served by 19 inbound trains between 6:00 a.m. and 9:00 a.m. on a typical weekday. The Kensington/115th Street station also has park-and-ride facilities with a capacity of 408 cars that is fully utilized. The other MED stations in the study area have much less frequent service. The other four stations (111th Street, 107th Street, 103rd Street, and 95th Street) on the MED main line are served by four or five inbound trains during the morning peak period. The five stations in the study area on the Blue Island branch of the MED (Ashland Avenue, Racine Avenue, West Pullman, Stewart Ridge, and State Street) are served by six inbound trains in the morning peak period.

The Metra-Rock Island District mainline has two stations (Longwood and Washington Heights) within the far northwestern portion of the study area. The NICTD South Shore commuter rail trains serve the study area at the Kensington/115th Street station, picking up southbound only and discharging northbound only.

The Metra commuter rail ridership in the study area is shown in Table 2.4. Of these stations, 115th Street/Kensington has the highest utilization with 1,577 average weekday boardings. Metra has previously considered the consolidation of stations north of Kensington/115th Street station.

Table 2.4: Metra Boardings by Station

Line/Station	2006 Daily Boardings
Metra Electric District - Mainline	
95Th Street	49
103rd Street/Rosemoor	70
107th Street	34
111th Street/Pullman	27
Kensington/115th Street	1,577
Metra Electric District – Blue Island Branch	
State Street	85
Stewart Ridge	61
West Pullman	24
Racine Avenue	53
Ashland Avenue	165
Metra Rock Island District - Mainline	
95th Street/Longwood	147
103rd Street/Washington Heights	219

Source: Regional Transportation Asset Management System, RTA

CTA and Pace bus services are provided on north-south and east-west thoroughfares in the study area, with 22 CTA bus routes and seven Pace bus routes operating on the edge or within the study area. Of those bus routes, 19 serve the 95th Street terminal station on the Red Line.

As seen in Table 2.5, these bus routes average 12.4 miles in length, 46 minutes in travel time, and 4,989 in daily ridership.

Table 2.5: CTA and Pace Bus Routes Serving 95th Street Station

Route Number / Route Name	Route Length (miles)	Route Travel Time	Peak Period Headway	2009 Ridership
CTA #29 / State	12.8	1:10	0:12	14,589
CTA #34 / South Michigan	5.8	0:28	0:07	6,222
CTA #95E / 93rd/95th	4.9	0:25	0:10	5,140*
CTA #95W / West 95th	3.7	0:22	0:10	5,512
CTA #100 / Jeffery Manor Express	7.1	0:32	0:16	906
CTA #103 / West 103rd	6.5	0:27	0:11	3,639
CTA #106 / East 103rd	4.3	0:19	0:09	2,101
CTA #108 / Halsted/95th	5.2	0:29	0:10	2,646
CTA #111 / Pullman/111th/115th	10.5	0:50	0:10	6,843
CTA #112 / Vincennes/111th	6.6	0:28	0:12	3,266
CTA #119 / Michigan/119th	6.3	0:31	0:07	6,222
CTA #N5 / South Shore Night Bus	12.1	0:47	N/A	5,140*
CTA #N9 / Ashland Owl	16.1	1:19	N/A	20,520**
Pace #352 / Halsted Street	17.0	1:04	0:10-0:30	5,199
Pace #353 / 95th-Riverdale-Homewood	15.0	0:55	0:15-0:30	2,433
Pace #359/ Robbins-South Kedzie	18.9	1:08	0:30	1,371
Pace #381/ 95th Street	13.0	0:52	0:15-0:30	2,629
Pace #395 / 95th Station-UPS Hodgkins	15.9	0:52	Irregular	387
Pace #1012 / 95th Evergreen Pk-Prairie Stone	54.0	1:45	N/A	28
Average	**12.4**	**0:46**	**0:13**	**4,989**

Source: Regional Transportation Asset Management System, RTA
* Ridership for CTA #95E and #N5 are reported together
** Ridership for CTA #N9 includes ridership for the #9 Ashland

The current transit fare structure for CTA is shown in Table 2.6. Pace regular bus fares are $1.75 with $0.25 transfers. The Pace/CTA 7-day pass is $28.00 and the 30-day pass is $86.00. Metra fares for MED mainline and Rock Island stations in the study area are Zone C fares,

which from downtown Chicago are $3.35 (10-ride tickets are $28.50 and monthly tickets are $90.45). Fares for the MED Blue Island branch in the study area are Zone D are $3.80 (10-ride tickets are $32.30 and monthly tickets are $102.60).

Table 2.6: CTA Fare Structure

CTA Fare Types	Fare Structure (Effective 1/1/2009)
Full Fare Cash (Bus only)	$2.25
Full Fare Transit Card (TC) Bus	$2.00
Full Fare TC Rail	$2.25
Full Fare Chicago Card (CC) Bus	$2.00
Full Fare CC Rail	$2.25
TC or CC Transfer[1]	$0.25
1-Day Pass	$5.75
3-Day Pass	$14.00
7-Day Pass CTA only	$23.00
7-Day Pass CTA/Pace	$28.00
Full Fare 30-Day Pass	$86.00
Link-Up Pass	$39.00
Reduced Fare TC or CC	$0.85
Reduced Fare Cash (Bus only)	$1.00
Reduced Fare TC or CC Transfer	$0.15
Reduced Fare 30-Day Pass	$35.00

[1]Transfer fare allows two additional rides within two hours of the first boarding.

2.2.3 Intercity Bus Service

A Greyhound Bus Terminal also exists at the Red Line 95th Street Station. Intercity buses offer connecting services to much of North America. Buses arrive and depart several times per day including direct and/or connecting service nationwide and to nearby locations such as Chicago Union Station, Detroit, Minneapolis, St. Louis, St. Paul, Gary, Indianapolis, Champaign, Rockford, Bloomington, Springfield, Milwaukee, South Bend, and Benton Harbor.

2.3 Performance of the Transportation System

2.3.1 Agencies Involved in Transportation Planning

The Policy Committee of the Chicago Metropolitan Agency for Planning (CMAP) is the designated Metropolitan Planning Organization for the northeastern Illinois region. CMAP was formed in 2005 by combining the region's two previously separate transportation and land-use planning organizations – the Chicago Area Transportation Study (CATS) and the Northeastern Illinois Planning Commission (NIPC) -- into a single agency.

The Regional Transportation Authority (RTA) is a fiscal oversight agency responsible for three operating agencies or "service boards"-- CTA, Metra, and Pace. Other agencies, such as the Chicago Department of Transportation, the Illinois Department of Transportation, and the Cook County Highway Department have transportation planning responsibilities in the study area.

2.3.2 Local Transportation Goals and Objectives

The current CMAP 2030 Regional Transportation Plan, adopted in October 2008, contains three overarching goals: maintain the integrity of the existing transportation system, improve transportation system performance, and employ transportation to sustain the region's vision and values. Relevant objectives include:

Transportation mobility and accessibility objectives

Promote transportation proposals that:

- increase access to job opportunities
- provide efficient modal alternatives for short trips
- reduce traffic congestion

Transportation system efficiency objectives

Promote transportation proposals that:

- reduce highway congestion
- increase the availability of public transit
- supports regional or local efforts to balance the location of jobs, services, and housing to reduce travel distances

Congestion management objectives

Promote transportation proposals that:

- reduce highway congestion
- improve system reliability
- increase person throughput capacity in congested corridors by increasing vehicle occupancy, providing transit options, and encouraging transit use
- increase the share of trips made by walking, bicycling, and transit
- improve coordination and connectivity between and among different modes
- support regional or local efforts to balance the location of jobs, services, and housing to reduce travel distances

Transportation and social equity objectives

Promote transportation projects that:

- provide improved transportation choices to economically disadvantaged persons
- stimulate balanced and sustainable development in communities with concentrations of disadvantaged residents
- support programs providing financial incentives to low-income persons residing in communities that provide a wider variety of transportation choices
- support links from disadvantaged communities to jobs and services

2.3.3 Roadway System Performance

Roadway system capacity deficiencies and expressway and arterial traffic congestion limit the mobility and accessibility of the residents of the study area. Traffic congestion in the metropolitan area has steadily grown over the past decades along the region's expressways and major arterials. Chicago is ranked as second in the nation for travel time ratio (peak travel times versus free flow travel time), third for travel delay, excess fuel consumed, and congestion

costs, and is ranked fourth for congestion, with 72 percent of its freeway and street lane-miles congested.[4]

The 2000 Census reported that commute times were longer for study area residents than for Chicago as a whole. In 2000, the Chicago's average commute time was 34.4 minutes, while commute times for residents on the study area averaged 41.6 minutes—21 percent higher, as shown in Figure 2.9.

Significant expressway and arterial street traffic congestion occurs throughout the study area. As seen in Figures 2.10 and 2.11, the roadway network is approaching capacity during the morning peak periods in 2000 and is expected to worsen by 2030. As seen in these figures, almost every expressway segment has a volume-capacity ratio approaching or exceeding one. Arterial street traffic shows approximately half of the street segments in the study area have volume-capacity ratios greater than one.

Arterial street reliability is further compromised by delays from at-grade freight railroad crossings in the study area. The Union Pacific Railroad (UPRR) – which operates approximately 27 trains per day through the study area – has at-grade crossings at several east-west arterials in the study area. Similarly, there are shorter delays for the Metra Electric District Blue Island Branch commuter trains that operate at-grade and cross several major arterials in the study area.

With the I-94 and I-57 expressways in the study area already congested with trips starting south of the study area already approaching or exceeding the expressway capacity. Study area generated traffic on the expressways exacerbates this situation.

[4] Texas Transportation Institute (TTI), 2003 Urban Mobility Report.

Figure 2.9: 2000 Average Commute Times

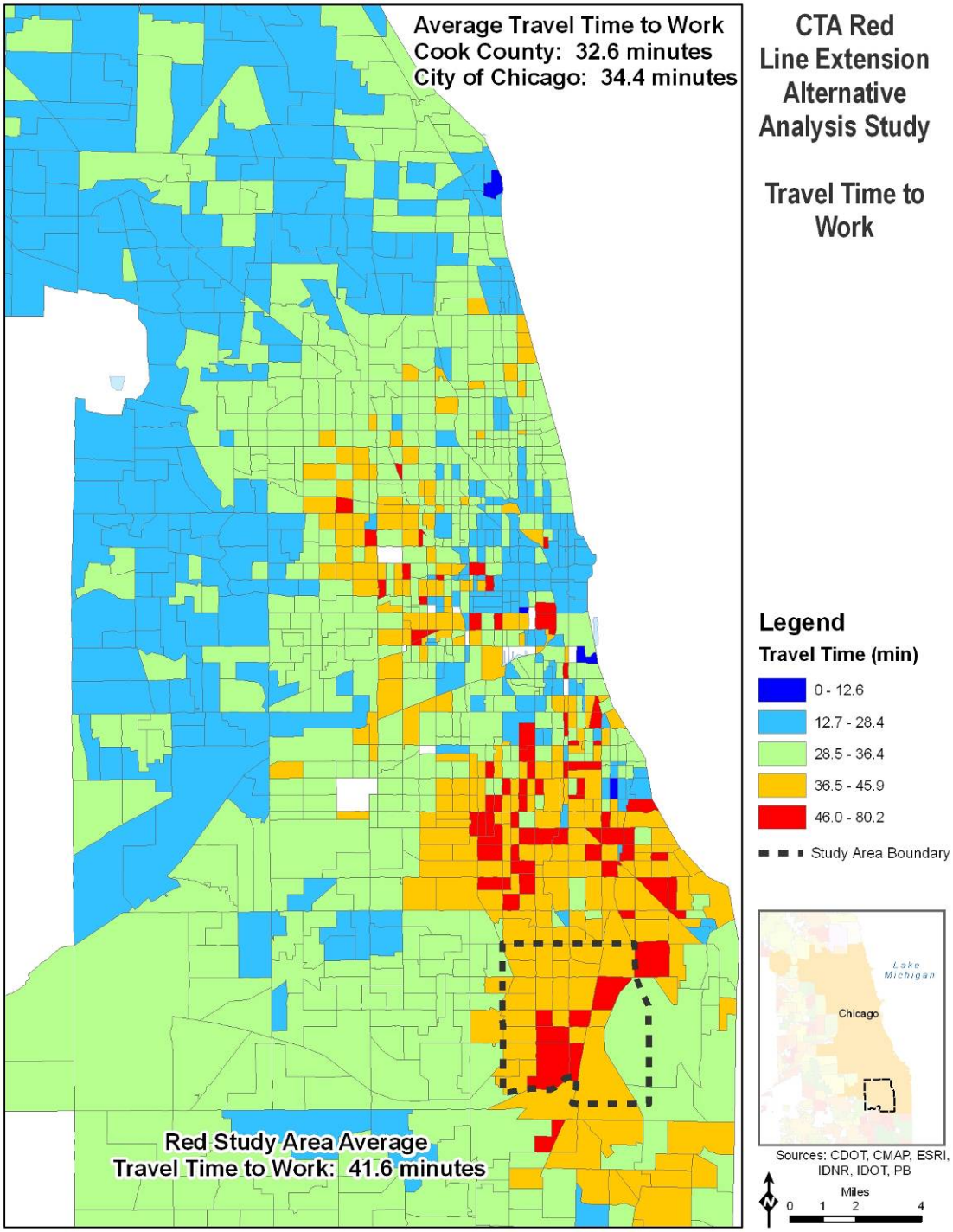


Figure 2.10: Estimated 2007 Morning Peak Hour Traffic Congestion

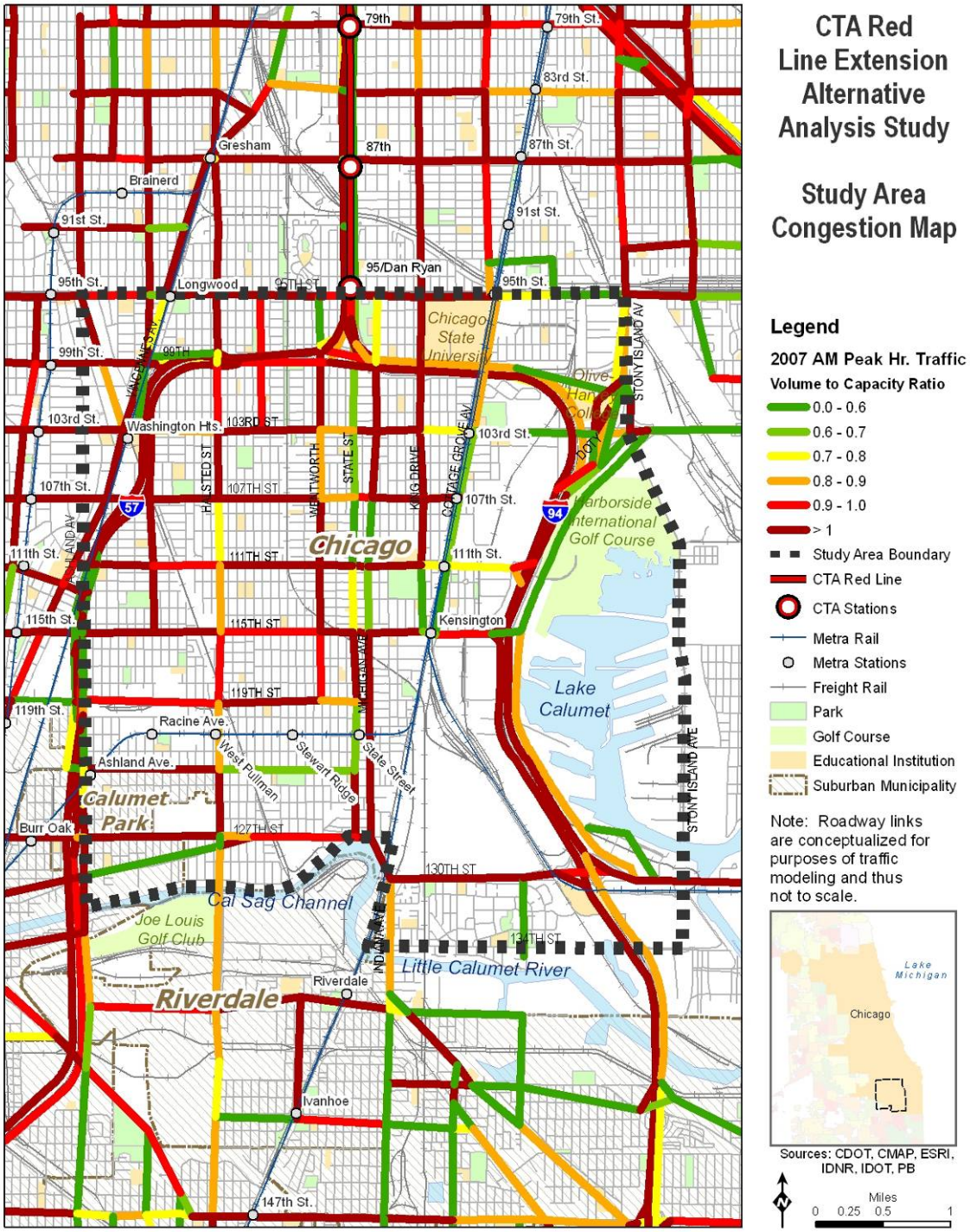
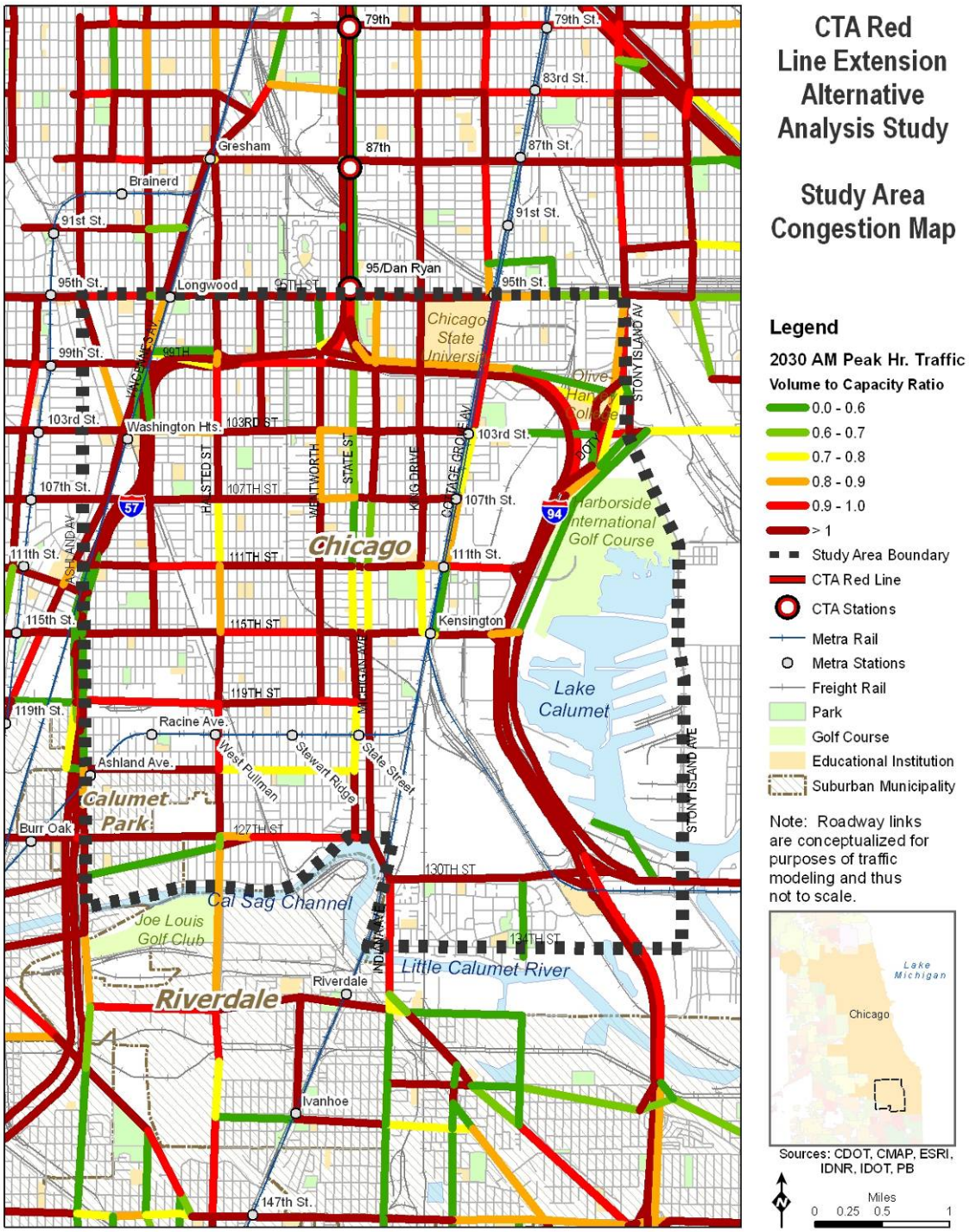


Figure 2.11: Estimated 2030 Morning Peak Hour Traffic Congestion



2.3.4 Transit Performance

Red Line 95th Street Station

The 95th Street bus terminal is situated over the Dan Ryan Expressway and serves the 95th Street rail station, the southern terminus of the Red Line. The area surrounding 95th Street terminal is congested due to the high number of vehicles entering and leaving the Dan Ryan Expressway. In addition, the street network in the area is characterized by a lack of through streets over the expressway and residential streets which are not appropriate for bus traffic. Buses serving the 95th Street Station must use the terminal to change direction because the existing street network is not conducive to on-street turnaround operations.

A review of current bus schedules indicates that speeds decrease dramatically within one mile of the terminal. Speeds on select bus routes are shown in Table 2.7.

Table 2.7: Speeds for Selected Bus Routes Serving 95th Street Terminal

Bus Route	Scheduled Operating Speed	
	< 1 mile from Terminal	> 1 mile from Terminal
34	9.65	12.0
95W	8.25	11.5
95E	8.6	11.25
108	8.6	12.0
106	7.1	11.3

Source: CTA Bus Supervisor Guide Weekday, effective Dec. 28, 2009
Bus routes were selected if they had a scheduled time point approximately one mile from the terminal.

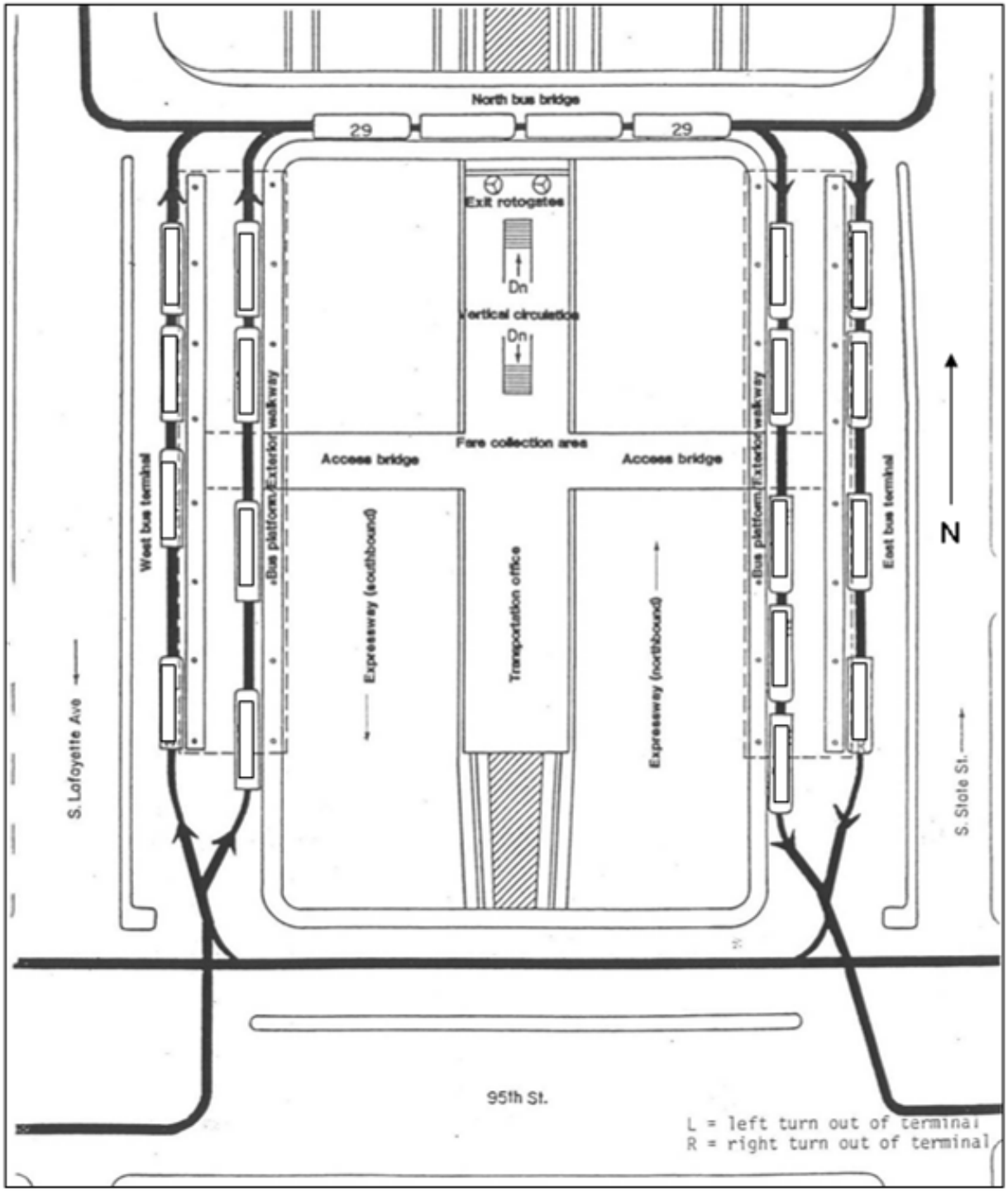
These speeds indicate that transit customers destined for 95th Street bus terminal and the Red Line experience delays on a daily basis.

The bus terminal, shown in Figure 2.12, contains nine bus islands surrounding the rail station entrance. Seven bus islands can accommodate two buses at a time, while two bus islands can accommodate three buses, for a total of 20 bus bays. Four islands are located on each side of the station (east and west) while a sidewalk located on the north side of the station functions as an additional bus island. Driveways are located off of 95th Street, Lafayette Avenue and State Street. Lafayette Avenue is one-way southbound and State Street is one-way northbound. Because Lafayetts and State Streets operate in only one direction, these driveways are of limited utility and are used exclusively by bus route 29 State Street.

All buses, except route 29, enter the terminal from 95th Street. Operations in the terminal are one-way clockwise with buses entering the west driveway in a northbound direction, circling the north side of the station and traversing the east side of the terminal southbound. Buses exit the terminal onto 95th from the east driveway. Circulation within the terminal is slow due to tight turns and the frequent presence of pedestrians in the driveways.

Normal CTA terminal operation involves the use of a passenger drop off area at a sidewalk adjacent and convenient to the station entrance. The bus then proceeds to an assigned bus bay to collect boarding customers and take scheduled recovery time. CTA cannot follow normal procedures at 95th terminal because space for a drop off area is unavailable. A drop off area is approximately the size of three to five bus bays. All available bus bays at 95th terminal are assigned to one or more bus routes.

Figure 2.12: CTA 95th Street Station Bus Terminal[5]



[5] CTA 95th Station Expansion Study, July 1992

Bus routes assigned to bus bays in the west and north terminals drop off and pick up customers at the same location. This creates pedestrian congestion at the bus stop as disembarking passengers conflict with waiting customers on the curb. Bus routes assigned to the east terminal currently drop off passengers in the through lane in the west terminal. Dropping off passengers in the through lane of the west terminal will occasionally prevent buses from entering the terminal and cause following buses to queue along 95th Street waiting to enter the terminal.

Current operations within the bus terminal are not ideal or desirable, but are required due to the number of bus routes that must access the terminal. Nineteen CTA and Pace bus routes utilize the 95th Street terminal. Of these, two CTA routes (N5 and N9) and two Pace routes (395 and 1012) operate infrequently or during overnight hours and do not require a bus bay in peak periods. In addition to CTA and Pace, Greyhound Bus Lines occupy a bus bay in the terminal. Thus, a total of 16 bus routes require at least one bus bay during the morning peak. Eleven of the 16 bus routes require two bus bays because two buses are scheduled in the terminal at the same time. A minimum of 27 bus bays are required to accommodate current schedules. Since the 95th Street terminal contains only 20 bus bays, the terminal is operating over capacity.

In addition to the twenty-seven bays needed to accommodate current schedules, an additional five bays would be required for a drop off area at the terminal consistent with CTA standard operation elsewhere. The lack of a drop off area slows passenger boarding and alighting, creates congestion at the bus bays, and causes buses to back up onto 95th Street. Implementing a drop off area in the terminal increases the number of additional bays required to 12 (32 total bus bays).

A need exists to expand the 95th Street bus terminal in order to accommodate current schedules and comply with standard operating procedures. A terminal expansion would improve bus travel time entering the terminal, decrease transfer time within the terminal, and improve safety.

Bus Performance

Thirteen CTA and six Pace bus routes serve the 95th/Dan Ryan Red Line station. During an average weekday, approximately 6,600 riders (44 percent of all 95th/Dan Ryan boardings) transfer from CTA buses and 2,250 riders (15 percent of all 95th/Dan Ryan boardings) transfer from Pace buses at the 95th/Dan Ryan terminal (CTA transfer data for October 2006).

The performance of these bus routes is shown in Table 2.8 below.

Table 2.8: CTA and Pace Bus Routes Serving 95th Street Station Performance

Route Number / Route Name	On-Time Arrivals
CTA #29 / State	79.7%
CTA #34 / South Michigan	55.7%
CTA #95E / 93rd/95th	51.8%
CTA #95W / West 95th	72.8%
CTA #100 / Jeffery Manor Express	49.8%
CTA #103 / West 103rd	59.6%
CTA #106 / East 103rd	83.8%
CTA #108 / Halsted/95th	69.4%
CTA #111 / Pullman/111th/115th	69.9%
CTA #112 / Vincennes/111th	74.6%
CTA #119 / Michigan/119th	51.5%
CTA #N5 / South Shore Night Bus	N/A
CTA #N9 / Ashland Owl	N/A
Pace #352 / Halsted Street	N/A
Pace #353 / 95th-Riverdale-Homewood	N/A
Pace #359/ Robbins-South Kedzie	N/A
Pace #381/ 95th Street	N/A
Pace #395 / 95th Station-UPS Hodgkins	N/A
Pace #1012 / 95th Evergreen Pk-Prairie Stone	N/A
Average	**65.3%**

Source: Spring 2009 CTA Data

2.4 Specific Transportation Problems

2.4.1 Access to Jobs

The Far South Side of Chicago, including the study area, was hard hit by the decline in manufacturing that began in the 1970s and the recession of the early 1980s. Many of the major well-paying heavy industries were closed or relocated out of the area – Wisconsin Steel closed in 1980, the last Pullman railcar was produced in 1981, International Harvester and Dutch Boy

Paints left West Pullman, Republic Steel laid off 4,000 workers in 1984, and the USX South Works, which once had 20,000 workers, employed only 600 when it closed in 1993. Overall, the study area lost 38,000 jobs between 1970 and 2000.

With the loss of jobs, the study area provides only one job for every eight residents, as compared to the northeast Illinois region and City of Chicago job/population average of one job for every two residents. As a result, many residents must travel long distances to reach major employment centers, such as downtown Chicago and northwest Cook County. This results in longer commute times for study area residents. The 2000 Census indicates that commute times were 21 percent longer for study area residents than for the City of Chicago as a whole. Chicago's average commute time was 34.4 minutes, while commute times for residents on the Far South Side averaged 41.6 minutes.

Another motivating factor for the need to improve access to jobs in the study area is that one in five residents in the study area was below the poverty level in 2000. This population needs affordable transportation options to access jobs. Also, 22 percent of households in the study area in 2000 did not own a car. These residents are dependent on other means of transportation, such as transit, for job access and general mobility.

Furthermore, improved transit service will support ongoing efforts by the City of Chicago through their tax increment finance districts, redevelopment areas, and industrial corridors to spur economic development in the study area.

2.4.2 Difficult Access to the 95th Street Station

The CTA Red Line 95th Street station is located in the median of the I-94 Dan Ryan Expressway. A total of 19 CTA and Pace bus routes serve the 95th Street station. These bus routes all operate in mixed traffic with one-way route travel times averaging 46 minutes, one-way route distances averaging 12.4 miles, and ridership averaging nearly 3,600 passengers a day. This translates to an average bus speed of 9.5 miles per hour. By 2030, bus travel times are projected to increase by 20 percent.

Almost all of the bus routes operating in the study area experience their maximum load point in the vicinity of the 95th Street station. This results in greater customer boarding and alighting delays the closer the bus is to the 95th Street station.

Other major factors contributing to the longer bus route travel speeds and times to access the 95th Street station include the level of overall traffic congestion on the arterial streets in the corridors. As seen in Figures 2.10 and 2.11, existing 2000 and projected 2030 morning peak period congestion levels are very high in the study area, with approximately half of the major arterial street segments operating at volume-capacity ratios greater than one, and the other segments operating at higher volume-capacity ratios. These high volume-capacity ratios translate to poor levels of service on the roadway system, such that the ability to maneuver is severely restricted, vehicle speeds are reduced due to the higher volumes, and minor disruptions cannot be absorbed without extensive queues forming. The majority of traffic on these major arterial streets in the study area is through-traffic that begins and/or ends outside of the study area.

Other factors contributing to the difficult access to the 95th Street station include delays from at-grade freight railroad crossings in the study area. The Union Pacific Railroad (UPRR) has at-grade crossings of 95th Street, 103rd Street, 111th Street, 115th Street, 119th Street, and 130th

Street, all of which are used for CTA bus services. Currently, the UPRR has approximately 27 trains per day operating through the study area. Similarly, there are shorter delays for the Metra Electric District Blue Island Branch commuter trains that operate at-grade and cross Ashland Avenue, Halsted Street, and Michigan Avenue, which have CTA and Pace bus services. Consequently, bus operations under these conditions are very difficult and result in poor on-time performance.

Kiss-and-ride access to the 95th Street station is also difficult. There is no formal passenger drop off facility in the vicinity of the station, the station itself is congested with pedestrian and bus traffic, 95th Street is congested, and the one-way frontage road system east and west of the station is not conducive to efficient auto access to the station.

Pedestrian access to the 95th Street station is also constrained since the adjacent commercial and residential development is separated from the station by the Dan Ryan Expressway and adjacent frontage roads. Lafayette Street on the west and State Street on the east of the terminal serve as local arterials and access/egress roads for the expressway. Therefore, pedestrians required to cross these streets to access the terminal must contend with a vehicle mix traveling at varying speeds.

2.4.3 95th Street Station Bus Capacity and Delay

Nineteen CTA and Pace bus routes utilize the 95th terminal. Of these, two CTA routes and two Pace route (N5, N9, 395, 1012) operate infrequently or during overnight hours and do not require a bus bay in the morning peak period. In addition to CTA and Pace, Greyhound Bus Line occupies a bus bay in the terminal. Thus, a total of 16 bus routes require at least one bus bay during the morning peak. Based on procedures in the Transit Capacity and Quality of Service Manual, 27-32 bus bays required in the peak 15 minute time period. Since the 95th Street station bus terminal contains only 20 bus bays, the terminal is currently over capacity.

Bus circulation within the terminal is also slow due to tight turns and the frequent presence of pedestrians in the driveways. Bus routes assigned to berths in the west and north terminals drop off and pick up customers at the same location. This creates pedestrian congestion at the bus stop as disembarking passengers conflict with waiting customers on the curb. Bus routes assigned to the east terminal currently drop off passengers in the through lane in the west terminal. This occurs because passengers are not patient and will not wait until the bus reaches its assigned bus bay. Passengers are often observed pulling the emergency back door release to exit the bus as soon as it stops. Dropping off passengers in the through lane of the west terminal will occasionally prevent buses from entering the terminal and queues to form along 95th Street as buses wait to enter the terminal.

As a result of the insufficient number of bus bays, and passenger-pedestrian-bus conflicts, delays occur. Table 2.9 depicts the estimated total delay and delay per bus from 7:00 to 9:00 a.m. at the 95th Street bus terminal that can be expected based upon the number of buses accessing the bus terminal. Currently, there are 115 buses entering the 95th Street bus terminal, each with an estimated delay of 38 seconds. The cumulative bus delay is nearly one hour and 14 minutes. With growing population and employment in the study area, and slowing travel times on the bus routes, the number of buses will need to be increased. Table 2.9 shows the resulting delay at higher bus levels.

Table 2.10 provides the number of passengers boarding and alighting on CTA bus routes at the 95th Street station bus terminal between 7:00 and 9:00 a.m. Applying the 38 second delay per

bus to the passenger volumes results in 34.4 hours of total passenger delay each weekday morning peak period.

Table 2.9: 95th Street Station Bus Terminal Delay (7:00-9:00 a.m.)

Number of Buses Entering the Terminal	Total Delay (hours)	Delay / Bus (minutes & seconds)
110	1:09:28	00:38
115*	**1:13:31**	**00:38**
120	1:17:41	00:39
130	1:25:36	00:40
140	1:49:01	00:47
150	2:23:41	00:57

*Current number of vehicles accessing 95th Street terminal during peak period today.

Table 2.10: Passenger Volumes at 95th Street Bus Terminal (7:00-9:00 a.m.)

Route	Direction	On	Off
CTA #29 / State	North	126	0
	South	0	116
CTA #34 / South Michigan	North	0	303
	South	199	0
CTA #95E / 93rd/95th	East	153	1
	West	0	164
CTA #95W / West 95th	East	0	133
	West	49	0
CTA #100 / Jeffery Manor Express	East	64	0
	West	0	77
CTA #103 / West 103rd	East	0	148
	West	148	0
CTA #106 / East 103rd	East	219	0
	West	5	106
CTA #108 / Halsted/95th	North	0	32
	South	117	0
CTA #111 / Pullman/111th/115th	North	0	111
	South	151	0
CTA #112 / Vincennes/111th	North	0	186
	South	140	0
CTA #119 / Michigan/119th	North	0	354
	South	155	0
Total		**1,526**	**1,732**

* Source: Fall 2008 CTA data

2.4.4 Improved Transportation Equity for All Travelers

Transportation equity is the fair distribution of transportation resources so that no group carries an unfair burden of the negative environmental, social, or economic impacts, or receives an unfair share of benefits. In 2000, 21 percent of study area population had incomes below the poverty level. The study area population is almost entirely minority, comprised of 93.8 percent

African Americans and 2.7 percent Hispanics. Many study area residents do not have access to an automobile and rely on transit for mobility.

In addition, daily parking costs in downtown Chicago are among the highest in the United States, further limiting the study area population's access to downtown. Improvements to study area transit will serve all transportation system users, including low-income and under-represented populations.

2.5 Potential Transit Markets

2.5.1 Drive-Access Transit Market

A potential transit travel market in the study area that is not currently well served is drive-access transit trips. There are no CTA park-and-ride facilities on the Red Line Dan Ryan branch. All of the other CTA rail rapid transit branches, with the exception of the Green Line Lake Street branch have park-and-ride facilities. CTA's newest rail rapid transit line, the Orange Line that opened in 1993, has park-and-ride at five of eight stations.

In particular, the Red Line 95th Street station area, located in the median of one of the busiest expressways in the country, is very congested with bus, pedestrian, and vehicular traffic, making even kiss-and-ride access to the station difficult. In 2000, less than 17.9 percent of study area home-based work transit trips were via drive access. This percentage is projected to decline slightly to 17.5 percent drive access in 2030. Opportunities exist to provide CTA park-and-ride facilities to residents of the study area and increase the drive-access transit travel market.

2.5.2 South Transit Market

Another potential transit travel market is the south Cook County area located south of the study area. The provision of CTA park-and-ride facilities located in the southern portions of the study area near major expressways or arterial streets would provide convenient drive access possibilities to the CTA Red Line that do not currently exist. CTA has successful examples attracting these trips to transit. The Blue Line has park-and-ride facilities at Rosemont and Cumberland that are conveniently located near the I-90 Kennedy Expressway. A previous survey[6] at these Blue Line park-and-ride stations found auto access from 93 suburbs and that 74 percent of all trips originated in the northwest suburbs or northwest Chicago. The Chicago Central Area was the ending location of 78 percent of all park-and-ride trips, followed by the University of Illinois at Chicago at 6 percent.

Similar conditions, such as crowded expressways and expensive parking in the Chicago Central Area, face travelers from south Cook County and beyond. In 2000, nearly 17,000 daily home base work trips between the south Cook County area (District 19 in Figure 2.6) and the Chicago Central Area were made with a transit mode share of 48 percent. Opportunities exist to provide improved access to CTA from south Cook County and beyond.

2.5.3 Other Transit Markets

Additional potential transit travel markets, although smaller, include reverse commute and school trips. With an increase of 10,000 jobs in the study area by 2030 to 27,000, there is potential for increased reverse commute travel to access these jobs. There are several

[6] CTA O'Hare Park & Ride Surveys: Phase II, CTA Market Research Department, April 1994.

educational facilities in the study area, including Chicago State University (7,200 students), Olive-Harvey College (4,300 students), and several high schools including Harlan, Corliss, Fenger, Julian, Brooks and Carver, that would benefit from transit improvements in the study area.

2.6 Project Goals and Objectives

The following proposed goals and objectives were developed based on the transportation needs described above as well as goals that are included in regional long-range transportation plans. The goals and objectives serve as the basis for evaluating the alternatives throughout the alternatives analysis. The goals and objectives are as follows:

- **Goal 1: Regional and Local Access and Mobility**

  Objectives:
  1. Increase connectivity between and within neighborhoods and activity centers.
  2. Improve access between city neighborhoods and regional centers, and between suburban communities and the greater central area.
  3. Increase regional transit competitiveness.
  4. Improve customer transfer connections among regional transit modes.

- **Goal 2: Community and Economic Development**

  Objectives:
  1. Support community development initiatives.
  2. Provide opportunity for transit-supportive development.
  3. Support efficient land use patterns.
  4. Respect community context and identity.
  5. Promote equitable distribution of project benefits and impacts.

- **Goal 3: Regional Transit System Performance**

  Objectives:
  1. Increase capacity and ridership.
  2. Enhance efficiency and cost effectiveness.
  3. Facilitate connections and linkages.
  4. Reduce transit travel times.
  5. Integrate existing transit infrastructure, where feasible.

- **Goal 4: Safety and Security**

  Objectives:
  1. Increase transportation reliability.
  2. Improve incident response capabilities.
  3. Incorporate design elements that enhance safety and security.

- **Goal 5: Environmental Quality**

  Objectives:
  1. Limit impacts.
  2. Support environmental benefits.
  3. Reduce reliance on automobile travel.

3.0 SCREEN 1 EVALUATION

The first step in the Red Line Extension Alternatives Analysis was to began with identifying the Universe of Alternatives, which is all the possible transit alternatives for the study area. The Universe of Alternatives included a wide range of transit modal technologies, study area corridors, and profiles (where the transit line is in relation to the ground).

3.1 Study Area Corridors

There were nine study area corridors identified, listed from west to east within the study area:

- I-57 Expressway
- Halsted Street
- Union Pacific Railroad
- Wentworth Avenue
- State Street
- Michigan Avenue
- King Drive
- Cottage Grove Avenue / MED CN Railway
- I-94 Bishop Ford Freeway

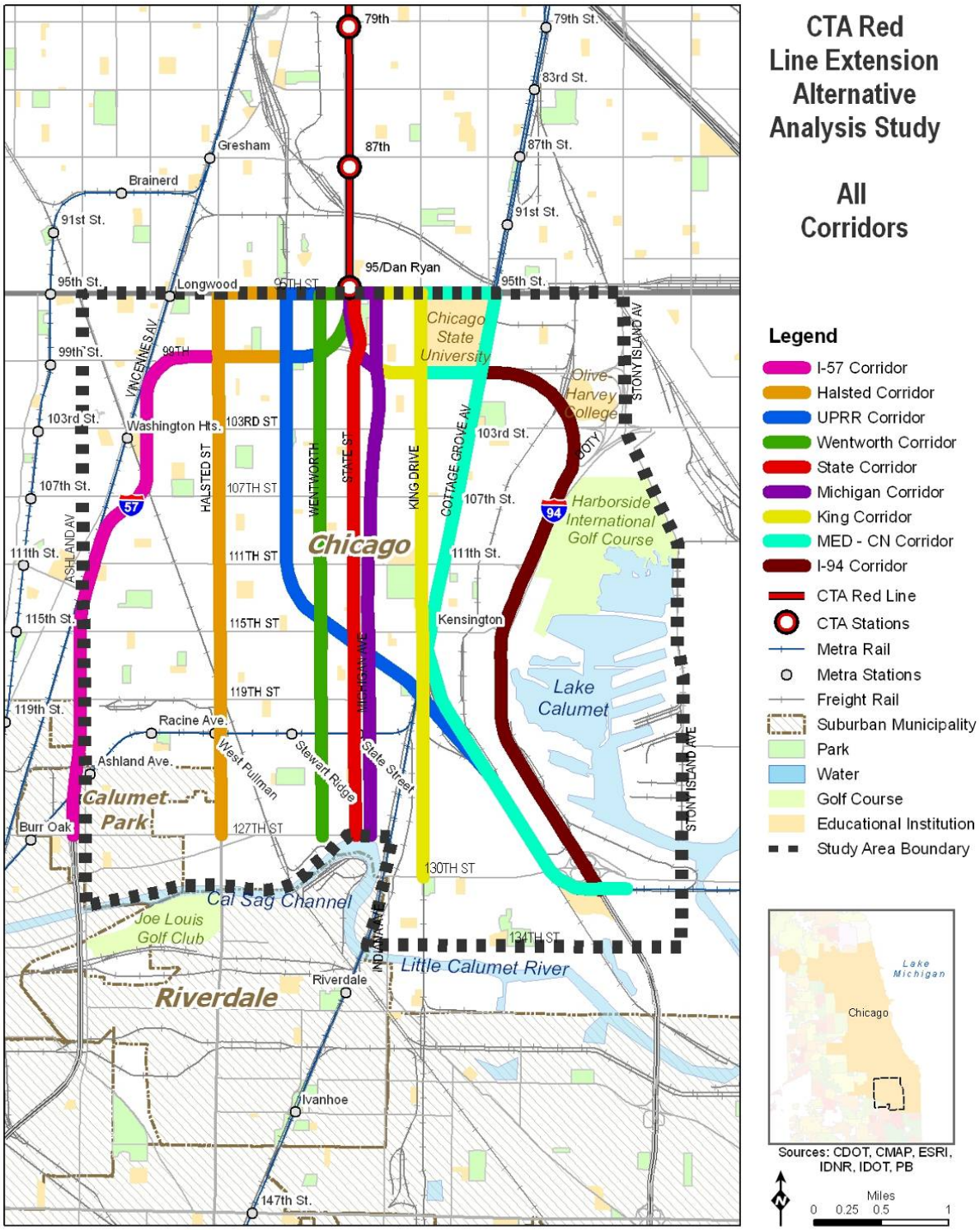
Figure 3.1 graphically depicts the nine corridors under consideration.

I-57 Expressway Corridor
The I-57 Expressway is located on the western boundary of the study area. The corridor extends west and south from I-94 and 95th Street. A complex, grade-separated junction allows traffic to interchange between I-57, I-94 Bishop Ford Freeway, and the I-94 Dan Ryan Expressway. I-57 has three lanes in each direction extending west to approximately Racine Avenue (with the highway running parallel and to the south of 98th Street) where it then turns south. By the time it crosses 127th Street (at the south end of the study area) the highway is running parallel and to the east of Paulina Street.

Major interchanges include the previously described junction with I-94, Halsted Street, 111th Street, 119th Street and 127th Street. Land use surrounding I-57 is predominantly residential from 95th Street to 112th Street (there is some industrial land to the west of the highway from 105th Street south). South of 112th Street and extending down to 119th Street, a large former industrial site is being made into a significant commercial center. Residential land use exists to the east of the highway in this section. South from 119th Street, land use to the west of the highway continues to be a mix of industrial and vacant parcels. Residential land use can be found on both sides of the highway from around 125th Street south. Commercial uses are generally located in all four quadrants of the interchanges with arterial streets.

There are also several educational and religious institutions in this corridor. Evers School is located north of I-57 on the east side of Lowe Avenue. Julian High School is to the west of the highway on the south side of 103rd Street. Morgan Park High School is located west of I-57, while Shoop Elementary School is on the east side of the highway, with both of these institutions being located north of 112th Street. The large Christ Universal Temple complex is on the east side of the highway, immediately to the south of 119th Street.

Figure 3.1: Red Line Extension AA Corridors



Halsted Street Corridor

Halsted Street is a major north-south arterial located at 800 West. The Halsted corridor would extend west along 95th Street or I-57 from I-94 and 95th Street to Halsted Street, about one mile to the west. At Halsted, the corridor turns south and remains in the approximate right-of-way of Halsted Street to the southern edge of the study area at approximately 127th Street, at or near the borders of Chicago, Riverdale and Calumet Park.

Halsted Street varies in width, but has a nominal width of 70 feet at most locations. The cross-section generally includes two through lanes, a parking lane in each direction, and a median. An at-grade crossing with the MED Blue Island branch occurs near 121st Street.

Land use is mixed from 95th Street to approximately 98th Street and then the properties fronting on Halsted are almost entirely commercial from 98th to around 117th Street. There are also residential structures located in this section and several churches. Strip malls front on Halsted at 104th Street (east side) and near 107th Street (west side). There is a nursing center on the east side of Halsted north of 110th Street. A large indoor mall (including a grocery store) is located on the west side of Halsted, north of 115th Street. A new, smaller mall is being built to the south of 115th Street. Mixed land use (including some light industry) is located between 117th Street and 123rd Street.

Land use tends to be mixed south of 119th Street, but there are also more vacant parcels interspersed in this area. Between 127th and 129th Street, land use is commercial on both sides of Halsted. There is a residential strip running along the north side of the Calumet River, which fronts on either side of Halsted at 129th Street.

Union Pacific Railroad (UPRR) Corridor

The UPRR Corridor extends west from the intersection of I-94 and 95th Street either along 95th Street, I-57, or south west along South Lafayette Avenue to the intersection with the UPRR right-of-way at about Eggleston Avenue and 99th Street (about one mile). The corridor then follows the UPRR alignment south from 99th Street to approximately 111th Street, where the railroad alignment begins to curve to the southeast. The alignment is at-grade as far south as 115th Street (the last grade crossing is at State Street, which is crossed to the south and east of 115th Street) and then the rail alignment transitions to a grade-separated alignment. The corridor turns due south after crossing the Metra Electric mainline/Canadian National (CN) tracks (approximately 119th/ Calumet), while the corridor would continue to head southeast-ward to terminate at approximately 130th Street and Stony Island Avenue (east of the crossing of 130th and the I-94 Bishop Ford Freeway).

A number of grade crossings have been closed along the UPRR alignment. Those that remain open are: 95th, 97th, 101st, 103rd, 107th, 109th, 111th, Princeton, Wentworth, 115th, Lafayette and State Street. The UPRR right-of-way is typically on the order of 100 feet in width, and the railroad is double-track throughout the study area. The alignment is being considered for Metra's proposed SouthEast Service.

Land uses along the UPRR are open space to the west from 95th to 103rd Street, with residential being the predominant land use to the east in this section. From 99th to 100th Street there is a dedicated park immediately east of the corridor. From 103rd to 105th Street and between 107th and 108th Street, both sides of the corridor are given over to commercial/institutional uses (a City pumping station is located on the east side of the rail line south of 104th Street, for example). Between 105th and 107th and then again from 108th to 112th Streets, commercial land use is located to the west of the UPRR, with residential being the primary use to the east.

Active industrial concerns are to the east and west of the rail line at the 107th Street crossing. Light industries surround the corridor between 111th and 115th Streets. Residential use is present on both sides of the right-of-way from 115th with, mixed land use in evidence around Michigan Avenue. From 116th Street through the end of the community (around 119th and Prairie) the primary land use is residential.

From this location, the corridor would separate from the UPRR right-of-way, continuing on a diagonal to the southeast. Land use in the area east of the UPRR is industrial in nature, along with a major Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) water treatment facility. The proposed transit line would run parallel to the NICTD line to a terminal near 130th/Stony Island.

Wentworth Avenue Corridor

The Wentworth Corridor begins at 95th Street and I-94 and extends about one-quarter mile west on 95th Street to Wentworth Avenue or southwest to South Lafayette Avenue along I-57. The corridor then heads south along Wentworth Avenue (200 west) to approximately 127th Street. The width of the Wentworth Corridor is most typically around 40 feet (one through lane and one residential parking lane in each direction), though south of 121st Street (near the at-grade crossing of the Metra Electric Blue Island Branch) the street width is never more than 30 feet. Wentworth also crosses the UPRR at-grade, just south of 114th Street.

Land use along Wentworth is almost entirely residential, except where it intersects the major east-west cross-streets (103rd, etc.) where there are some commercial enterprises. The Hughes School at 104th Street to the west of Wentworth, and the Van Vlissingen School around 109th Street and east of Wentworth are near the corridor.

State Street Corridor

The State Street corridor begins at 95th Street and I-94 and extends south along State Street (0 W) to 127th Street. State Street has some variation in overall width over the section of interest, but typically has an overall width of 42 feet. This street has at-grade crossings with the UPRR (south of 115th Street) and the Metra Electric-Blue Island Branch (around 121st Street). The branch's State Street station is located to the east of State on the north side of the single-track line.

Land use along State Street is a mix of recreational and educational to the east side between 95th and 98th (the I-90/94 expressway runs along the west side of the street). South of 99th Street, land use is residential on both sides, extending down to 110th Street. At intersections with major east-west cross streets, mixed use development exists.

From 110th to 115th the uses are mixed, and as we have seen on the other north-south streets in this area, the frequency with which one encounters vacant parcels increases in this section. There are also a few vacant buildings in this area.

Curtis Elementary School fronts on the east side of State north of 115th Street. Residential and mixed-use structures are on either side of State south of 115th Street. South of UPRR grade crossing, residential land use becomes dominant, extending down to 127th Street. Gompers Elementary School is located on the northwest corner of 124th, while the Jesse Owens Community Academy is on the west side of State south of 124th Place.

Michigan Avenue Corridor

This corridor follows 95th Street east from I-94 to Michigan Avenue and then remains along

Michigan Avenue (100 East), to the south limits of the corridor at 127th Street. Michigan's overall width varies, but is nominally around 40 feet. The UPRR is on retained fill where it crosses Michigan (around 116th Street). There is an at-grade crossing with the Metra Electric - Blue Island Branch around 121st Street. This line's State Street station is located immediately west of Michigan, but there is no entrance to the station from that street.

On the portion of this corridor along 95th Street, the land use is recreational to the south and a mix of commercial and residential on the north side of the street. Land use on Michigan is residential on the east side between 95th and 99th Street, with a mix of recreational and educational purposes to the west north of 98th Street, and then residential with some mixed-use south of 98th.

South of 100th Street, the land use along Michigan is predominantly commercial on both sides of the street, with an intermixture of residential structures. A multi-story church-supported housing structure is on the west side of the street south of 102nd Street. A variety of commercial uses can be found on the four corners at 103rd Street and Michigan Avenue.

A significant senior citizen housing complex has been constructed on the northwest corner of 105th Street and Michigan Avenue, while the southeast corner of this same intersection is occupied by a town house development. Mixed use, multi-story structures can be found at several locations along Michigan Avenue from 107th south to around 121st Street, as well as the churches. In the section from 111th Street to Kensington, the uses are predominantly commercial and the structures vary between one- and two-story, though the now-closed "Gatelys" store at 112th Street is significant for having a five-story parking structure that extends down the ridge from Michigan to Pembroke Avenue (one block to the east). A new grocery store is proposed on the southwest corner of 115th and Michigan.

Residential land use becomes dominant from 120th down to almost 127th Street, where Michigan ends. There is a significant recreational field on the east side of the street between 124th Place and 125th Street.

King Drive Corridor

The King Drive corridor follows 95th Street east from I-94 to Martin Luther King Jr. Drive (400 East, or one-half mile to the east), then turns south and follows King Drive to its end on the north side of 115th Street. King Drive's width varies, but is most typically around 40 feet. The cross-section is typically one through lane and a parking lane in each direction.

Land use on 95th Street is mixed residential and commercial. On King Drive, the land use is residential to the west side between 95th and 99th, and educational / institutional to the east between these same limits. South of 100th Street and extending down to 109th, land use is primarily residential on both sides, except at major east-west cross streets (such as 103rd Street) where it is commercial. Between 109th and 113th Street, land to the west is principally educational use (St. Martin de Porres Academy and Mendel High School), while the east side of King Drive is primarily residential. A large park is located on the west side of King Drive, south of 111th Street. The land use reverts to residential on both sides down to almost 115th, where King Drive ends in a commercial area. One of the parking lots serving the Metra Electric/NICTD Kensington station is located on the east side of King Drive to the north of 115th Street.

Cottage Grove / Metra Electric Corridor

This corridor runs east from 95th Street and I-94 approximately 1.1 miles to Cottage Grove Avenue at around 800 East, and the Metra Electric District alignment, which runs parallel and to

the west side of Cottage Grove. It follows this alignment on a slight southwest angle down to the end of Cottage Grove around 119th Street. From the end of Cottage Grove, the corridor continues to the southeast paralleling the NICTD right-of-way to terminate at approximately 130th Street and Stony Island Avenue, along the same alignment as proposed for the southern end of the UP Railroad Corridor.

The Metra Electric/Canadian National (CN) right of way lies to the west of Cottage Grove, while there are a variety of land uses on the east side of the street. Between 95th and 99th Place the land use is commercial/industrial. There is a small pocket of residential development south of 98th Place and then a major industrial site which extends down to I-94. South of 100th, (and extending down to 108th) this shifts to predominantly residential, with some recreational facilities mixed in. From 108th to 111th the site of the former Pullman-Standard car building plant is on the east side of Cottage Grove. The Pullman Historic District is located south of 111th Street to the east of Cottage Grove.

Immediately to the east of Cottage there are mixed commercial and residential uses, culminating in the commercial area at 115th. To the south of 115th Street, it runs on the east side of a parking lot for commuters using the Kensington Station. It also passes to the east of the interlocking tower that controls the Kensington junction between the NICTD, MED, and CN lines. As noted previously, Cottage extends down to 119th Street in the industrial area that lies to the south and east of the UPRR ROW discussed above. Within this corridor, Cottage Grove varies in width, but is most typically on the order of 48 feet wide.

Schools along this corridor include: Chicago State University on the south side of 95th Street between King Drive and the Metra Electric/CN right-of-way; Smith Elementary School and Corliss High School (both located south of 103rd Street); Poe School north of 106th Street; and, the Pullman Elementary School, located north of 115th Street.

I-94 Bishop Ford Freeway Corridor

This corridor extends east and south from the intersection of I-94 and 95th Street. A complex, grade-separated junction allows traffic to interchange between I-94 Bishop Ford Freeway, I-57 and the I-94 Dan Ryan Expressway. The I-94 Bishop Ford Freeway has three lanes in each direction extending east to approximately Stony Island Avenue. It then continues running south to the extremity of the study area at 130th Street (west of Stony Island).

Interchanges include the previously described junction with I-94 and I-57, Stony Island Avenue/103rd Street, 111th Street, 115th Street and 130th Street. The highway intersects the Metra Electric-Mainline/CN tracks at Cottage Grove Avenue and the NICTD South Shore Line crosses over the highway just south of the 130th Street interchange. An Indiana Harbor Belt (IHB) freight railroad line parallels the South Shore Line from around 119th Street to the south limits of the study area. This line is used infrequently.

Land use surrounding I-94 Bishop Ford Freeway is predominantly recreational and educational on the east side of the highway south from 95th Street, becoming residential on both sides after passing under Michigan Avenue. East of King Drive the use is institutional and educational to the north (Secretary of State's facility and Chicago State University) and then residential to the south, extending east to Cottage Grove. The use is industrial to the north on the east side of Cottage Grove, and continues to be residential to the south of the highway. As the I-94 Bishop Ford Freeway swings south to intersect 103rd Street, the use is industrial to the west and educational (Olive-Harvey College) to the east. Between 103rd and 111th Streets the use is

commercial to the west and recreational to the east. From 111th south to the end of the study area the land uses are industrial on both sides of the highway.

3.1.1 Corridor Evaluation

The corridor evaluation involved the analysis of the corridor alternatives based on their performance against relevant Screen 1 evaluation criteria. These criteria represent the Screen 1 measures that apply to each corridor regardless of the modal technology and profile developed within them:

- **Land Use:** Consistency and compatibility with surrounding land uses
- **Neighborhoods and Community:** Neighborhoods and residential population served with improved transit service
- **Poverty-status and Minority Access:** Poverty-status and minority populations served
- **Transit System Usage:** Service to activity centers within the study area and the region
- **Accessibility:** Directness to the existing Red Line 95th Street terminal station and the regional system

Three corridors, Halsted, UPRR, and Michigan were recommended to be carried forward as described in Tables 3.1 and 3.2.

Table 3.1: Summary Corridor Evaluation

Criteria	I-57	Hal-sted	UPRR	Went-worth	State	Michi-gan	King Dr.	Cottage Gr./MED/CN	I-94
Land Use	+	+	+	−	−	+	−	−	+
Neighborhoods/ Community	○	+	+	+	+	+	+	○	−
Poverty Status & Minority Access	○	○	+	+	+	+	+	+	−
Transit System Usage	−	+	+	○	○	+	○	+	−
Accessibility	−	○	+	+	+	+	+	○	−
Advance For Further Screening?	No	**Yes**	**Yes**	No	No	**Yes**	No	No	No

Key: **+** Better than other alternatives; ○ Same as other alternatives; **−** Worse than other alternatives

Table 3.2: Summary Corridor Evaluation Conclusions

Corridor	Advance for Further Screening?	Comments
I-57 Expressway	No	Corridor is on the western edge of study area and evaluates worse than other alternatives for accessibility and ability to improve transit service for new and existing customers.
Halsted Street	**Yes**	Corridor is highly transit supportive and could improve transit usage and accessibility to 95th Street. Halsted is a busy and active commercial corridor with the highest existing local bus usage in the study area.
UP Railroad (UPRR)	**Yes**	Corridor evaluates better than other alternatives for land use, neighborhoods served, poverty-status/minority access, transit usage, and accessibility.
Wentworth Avenue	No	Corridor is transit supportive. However, Wentworth Avenue is a local residential street and new transit infrastructure would be highly disruptive.
State Street	No	Similar to Wentworth Avenue, State Street is a residential corridor in the study area and not suitable for high capacity transit infrastructure.
Michigan Avenue	**Yes**	Corridor is highly transit supportive and could improve transit usage and accessibility to 95th Street.
King Drive	No	Corridor currently ends at 115th Street and would require high land acquisition cost to reach 130th Street.
Cottage Grove Avenue / MED CN	No	Corridor will not improve transit service or accessibility better than other alternatives.
I-94 Bishop Ford Freeway	No	Corridor is within a freeway. Transit usage, accessibility and neighborhoods and populations served worse than other alternatives.

3.2 Transit Technologies

A wide range of modal technologies were evaluated as part of the Universe of Alternatives. Eleven transit modal technologies were evaluated. They were grouped into three groups: rail, rubber tire and other modes. Together these generally encompass the entire domain of current transit technologies. These eleven technologies are:

Rail Transit: Rail is the designation for the alternatives operating as traditional rail technologies using steel wheels on steel rail. The rail guideways can be located in dedicated rights-of-way or in some cases, they can share the street with other vehicular traffic and pedestrians. Depending on mode and function, station spacing for these systems can be as close as ¼ to ½ mile in higher populated urban areas and one to five miles in areas with a lower population density. Rail propulsion power is generally from either diesel engines on board the vehicle or from electricity delivered from a distant generating location and distributed by overhead wires or a third rail that power the vehicle's electric motors. Hybrid engines, combining diesel and

electric power on board the vehicle, are emerging propulsion system technology. The various rail transit alternatives for consideration include:

- Commuter Rail
- High Speed Rail
- Heavy Rail Transit (HRT)
- Light Rail Transit (LRT)
- Streetcar

Rubber Tire Transit: Similar to the rail transit, rubber-tire alternatives can travel at higher speeds or lower speeds, operate in dedicated travelways or in mixed traffic, and can use different propulsion systems, including standard diesel, hybrid, compressed natural gas, and electric. The various alternatives for consideration are presented below.

- Commuter Bus
- Local Bus
- Bus Rapid Transit (BRT)

Other Transit: Other transit generally represents advanced technology systems recently developed that do not ride on steel or rubber wheels or have so many variations for the guideway that categorization as either a rail vehicle or a bus vehicle would be difficult. These alternatives include:

- Maglev
- Automated Guideway Transit (AGT)/Monorail
- Personal Rapid Transit (PRT)

Figure 3.2 depicts these eleven transit technologies and Table 3.3 provides a summary of the operating characteristics of the eleven transit technologies.

3.2.1 Transit Technology Evaluation

The evaluation of the transit modal technologies was based on:

- **Study Area Suitability -** The modal technology has demonstrated the capability to match basic project needs for operating speeds and station spacing.

  Measures of Effectiveness (MOE):
  - *Length of Commute:* The typical commute length of the modal technology must be consistent with study area characteristics in terms of dimensions and area.
  - *Typical Station Spacing:* The typical station spacing of a modal technology must be consistent with the purpose and need of the project.
  - *Operating Speed:* The typical modal speed is consistent with the purpose and need of the project.

To meet the study area suitability criteria, the modal technology must have demonstrated the capability to match basic project needs such as operating speeds, station/stop spacing or length of travel.

Figure 3.2: Transit Technologies

High Speed Rail

Metra Commuter Rail

CTA Heavy Rail Transit

Minneapolis Light Rail Transit

Tacoma Streetcar

CTA Local Bus

Pace Commuter Bus

Civis Bus Rapid Transit

Shanghai MagLev

Personal Rapid Transit

Clarian Automated Guideway Transit

Table 3.3: Operating Characteristics of Technology Alternatives

	Rail Modes					Rubber Tire Modes			Other Modes		
Characteristic	**Commuter Rail**	**High Speed Rail**	**Heavy Rail Rapid Transit**	**Light Rail Transit**	**Streetcar**	**Commuter Bus**	**Local Bus**	**Bus Rapid Transit**	**Magnetic Levitation**	**Automated Guideway Transit**	**Personal Rapid Transit**
Type of Vehicle	Locomotive and train of cars; DMUs, EMUs	Locomotive and train of cars; EMUs	Trains of self-propelled cars	Self-propelled car or train of cars	Self-propelled car	Stand alone vehicle	Stand alone vehicle	Stand alone vehicle	Train of self-propelled cars	Train of self-propelled cars	Single self-propelled car
Vehicle Capacity	200-1800	500-600	800-1000	100-200	50-70	40	50-70	75-150	500-600	Varies per application	4 - 10
Propulsion	Diesel locomotives; electric motors	Usually electric motors supplied from catenary wire; also turbine powered locomotives	Electric motors supplied from 3rd rail or catenary	Electric motors supplied by overhead wire	Electric motors supplied by overhead wire	Internal combustion engine (diesel, natural gas or hybrid)	Internal combustion engine (diesel, natural gas or hybrid)	Internal combustion engine (diesel, natural gas or hybrid)	Electromagnetic coils supplied by wires in guideway	Electric motors supplied by power rail	Electric motors supplied by power rail
Service Configuration	Connecting suburbs to CBD	Intercity travel	Urban network with focus on CBD	Urban trunk line service	Line service on city streets	Express service to CBD or other major destinations	Line service on city streets	Urban trunk line service in exclusive lanes or guideway	Urban applications and intercity travel	Urban network, as well as shuttle or loop service	Point to point on demand
Travel Speed	30-50 mph	125-200 mph	25-50 mph	15-25 mph	10 mph	30-50 mph	10 mph	15-25 mph	25-250 mph	15 mph	15 mph
Station Spacing	3-7 miles	20 – 50 miles	1/4 to 2 miles	1/4 to 1 mile	2 - 4 blocks	Selected stops at each end of trip	2 - 4 blocks	1/4 to 1 mile	1 to 50 miles	Varies per application	Varies per application
In Transit Revenue Service in N. America	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No

- **System Applicability -** The technology has been established as operationally feasible. Modal technologies that have not been implemented for public use in the U.S. were not recommended for further evaluation.

  Measure of Effectiveness:
  - Proven revenue service in North America.

Using these criteria, each transit modal technology was evaluated against its suitability for the study area and its applicability in the U.S. Table 3.4 summarizes this technology evaluation and show that AGT, BRT, HRT, and LRT transit technologies are recommended to be carried forward to the next step of the evaluation.

3.3 Technology and Profile Evaluation

The transit modal technologies can operate under four possible vertical profiles:

Elevated: An elevated structure is above ground, either on an embankment or on a structure. A local example of an elevated structure is the CTA rail track that forms the Chicago Loop and supports the Orange, Green, Pink, Brown and Purple lines. Other elevated structure examples include the embankment that supports the Red and Purple line tracks between Lawrence and Howard. Given that these structures only support one modal technology, service on these lines is faster than those profiles which may result in mixed traffic operation.

At-Grade: At-grade service runs at ground level. Examples of at-grade rail service are found on the CTA's Yellow and Brown lines, and throughout Metra's service network. CTA and Pace buses use the existing road network and most are therefore at-grade. At- grade services experience conflict points with other transportation networks, potentially resulting in lower operating speeds.

Trench: A trench profile is below ground, but not covered for any distance. Examples of transportation infrastructure that is in a trench can be found on significant parts of the expressway network in Chicago. A specific example of CTA rail in a trench is approaching the Orange Line Midway Airport terminal station. Riders need to ascend to ground level to access additional transportation services. Trench services are usually faster than at-grade due to the dedicated modal technology right-of-way that reduces intersections and potential conflicts with traffic.

Underground: Examples of underground or subways include the CTA Red and Blue lines in downtown Chicago. These subways are tunnels underneath ground level that minimize impacts of the transit facility on adjacent uses, and offer faster service than profiles that cross other transportation facilities at the same level.

Table 3.4: Technology Evaluation

Technology	Does mode meet the MOE?				Advance for Further Screening?	Comments
	Study Area Suitability			System Applicability		
	Length of Commute	Typical Station Spacing	Operating Speed			
Automated Guideway Transit	●	●	●	●	**Yes**	Typical station spacing and operating speeds suitable to the study area.
Bus Rapid Transit	●	●	●	●	**Yes**	Typical station spacing, operating speeds and flexible commute lengths suitable to the study area.
Commuter Bus	x	x	●	●	No	Typically serves point-to-point suburb to city travel. Trip lengths are not consistent with the study area needs.
Commuter Rail	x	x	●	●	No	Length of commuter trip and typical station spacing of 3-7 miles is not consistent with the study area needs.
Heavy Rail Rapid Transit	●	●	●	●	**Yes**	Typical station spacing and operating speeds suitable to the study area.
High-Speed Rail	x	x	x	x	No	Typically serves intercity travel. Length of commuter trip and typical station spacing of 20 miles not consistent with the study area needs.
Light Rail Transit	●	●	●	●	**Yes**	Typical station spacing, operating speeds and flexible commute lengths suitable to the study area.
*Local Bus**	●	x	x	●	No	Typical station spacing and operating speed not consistent with the study area and purpose and need.
Maglev	x	x	x	x	No	Typical station spacing of at least 20 miles required to achieve operational speeds is inconsistent with the purpose and need of the project.
Personal Rapid Transit	●	x	●	x	No	Typical station spacing, operating speeds and flexible commute lengths suitable to the study area.
Streetcar	●	x	x	●	No	Typical station spacing and operating speed not consistent with the study area and purpose and need.

Key: ●Yes, **x** No

* Local bus service, along with the CTA Rapid Transit and Metra service is analyzed as part of the "No Build" and TSM Alternatives

3.4 Screen 1 Findings

This section identifies specific issues which led to the recommendation or elimination of each alternative in Screen 1. Tables 3.5 and 3.6 summarize this evaluation.

Halsted Street Corridor At-Grade BRT

- At-grade BRT would be both compatibly with the existing system and cost effective on the Halsted Street Corridor. The street is generally an appropriate width and can support BRT bus service. This alternative is recommended for further evaluation in Screen 2.

Halsted Street Corridor Elevated HRT

- Elevated structures on the Halsted Street Corridor, though somewhat higher in cost, are feasible for elevated HRT service. This alternative is recommended for further evaluation in Screen 2.

Halsted Street Corridor Trench HRT

- A trench alignment in the Halsted Street Corridor would interfere significantly with traffic on the road both during construction and ongoing operation as a result additional right of way that would be required. This alternative is not recommended for further evaluation.

Halsted Street Corridor Underground HRT

- This alternative scores high on nearly all measures of effectiveness in this screening. Though potentially costly, an underground HRT alternative is feasible on Halsted Street. This alternative is recommended for further for further evaluation in Screen 2.

UPRR Corridor At-Grade BRT

- The existing use of this corridor for railroad operations does not have adequate right of way for at-grade BRT lanes. This alternative is not recommended for further evaluation.

UPRR Corridor Elevated and Trench HRT

- The existing use of this corridor is for railroad operations and is feasible for elevated HRT service. This alternative is recommended to advance for further evaluation in Screen 2.

UPRR Corridor Underground HRT

- Despite scoring well on some measures of effectiveness in screen 1, underground facilities are cost prohibitive in relation to the benefits provided in this corridor. This alternative is not recommended for further evaluation.

Michigan Avenue Corridor At-Grade BRT

- At-grade BRT would be both efficient and cost effective on the Michigan Avenue Corridor. Although the street has limited right-of-way, it may support an enhanced bus service and warrants further review. This alternative is recommended for further evaluation in Screen 2.

Table 3.5: Summary of Technology and Profile Evaluation

Technology	Profile	Criteria						Advance for Further Screening
		Air Quality	System Capacity	Travel Time	Compatibility	Traffic	Project Cost	
Automated Guideway Transit	Elevated	○	○	−	−	+	○	No
	Trench	○	○	−	−	○	○	No
	Underground	○	○	−	−	+	−	No
Bus Rapid Transit	Elevated	○	○	○	−	+	○	No
	At-Grade	○	○	○	+	○	+	**Yes**
	Trench	○	○	○	−	○	○	No
	Underground	○	○	○	−	+	−	No
Heavy Rail Rapid Transit	Elevated	○	+	+	+	+	○	**Yes**
	Trench	○	+	+	+	○	○	**Yes**
	Underground	○	+	+	+	+	−	**Yes**
Light Rail Transit	Elevated	○	○	○	−	+	○	No
	At-Grade	○	○	○	−	−	+	No
	Trench	○	○	○	−	○	○	No
	Underground	○	○	○	−	+	−	No

Key: **+** Better than other alternatives; ○ Same as other alternatives; **−** Worse than other alternatives

Michigan Avenue Corridor Elevated HRT

- Elevated structures on the Michigan Avenue Corridor, though somewhat higher in cost, are feasible for elevated HRT service. This alternative is recommended for further evaluation in Screen 2.

Michigan Avenue Corridor Trench HRT

- A trench alignment in the Michigan Avenue Corridor would interfere significantly with traffic on the road both during construction and ongoing operation as a result additional right of way that would be required. This alternative is not recommended for further evaluation.

Michigan Avenue Corridor Underground HRT

- This alternative scores high on nearly all measures of effectiveness in this screening. Though very costly, this underground HRT alternative is feasible Michigan Avenue. This alternative is recommended for further evaluation in Screen 2.

Table 3.6: Summary of Screen 1 Evaluation of Alternatives

Technology	Profile	Recommended to Advance to Screen 2		
		Halsted Corridor	UP Railroad Corridor	Michigan Corridor
Bus Rapid Transit	Elevated	No	No	No
	At-Grade	**Yes**	No	**Yes**
	Trench	No	No	No
	Underground	No	No	No
Heavy Rail Rapid Transit	Elevated	**Yes**	**Yes**	**Yes**
	Trench	No	**Yes**	No
	Underground	**Yes**	No	**Yes**

Based on this evaluation, two Bus Rapid Transit (BRT) alternatives along Halsted Street and Michigan Avenue, and six Heavy Rail Transit (HRT) alternatives along Halsted Street, the Union Pacific Railroad (UPRR), and Michigan Avenue, along with the No-Build and TSM alternatives were carried forward for further analysis in Screen 2.

4.0 SCREEN 2 EVALUATION

The Screen 2 evaluation begins with the alternatives that were carried forward from the Screen 1 evaluation.

4.1 Definition of Alternatives

Step 1 Evaluation
Step 1 of the Screen 2 evaluation process consists of further defining alternatives advancing from Screen 1 beyond the initial corridor and technology descriptions to also include mapping of a more defined alignment, identification of potential station locations, and sketch service plans. This definition assists in a more complete understanding of the unique elements of each alternative. It also provides a level of information about each alternative that supports more detailed evaluation. The alternatives are summarized below.

Bus Rapid Transit (BRT) Alternatives
BRT typically operates all or a portion of its route in a dedicated right-of-way. The proposed span of service for the BRT and HRT alternatives is the same as the current Red Line service hours, which operates 24 hours every day of the year. Few bus service changes are proposed for the BRT alternative due to requirement for customers to transfer between the BRT and the Red Line at 95th Street for travel to the Central Area.

The vehicles anticipated for the BRT alternative are articulated buses that would be hybrid diesel-electric powered or use alternative fuels. These 60 foot vehicles have a capacity of up to 115 passengers. A park-and-ride facility is recommended at the terminal station.

BRT Halsted Street At-Grade Alternative
This proposed BRT would operate at-grade on exclusive right-of-way between Vermont Avenue/Halsted Street and the Red Line 95th Street terminal station. For service planning purposes, station locations include Vermont Avenue, 123rd, 119th, 115th, 111th, 107th, 103rd, and 98th Streets.

BRT Michigan Avenue At-Grade Alternative
This proposed BRT would operate at-grade on exclusive right-of-way between 127th Street and the Red Line 95th Street terminal station. The alternative is planned with eight stations and it is 4.2 miles long. For service planning purposes, station locations include 127th, 123rd, 119th, 115th, 111th, 107th, 103rd and 98th Streets.

<u>Heavy Rail Transit (HRT) Alternatives</u>
HRT has been defined as operating in dedicated right of way completely separated from surface traffic on an elevated structure, underground or in a trench. Power would be provided via a third rail to match the existing CTA system. Trains would operate with 4 to 8 cars and the rolling stock would be equivalent to the existing fleet.

- **Elevated** indicates that most of the proposed new infrastructure is elevated except for portions where elevated infrastructure is not practical. Elevated HRT alternatives include the Halsted Street, UPRR and Michigan Avenue Corridors.
- **Underground** indicates that, where feasible, the majority of the proposed new infrastructure is underground, except for the portions necessary to connect to existing guideway or at the terminus rail yard where underground infrastructure is not practical.

Underground HRT alternatives include the Halsted Street and Michigan Avenue Corridors.

- **Trench** indicates that most of the proposed new infrastructure is located in a trench with limited or no permanent street closures. The single Trench HRT alternative being considered is the UPRR Corridor.

HRT Halsted Street Elevated and Underground Alternatives
Heavy rail would operate as either an elevated structure or underground. The alignment would begin at Vermont Avenue/Halsted Street to the I-57 Expressway median, following the median to existing CTA track south of 95th Street. For service planning purposes, station locations are assumed at Vermont Avenue, 119th, 111th, and 103rd Streets.

HRT Union Pacific Railroad (UPRR) Elevated and Trench Alternatives
Heavy rail would operate as an elevated structure or in a trench. The alignment would follow the I-57 Expressway until the UPRR corridor. It would then turn south along the corridor to approximately 111th Street where it would turn southeast to terminate at roughly 130th Street west of the I-94 Bishop Ford Freeway. For service planning purposes, station locations include 130th, 115th, 111th, and 103rd Streets.

HRT Michigan Avenue Elevated and Underground Alternatives
Heavy rail would operate on either an elevated structure or underground. The alignment would follow the southbound I-94 Bishop Ford Expressway median and transition to either an elevated structure or underground at Michigan Avenue. It would then head south along the Michigan Avenue Corridor to approximately 127th Street. For service planning purposes, station locations include 127th, 119th, 111th, and 103rd Streets.

No-Build Alternative
The No Build Alternative is defined as no new major construction within the study area, other than existing or committed projects in the CMAP 2030 Regional Transportation Plan. Minor spot improvements, transportation management measures, and/or signal projects may be constructed under the No Build Alternative. For additional information on planned transportation improvements in the study area see Section 5.1 – Definition of Alternatives; No Build Alternative.

TSM Alternative
The TSM Alternative represents lower cost improvements to address transportation issues in the study short of constructing a new fixed guideway. Bus service changes associated with the TSM Alternative include a new limited-stop express bus route. The proposed #X34 express bus route would operate along the current #34 South Michigan route, making stops at least half mile apart at frequencies of 7.5 minutes. The X34 South Michigan Express bus route would operate between 6:00 a.m. and 8:00 p.m. on weekdays only. Rush hour frequency on routes #34 and #X34 for the TSM Alternative are proposed at 11 minutes and 7.5 minutes respectively. Results from the ridership forecast in Screen 3 may necessitate changes to the TSM routing or these proposed frequencies if estimated demand exceeds proposed capacity.

4.2 Evaluation

Step 2 Evaluation
The evaluation criteria include a robust mix of qualitative and quantitative measures, but does not include ridership forecasting or detailed cost estimating. The Step 2 evaluation factors included:

- Physical Constraints
- Right-of-Way Requirements
- Social & Economic factors
- Demographics and Employment
- Environmental Factors
- Noise, Visual, Natural and Cultural Resources
- Transportation Factors
- Travel Time, Transit Connectivity and Traffic

During Step 2, three alternatives were eliminated, and the remaining alternatives advanced to Step 3. This Step 2 evaluation is summarized in Tables 4.1 and 4.2.

Table 4.1: Recommendations of Step 2 Evaluation

Step 2 Criteria	BRT		HRT					
	Halsted Street	Michigan Avenue	Halsted Street		UPRR		Michigan Avenue	
	At-Grade	At-Grade	Elevated	Under-ground	Elevated	Trench	Elevated	Under-ground
Physical Constraints	○	−	○	○	○	○	−	−
Social / Economic	○	○	○	○	○	○	○	○
Environmental	+	○	○	○	○	○	○	−
Transportation	−	−	+	+	+	+	+	+
Advance to Step 3	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**	No	No

Key: **+** Better than other alternatives; ○ Same as other alternatives; **−** Worse than other alternatives

Table 4.2: Summary of Screen 2 Step 2 Evaluation of Alternatives

Technology	Profile	Recommended to Advance to Screen 2 Step 2		
		Halsted Corridor	UP Railroad Corridor	Michigan Corridor
Bus Rapid Transit	**At-Grade**	**Yes**	No	No
Heavy Rail Rapid Transit	**Elevated**	**Yes**	**Yes**	No
	Trench	No	**Yes**	No
	Underground	**Yes**	No	No

Step 3 Evaluation

Step 3 is the last and most detailed evaluation within Screen 2. Remaining alternatives are evaluated using preliminary ridership projections and preliminary capital and operating cost estimates. Step 3 concludes with the recommendation to eliminate poorer performing alternatives and to advance those that are the stronger performers. Criteria used to evaluate the alternatives included:

- Capital Cost Comparison
- Operating and Maintenance (O&M) Cost Comparison
- Ridership Potential
- Cost Effectiveness

Table 4.3: Recommendations of Screen 2, Step 3 Evaluation

Project Cost and FTA Criteria	BRT Halsted Street	HRT Halsted Street		HRT UPRR	
	At-Grade	Elevated	Under-Ground	Elevated	Trench
Capital Cost	+	○	−	○	−
Annual Operating and maintenance Costs	○	○	○	○	○
Annual Ridership	−	+	+	+	+
Cost Effectiveness	+	○	−	○	−
Preliminary FTA Criteria Summation	+	+	−	+	−
Advance to Screen 3	**Yes**	**Yes**	No	**Yes**	No

Key: + Better than other alternatives; ○ Same as other alternatives; − Worse than other alternatives

Table 4.4: Summary of Screen 2 Step 3 Evaluation of Alternatives

Technology	Profile	Recommended to Advance to Screen 3	
		Halsted Corridor	UP Railroad Corridor
Bus Rapid Transit	**At-Grade**	**Yes**	Eliminated in Step 2
Heavy Rail Rapid Transit	**Elevated**	**Yes**	**Yes**
	Trench	Eliminated in Step 2	No
	Underground	No	Eliminated in Step 2

Screen 2 Alternative-Specific Issues

This section highlights the main issues that led to the recommendation and elimination of each alternative in Screen 2.

Halsted Street Corridor BRT At-grade, HRT Elevated and Underground

- The corridor is well suited for BRT at-grade and HRT elevated alternatives. Halsted Street is the largest and busiest arterial corridor in the study area with a four lane configuration and a 75' right-of-way (ROW). These alternatives are recommended for further evaluation in Screen 3.
- The HRT Halsted Street Underground Alternative is expected to require the highest capital outlay. As result the HRT Underground Alternative was not recommended for further evaluation.

UPRR Corridor HRT Elevated and Trench

- HRT UPRR Alternative utilizes an existing freight rail right-of-way through much of the study area and is well suited for HRT Elevated alternative. The ROW width is 100 feet south of the I-57 bridge to104th Place. From there the width varies between 50 to 100 feet until 111th Street. South of 111th Street, the ROW is over 100 feet in width. The HRT UPRR Elevated Alternative is recommended for further evaluation in Screen 3.
- An open cut, or trench, profile would require placing both the UPRR and the Red Line extension within a trench. The UP line would require temporary relocation during construction. A crash wall separating the UPRR and CTA tracks may also be required if both lines were to go in a trench, which may require acquisitions in narrower segments of the ROW. This would substantially increase the construction cost compared to the elevated alternative. As result the HRT UPRR Trench Alternative was not recommended for further evaluation.

Michigan Avenue Corridor BRT At-Grade, HRT Elevated and Trench

- Michigan Avenue varies from 48 feet wide at 95th Street to 38 feet between curbs at 103rd Street. Taking 22 feet for the BRT lanes would leave 26 feet for auto lanes at 95th Street, but just 16 feet for auto lanes at 103rd Street. While it is possible to rebuild the street to increase the curb-to-curb width, this would have a negative impact on the built-up areas along Michigan Avenue. The BRT and HRT Michigan Avenue Alternatives, compared to other alternatives, would require significant right-of-way acquisitions.
- Michigan Avenue stub-ends at 127th Street within a developed residential area and there is no obvious BRT or HRT terminal location at this intersection without undertaking significant property acquisition.
- In the case of the HRT alternatives, the elevated and underground profile, while providing an alignment free from traffic interference, would be highly disruptive to the commercial and residential areas along Michigan Avenue. This would be true both during construction and subsequent operation.
- Therefore, the BRT and HRT Michigan Avenue alternatives received negative ratings in Screen 2 and were not recommended for further evaluation.

Screen 2 concluded with public involvement including meetings with elected officials and other stakeholder groups, as well as two public open houses in December 2008. As shown in Table 4.4, a BRT alternative along Halsted Street, and two HRT alternatives along Halsted Street and the UPRR, along with the No Build and the TSM alternatives were carried forward for more detailed evaluation in Screen 3.

5.0 SCREEN 3 EVALUATION

Screen 3 was comprised of a two-step evaluation process that included the further definition and refinement of alternatives and the evaluation of these alternatives. The result of the Screen 3 evaluation was a recommendation for an LPA.

5.1 Definition of Alternatives

Alternatives advancing to Screen 3 were developed and refined beyond the initial corridor and technology descriptions to include the conceptual design of the alternative, the identification of potential station locations, and preliminary service plans. This alternatives definition assists in a more complete understanding of the unique elements and requirements for each alternative. It also provides a more complete level of information about each alternative that supports increasingly detailed evaluation. The alternatives recommended from Screen 2 for further study include:

- No Build Alternative
- Transportation System Management (TSM)
- Bus Rapid Transit (BRT) via Halsted Street Corridor At-Grade
- Heavy Rail Rapid Transit (HRT) via Halsted Street Corridor Elevated
- HRT via UP Railroad (UPRR) Corridor Elevated

No Build Alternative

The No Build Alternative is defined as the existing transportation system, plus any committed transportation improvements. Committed transportation improvements include projects that are already in the Chicago Metropolitan Agency for Planning (CMAP) financially constrained Transportation Improvement Program. The Red Line Study Area has five bridge reconstructions, and several road improvements projects included in the FY 2007 – 2012 Transportation Improvement Program (TIP). These improvements are primarily on highway segments in the project study area and are not adjacent or intersecting with the proposed TSM or Fixed Guideway Alternatives.

The bridge projects include:

- Illinois 1 (Halsted Street) at the Little Calumet River, slated for completion by 2012
- I-94 (Bishop Ford Expressway) at the Stony Island ramp and at Cottage Grove Road, both scheduled for 2011
- I-57 at 103rd Street, to be completed in 2009
- I-57 at Genoa Rd, scheduled for 2011

The road projects include:

- Coordinating signal timing on Stony Island Avenue from 95th Street north, and on 95th Street from Western Avenue east to Ewing Avenue, to be completed in 2010
- Resurfacing I-94 (Bishop Ford Expressway) from ML King Drive south, scheduled for 2011
- Landscaping I-57 from I-94 south, to be done by 2012

- Landscaping and installing safety fencing and lighting along I-94 from the I-57 merge north, to be done in 2009
- Patching pavement on I-57 in various locations, with an unspecified completion date

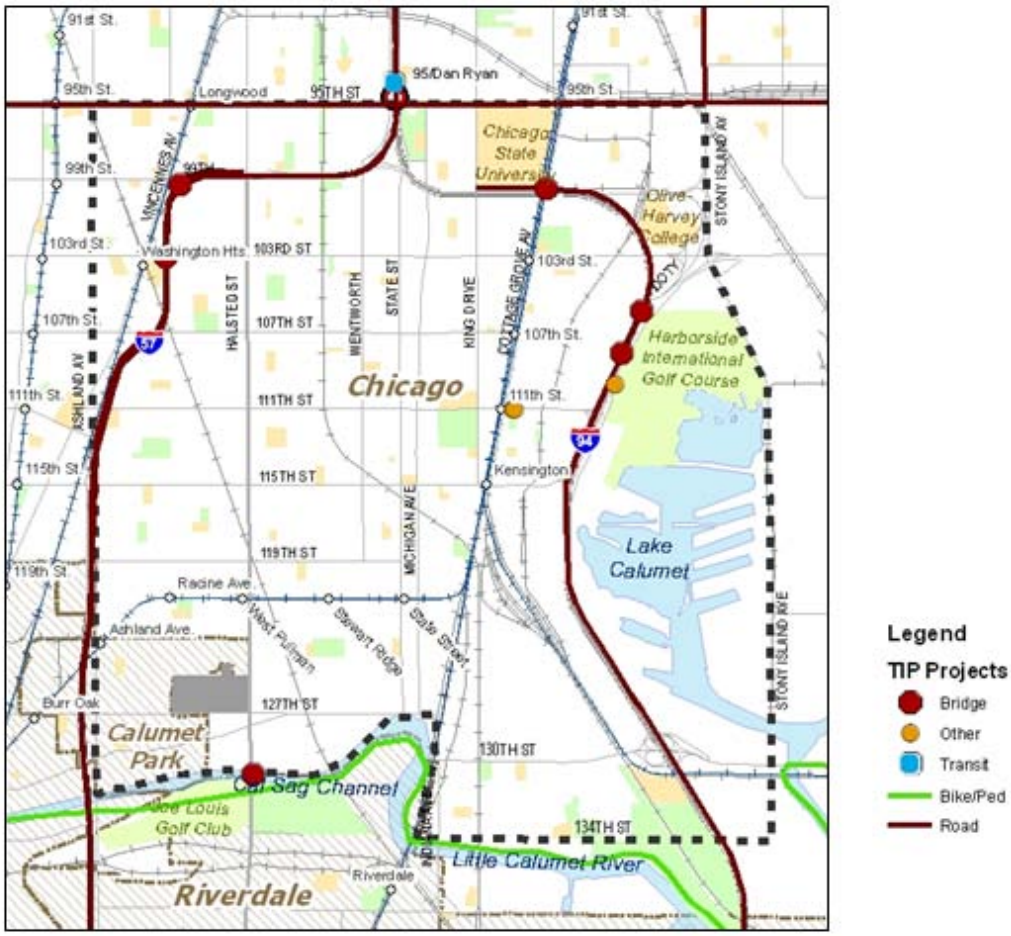
Other miscellaneous projects include a drainage project on I-94 (Bishop Ford Freeway) at 110th Street and Doty, which is scheduled for completion in 2012, and several historic preservation projects. These include the Hotel Florence at 11111 S. Forestville and the North Pullman Historic Area, both in the Pullman neighborhood of Chicago, which are scheduled to be completed in 2011.

A multi-use trail from the existing Centennial Trail in Lemont to the Burnham Greenway in Burnham, has funding identified but does not have a completion date.

Bus transit service under the No Build Alternative would be focused on the preservation of existing services and projects. No significant changes to bus service are anticipated in the project area.

All elements of the No-Build alternative are included in each of the other alternatives. The No-Build Alternative with TIP projects in the Red Line Extension Study Area is shown in Figure 5.1.

Figure 5.1: No-Build Alternative



Halsted Street TSM/BRT Alternative

Based on discussions with the FTA, consolidation of the TSM and BRT Halsted Street Corridor alternatives was analyzed. The TSM and BRT alternative was initially defined to operate on a five mile alignment between the Red Line 95th Street station via Halsted Street to Vermont Avenue/127th Street.

The proposed TSM Alternative is a 5.1 mile BRT alternative that would operate between the 95th Street Station and 127th Street via Halsted Street. 95th Street is 80 feet wide with four lanes, center turn lane, landscaped median and no parking. ADT on 95th Street is 23,800. Halsted Street is the busiest north-south arterial street in the Red Line study area with nearly 37,000 vehicles ADT north of I-57 Expressway and more than 26,000 vehicles ADT to the south of the expressway. Halsted Street has a 75 foot right-of-way with four lanes, landscaped median with center turn lane, and parking.[7]

Full-scale BRT installations can provide significant travel time savings. The travel time savings for implementing BRT on the five mile route between 95th Street Station and Vermont Avenue/127th Street is 2.0 to 3.0 minutes relative to the TSM (assumes that the order of magnitude of travel time savings is between 15 and 20 percent that full-scale BRT could be expected to achieve over the TSM alternative). Given the order-of-magnitude of capital costs for implementing BRT on Halsted Street is $40 million and travel time savings are only 2.0 to 3.0 minutes over the TSM, CTA decided to merge the TSM and BRT alternatives into a single new TSM/BRT alternative. <u>This new TSM/BRT Alternative replaced the TSM and BRT Alternatives from the Screen 2 analysis and was used for the detailed evaluation in Screen 3.</u>

The TSM/BRT Alternative is an enhanced bus route from the existing Red Line 95th Street terminal to Vermont Avenue. It is proposed to operating in mixed-traffic along 95th Street and Halsted Street. The TSM/BRT Alternative is shown in Figure 5.2, and includes the following characteristics:

- The alternative is 5.1 miles long with four stations.
- Stations are assumed at 103rd, 111th, 119th Streets and Vermont Avenue.
- The average travel time from Vermont Avenue to 95th Street is 24.25 minutes. This includes a 2.25 minute wait time at Vermont Avenue.
- Traffic signal priority would be implemented along Halsted Street and 95th Street (similar to the previous TSM and BRT alternatives).
- Preliminary schedules indicate that four 60-foot articulated buses vehicles (including 1 spare) would be required.
- 95th Street terminal would be expanded to extend the existing bus bays along State and Lafayette Streets approximately 250-feet north to 94th Street to improve circulation and safety.
- Park and ride facilities are recommended at intermediate and terminal stations with a total capacity of 700 spaces in the year of construction.

[7] ADT's from IDOT website. http://www.gettingaroundillinois.com/
Year of Count Data - 95th Street: 2007, Halsted Street: 2007.

Figure 5.2: TSM/BRT Halsted Street Alternative

HRT Halsted Street Elevated Alternative

An extension of heavy rail transit would operate on an elevated structure between the existing Red Line 95th Street Terminal station and Halsted Street/Vermont Avenue. The alignment would follow the median of I-57 Expressway until Halsted Street. It would then turn south at Halsted Street and continue in median to Vermont Avenue.

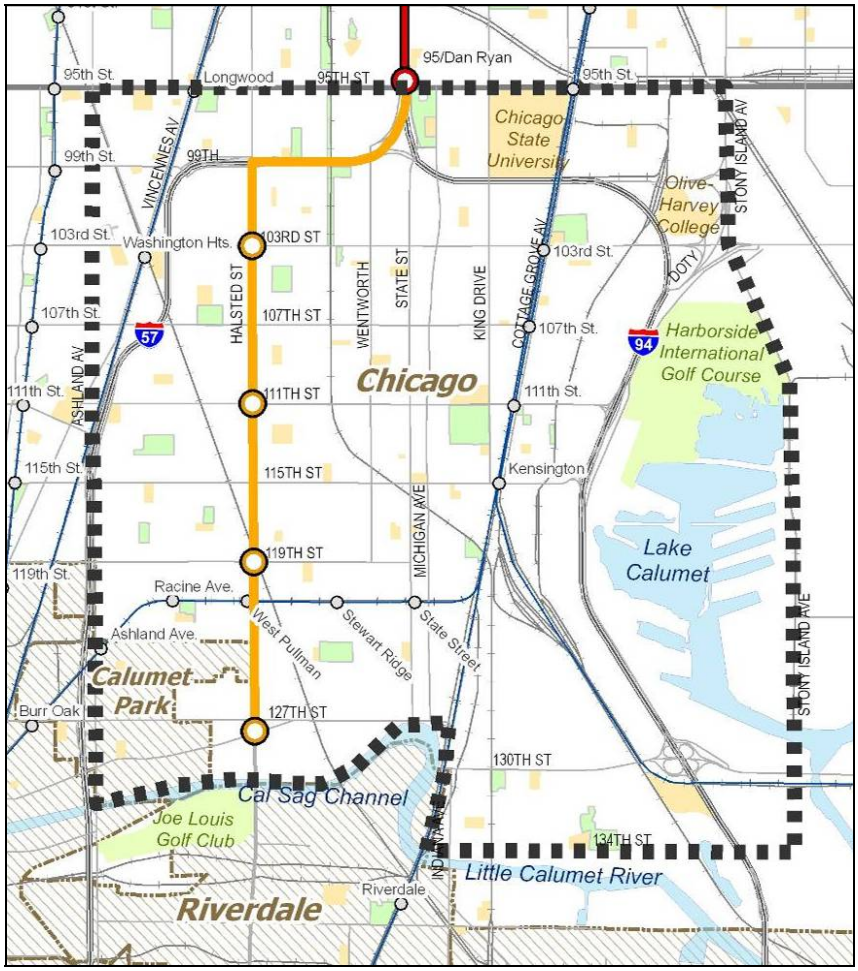
The HRT Halsted Street Alternative is shown in Figure 5.3, and includes the following characteristics:

The alignment considered for detailed evaluation is described as follows:

- The alternative is 5.0 miles long with four stations.
- Station locations are assumed at 103rd, 111th, 119th Streets and Vermont Avenue.
- The average travel time from Vermont Avenue to 95th Street is 16.25 minutes. This includes a 2.25 minute wait time at Vermont Avenue.

- Based on the estimated running time for the Halsted Street alignments, an additional 78 cars (including 14 spares) are required for the AM rush period.
- Park and ride facilities are recommended at intermediate and terminal stations with a total capacity of 1500 spaces in the year of construction.
- CTA has previously determined that the 98th Shop is in need of replacement and has made plans separate from this project to address those needs. For that reason, the replacement of 98th Shop and a new Red Line yard and shop is not considered to be part of the HRT Halsted alternative.

Figure 5.3: HRT Halsted Street Elevated Alternative



Michigan Avenue TSM/BRT Alternative

Based on discussions with FTA, the TSM/BRT Michigan Avenue alternate was introduced as a new alternative in Screen 3 for purpose of evaluation against the HRT UPRR Corridor Elevated Alternative. The proposed TSM Alternative is a 5.5 mile BRT alternative that operates between the 95th Street Station and 130th Street via East 95th Street, Michigan Avenue, East 127th Street, South Indiana Avenue and East 130th Street. 95th Street is 80 feet wide with four lanes, center turn lane, and no parking. Michigan Avenue averages 40 feet wide with two lanes and parking. 127th Street and Indiana Avenue are 40 feet wide with four lanes and no parking. 130th Street is 60 feet wide with four lanes, a center turn lane and no parking. On 95th Street, ADT is currently 23,800, ADT on Michigan Avenue between 95th Street and 127th ranges between 10,700 (at 107th Street) and 7,100 (at 127th Street), on 127th and Indiana Avenue Street 21,100, and 130th Street, ADT is 19,600. [8]

Previously in Screen 2, both HRT and BRT alternatives for the Michigan Avenue Corridor were eliminated due to physical constraints and potential displacements from the need for additional right-of-way along Michigan Avenue to accommodate the separate guideway/roadway for HRT and BRT. This TSM/BRT Michigan Avenue alternative would consist of enhanced bus service operating in existing street right-of-way. <u>This new TSM/BRT Alternative thus introduced a separate TSM/BRT Alternative that was used for detailed evaluation in comparison to the locally preferred alternative (LPA).</u>

The TSM/BRT Alternative would include the provisions of the No Build Alternative and add a limited-stop enhanced bus route, #X34, along the existing #34 South Michigan Avenue bus route to 130th Street and I-94 Bishop Ford Freeway. The TSM/BRT Alternative is shown in Figure 5.4, and includes the following characteristics:

- The alternative is 5.5 miles long with four stations.
- Stations are located at 103rd, 111th, 115th and 130th Streets.
- The average travel time from 130th Street to 95th Street is 25.25 minutes. This includes a 2.25 minute wait time at 130th Street.
- Preliminary schedules indicate that ten 60-foot articulated buses (including two spares) would be required.
- Traffic signal priority would be implemented along 95th Street, Michigan Avenue and 130th Street (similar to the previous TSM and BRT alternatives).
- 95th Street terminal would be expanded to extend the existing bus bays along State and Lafayette Streets approximately 250-feet north to 94th Street to improve circulation and safety.
- Park and ride facilities are recommended at intermediate and terminal stations with a total capacity of 700 spaces in the year of construction.

[8] ADT's from IDOT website. http://www.gettingaroundillinois.com/
Year of Count Data - 95th Street: 2007, Michigan Avenue: 2006, 127th Street: 2006, Indiana Avenue: 2006, and 130th Street is 2006.

Figure 5.4: TSM/BRT Michigan Avenue Alternative

HRT Union Pacific Railroad (UPRR) Elevated Alternative

CTA was aware of concerns about shared-use transit and freight railroad corridors as a result of shared use corridor incidents that have occurred in other parts of the country. Conceptual designs and cost estimates for that portion of the Red Line extension that would be on shared-use ROW include additional safety provisions (25 foot separation, elevated grade separation, intrusion fencing with alarms to both the CTA and UPRR control centers, as well as a crash wall between the UPRR tracks and the CTA structure) in an effort to address what was understood to be concerns as directly as possible.

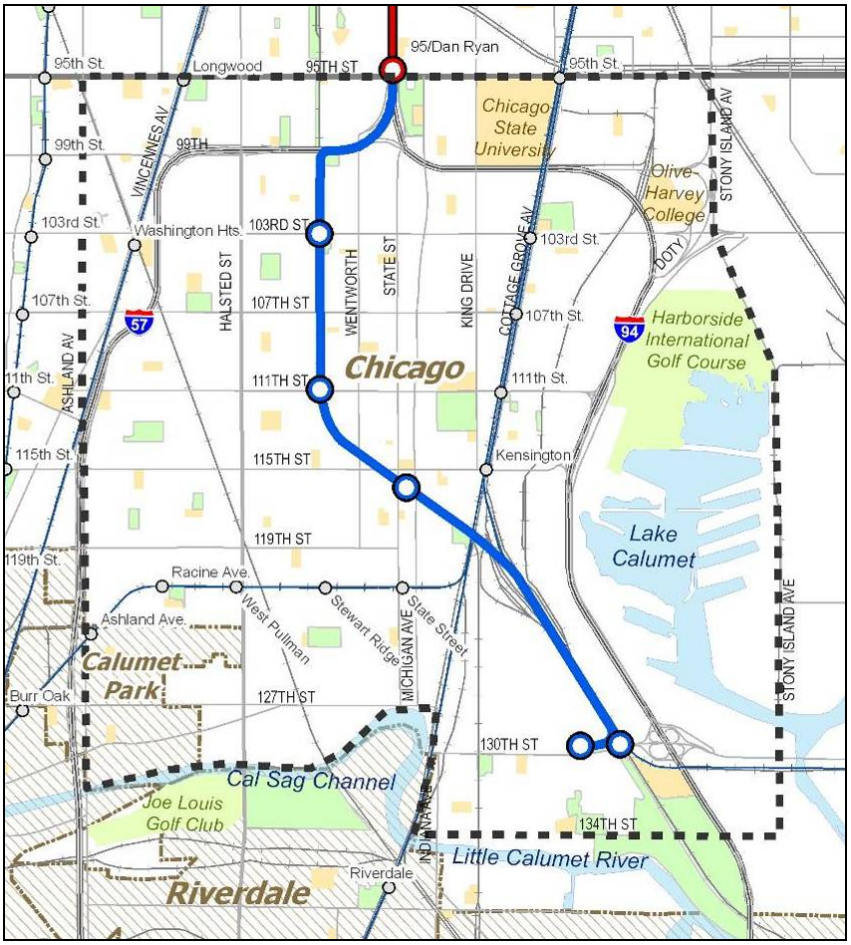
During Screen 3, a meeting was held with CTA, CDOT and UPRR representatives to discuss the potential Red Line Extension and the UPRR freight railroad shared use corridor. At this meeting, the UPRR indicated that they required a 50 foot separation distance between their tracks and a transit line. This separation distance was based on research investigations as to how best to ensure safety and protect the operations and physical plant of the UPRR. In addition, the UPRR desires to maintain its current ROW footprint in order to allow for future expansion. It would not be possible for the CTA structure to be located on the UPRR ROW and provide the required separation distance.

This led the CTA study team to examine options for locating the CTA rail line beyond the east and west limits of the UPRR ROW. As result, the HRT UPRR Alternative includes both an East and West alignment option for detailed evaluation in Screen 3.

The HRT UPRR Alternative is shown in Figure 5.5, and includes the following characteristics:

- The alternative is 5.3 to 5.6 miles long depending on terminal location and includes four stations.
- Station are located at 103rd, 111th, 115th and 130th Streets.
- The average travel time from 130th Street to 95th Street is 16.25 minutes. This includes a 2.25 minute wait time at 130th Street.
- Based on the estimated running time for the UPRR alignments, an additional 78 cars (including 14 spares) are assumed for the AM rush period.
- Park and ride facilities are recommended at intermediate and terminal stations with a total capacity of 1,500 spaces in the year of construction.

Figure 5.5: HRT UPRR Elevated Alternatives

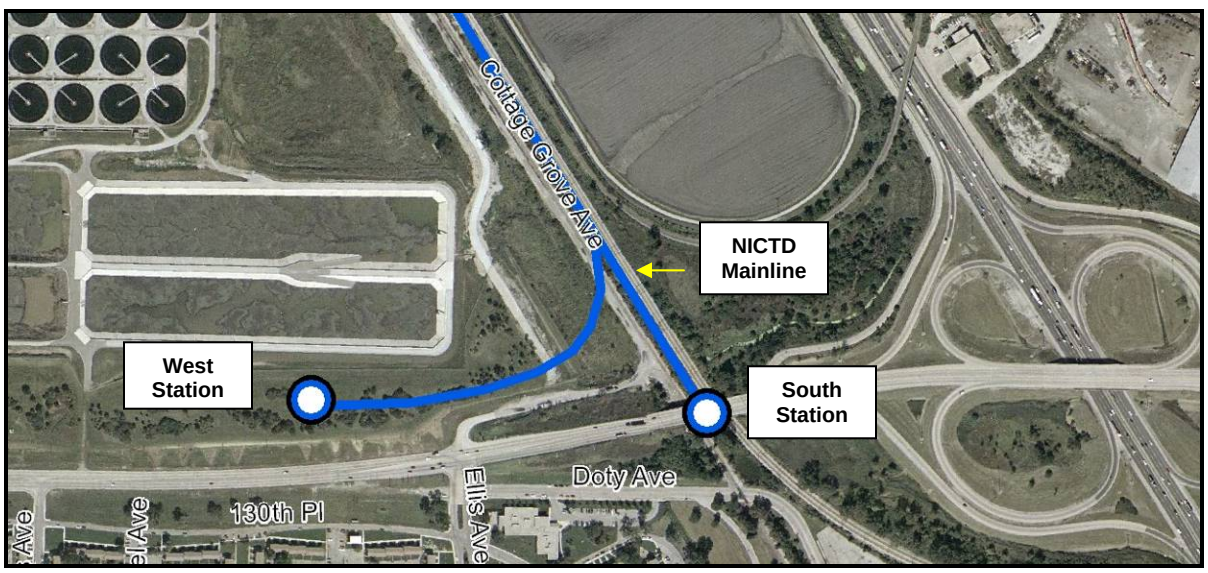


A new Red Line yard and shop facility with a 276-car capacity, would be located on a combination of industrial/vacant land to the east of the CN/MED tracks and west of the IHB and NICTD tracks at approximately 120th and Cottage Grove. The CTA has previously determined that the 98th Yard and Shop is in need of replacement and has made plans separate from this project to address those needs. For that reason, the replacement of 98th Yard and Shop and a new Red Line yard and shop is not considered to be part of the HRT UPRR alternative.

Two 130th Street terminal station locations, a south and a west option, are proposed. They are differentiated primarily in environmental factors and capital cost at this stage of the analysis. The south and west terminal station options are shown in Figure 5.6.

- *UPRR ROW to 130th- South Station Option.* The alignment terminates along the former IHB railroad right-of-way immediately north of 130th Street. The station platform would extend underneath the existing 130th Street /IHB Bridge to provide access to the Altgeld Gardens development on the south side of 130th Street. Line length is 5.3 miles long.
- *UPRR ROW to 130th- West Station Option.* For this variation, around 128th Street the double track HRT line swings off the former Michigan Central/Indiana Harbor Belt ROW to the west, running along the north side of 130th Street. The location is parallel to 130th street and provides access to the residential areas and the Altgeld Gardens development on the south side of 130th Street. Line length is 0.3 miles longer than the previous alternative, for an overall length of 5.6 miles.

Figure 5.6: HRT UPRR South and West Station Options



5.2 Screen 3 Evaluation

A summary Screen 3 evaluation matrix was developed. The evaluation factors used to assess the performance of the alternatives included:

- Physical Constraints
- Public Support
- Social/Economic Factors

- Environmental Factors
- Transportation Factors
- Capital Cost Comparison
- Operating and Maintenance (O&M) Cost Comparison
- Ridership Potential
- FTA Cost Effectiveness Index (CEI)

The Screen 3 analysis resulted in a preliminary recommendation for the HRT UPRR Alternative as the Locally Preferred Alternative, and is shown in Table 5.1.

Table 5.1: Screen 3 Evaluation Summary and LPA Recommendation

Screening Criteria	No-Build	TSM/BRT		HRT	
		Halsted	Michigan	Halsted	UPRR West and East Option
		At-Grade	At-Grade	Elevated	Elevated
Physical Constraints	NA	○	○	○	−
Public Support	NA	○	○	○	+
Social and Economic	NA	○	○	○	○
Environmental	NA	○	○	○	○
Transportation	−	−	−	+	+
Capital Cost	+	+	+	○	○
Operating Cost	+	+	+	○	○
Ridership	−	○	○	+	+
Cost Effectiveness Index	NA	−	−	○	○
Summary Rating	0	+1	+1	+2	+2
LPA Recommendation	No	No	No	**Yes**	**Yes***

Key: + Better than other alternatives; ○ Same as other alternatives; − Worse than other alternatives
* Subject to cost-effectiveness requirements

Specific issues that led to the recommendation or elimination of each alternative in Screen 3 are summarized below.

TSM/BRT Halsted Street and Michigan Avenue At-Grade

- Expansion of the 95th Street terminal to extend the existing bus bays along State and Lafayette Streets approximately 250-feet north to 94th Street to improve circulation and safety both TSM/BRT alternatives.

- Halsted Street can accommodate additional buses without modification to the right of way or traffic lanes.
- Michigan Avenue can accommodate additional buses without modification to the right of way or traffic lanes. However, the corridor has two vehicle lanes with parking and would require removal of parking lanes for some portions of the alignment.

Halsted Street Elevated

- Right-of-way is sufficiently wide to accommodate both construction and operation of a HRT system with the median of the roadway, though impacts to businesses and streetscape would occur along the corridor during construction and subsequent operation. The commercial character of the corridor and its location adjacent to residential neighborhoods is transit supportive.

UPRR Elevated

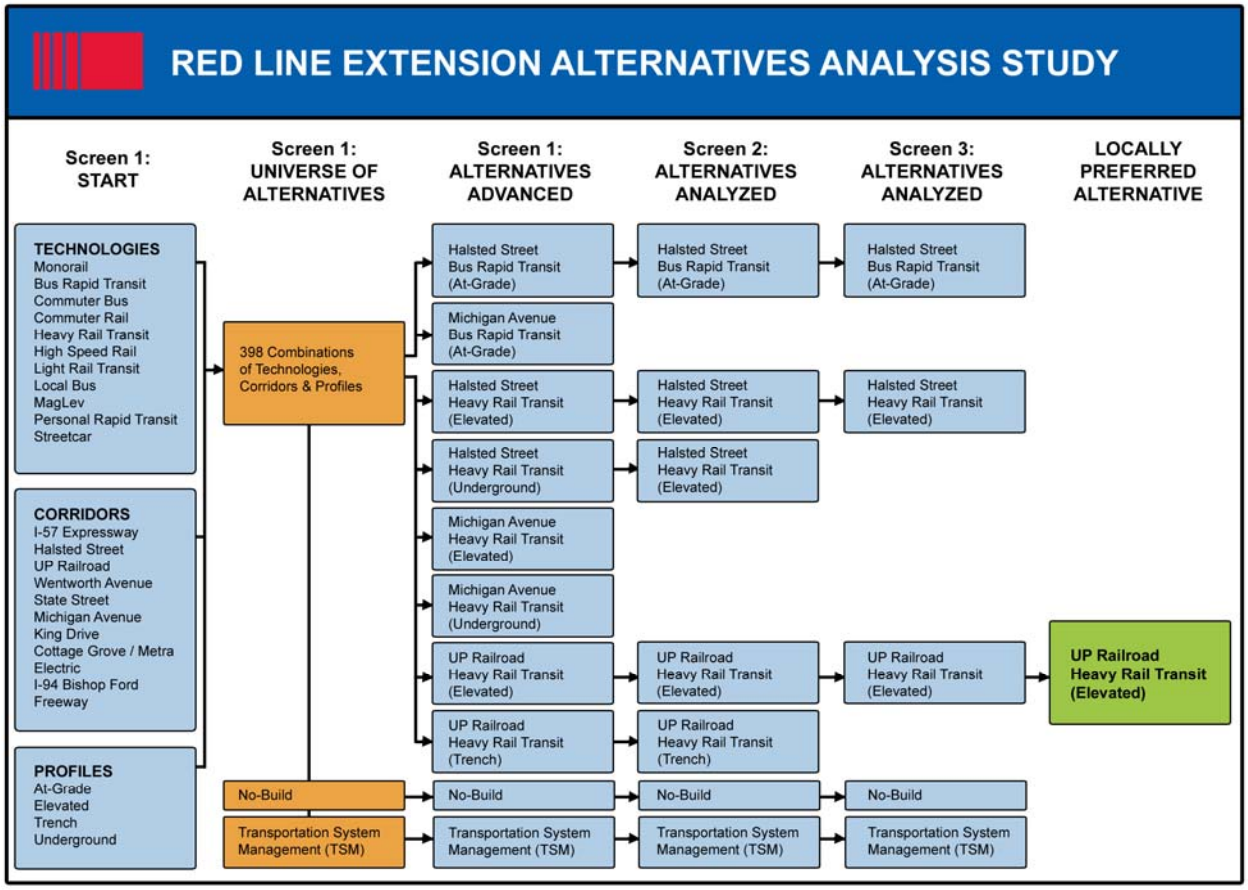
- Public support for the HRT UPRR alternative rated highly in the evaluation due the high number of public comments received for this alternative throughout Screens 1, 2 and 3. 451 public comments were received in Screens 1, 2 and 3 – 140 of those expressed a preference for a particular alternative. 85 (60.7%) of these comments were in favor of the UPRR Rail alternative and 7 (5%) were in favor of the Halsted Rail alternative. 29 (20.7%) Comments showed general support of an extension of the Red Line, and 19 (13.6%) comments specifically support extending the line to 130th Street with no particular alternative mentioned.
- In June 2009, a petition was submitted to CTA including 512 signatures supporting the CTA's locally preferred route to extend the Red Line Rail Line from the 95th Street Station to 130th Street, using the Union Pacific Rail Road (UPRR) corridor.
- In November 2004, over 38,000 residents in the 9th and 34th wards supported a public referendum for the Red Line Extension along the UPRR Corridor. A total of 38,142 'Yes' votes (93%) and 2,993 'No' votes were cast.
- The HRT UPRR alternative scores well on most criteria but scores a negative on physical constraints. Due to recent accidents, the transportation industry is adopting greater separation between freight railroad and transit operations to increase safety. Based on discussions with the UPRR, a 50-feet separation distance is desired from the UP freight railroad tracks. Extension of the Red Line immediately adjacent to west or east of the UPRR ROW will result in adjacent property acquisition.

Screen 3 concluded with public involvement including meetings with elected officials and other stakeholder groups as well as two public meetings in June 2009.

5.3 Screening Summary

Figure 5.7 presents a summary of the three screenings, beginning with the Universe of Alternatives, followed by Screens 1, 2, and 3, and the LPA recommendation for the elevated HRT adjacent to the UPRR to 130th Street.

Figure 5.7: Red Line Extension AA Screening Summary



6.0 LOCALLY PREFERRED ALTERNATIVE

6.1 Selection of a Locally Preferred Alternative

On August 12, 2009, the Chicago Transit Board approved an elevated HRT extension adjacent to the UPRR to 130th Street as the LPA. This recommendation was based on the technical work described in previous sections of this report, and based on public, stakeholder, and agency input. This section further describes the LPA (and No Build and TSM alternatives, which must be carried forward) and evaluates the extent to which the LPA addresses the goals and objectives for the project compared to No Build and TSM/BRT alternatives.

6.2 Description of Service Plan

Significant characteristics of the proposed service plan for each of the No Build, TSM/BRT and LPA are summarized below.

6.2.1 Alternative Descriptions

No Build Alternative

The No-Build Alternative is defined as the existing transportation system, plus any committed transportation improvements. Committed transportation improvements include projects that are already in the Chicago Metropolitan Agency for Planning (CMAP) financially constrained Transportation Improvement Program. Bus transit service under the No Build Alternative would be focused on the preservation of existing services and projects. In the 2030 design year, the transit network within the project area would largely be the same as it is now with similar service frequencies.

The No-Build Alternative also establishes the baseline for comparison of the cost-effectiveness of the TSM/BRT and HRT UPPR alternative. All elements of the No-Build alternative are included in each of the other alternatives except where an alternative replaces services or facilities inside the study area.

TSM/BRT (Michigan Avenue to 130th Street)

The TSM/BRT Alternative is a 5.5 mile BRT alternative that operates along the existing #34 South Michigan bus route from the Red Line 95th Street terminal station to 130th Street and the I-94 Bishop Ford Freeway near Altgeld Gardens. This alternative will require a net increase of eight buses plus two spares.

Three types of service modifications have been identified for the TSM/BRT Alternative to provide the best address the project Purpose and Need in Section 1 without constructing a new fixed guideway.

- The first includes frequency adjustments during peak periods to better serve anticipated demand. The TSM/BRT alternative proposes a four minute frequency between 6:00 a.m. and 8:00 p.m. on weekdays and a 12 minute frequency on the existing route 34.
- The second modification would implement BRT operational characteristics short of a dedicated lane to improve accessibility and running times. BRT characteristics include transit signal priority, improved bus shelters and park and ride facilities at the 103rd, 111th, 115th and 130th Street stations.

- The third modification would be expansion of the 95th Street terminal to extend the existing bus bays along State and Lafayette Streets approximately 250-feet north to 94th Street to improve circulation and safety.

LPA (elevated HRT adjacent to UPRR to 130th Street)

The Red Line Extension would operate on an elevated structure. The alignment would follow the I-57 Expressway until the UPRR corridor. It would then turn south along the corridor to approximately 111th Street where it would turn southeast to terminate at roughly 130th Street west of the I-94 Bishop Ford Freeway. Stations would be located at 103rd, 111th, 115th and 130th Streets. Park-and-ride facilities are assumed at each station.

The LPA is anticipated to operate train sets consisting of four or eight cars. The maximum scheduled capacity of each car is 90 passengers, which provides a maximum capacity of 360 passengers for a 4-car train, and a maximum capacity of 720 passengers for an 8-car train. The current Red Line vehicle requirements during the AM peak period is 304 cars. Based on the estimated running time for the LPA to 130th Street, an additional 78 cars will be required in the AM rush period. This estimate includes 64 cars required for the schedule, plus 14 spares.

The proposed span of service for the LPA is the same as the current Red Line, which operates 24 hours every day of the year. The LPA service frequency is expected to be the same as current service, which is approximately five minutes in the northbound direction and four minutes southbound during the AM peak period.

Table 6.1: LPA and Existing Northbound Red Line Weekday Service Characteristics

Service Period	Hours	Time Period	Average NB Frequency (minutes)	Train Length	Vehicles Required
Weekday					
Early Morning	3.0	03:00 - 06:00	13	8	
AM Peak	3.0	06:00 - 09:00	5	8	304
Base	6.0	09:00 - 15:00	7	8	184
PM Peak	3.0	15:00 - 18:00	5	8	304
Evening	4.0	18:00 - 22:00	7.5	4	
Late Evening/Owl	5.0	22:00 - 03:00	15	4	48
Weekday Total Hours	24.0				

6.2.2 Running Time

Table 6.2 shows the northbound running times for the existing Red Line and the No Build, TSM/BRT, and LPA. The existing Red Line northbound running time between the 95th Street station and the downtown Jackson Station is 25 minutes in the AM rush period.[9] To travel between 130th Street and Jackson Boulevard requires 57.0 minutes in the AM peak period for the No Build and 52.0 minutes for the TSM/BRT. The LPA is projected to have most significant time savings with a running time of 39.0 minutes from 130th to Jackson.

[9] Source: CMAP New Starts model

Table 6.2: Estimated Northbound Running Times

Route Segment	Running Time (minutes)			
	Current Red Line	No Build	TSM/BRT	LPA
95th to Jackson	25.0			
95th to Clark/Division	32.5			
95th to Howard	61.5			
130th to 95th		28.00	23.0	14.0
130th to Jackson		57.0	52.0	39.0
130th to Clark/Division		64.5	59.5	46.5
130th to Howard		93.5	88.5	75.5

5.2.3 Proposed Bus Route Changes

The bus route changes outlined below are proposed service plans designed to speed passenger travel to downtown Chicago.

LPA Proposed Bus Service Changes

- CTA route #9 Ashland currently terminates peak period trips at 104th/Vincennes. These trips are proposed to terminate at 103rd Station on the new UPRR alignment.
- The current south terminal for CTA route #34 South Michigan is 131st/Ellis. It is proposed that route #34 continue to the new terminal at 130th/I94, operating via 130th Street, Eberhart, 131st, Langley, 133rd Place, Ellis and 130th Street.
- It is proposed that CTA routes #103 West 103rd and #106 East 103rd be combined into one route operating between a west terminal at Pulaski and an east terminal at Stony Island. This will reduce the number of bus routes terminating at 95th while still providing access to the Red Line at 103rd Station.
- To further reduce the number of bus routes terminating at 95th Station, it is recommended that CTA route #108 Halsted/95th be eliminated. The need for express bus service in this corridor is reduced with the implementation of new rail service.
- Routes #112 Vincennes/111th and #111 Pullman/111th/115th are recommended for restructuring to simplify the route paths and better serve the new alignment. Route #111 would operate on 111th between 111th/Pulaski and 111th/Corliss, serving the new 111th Station. A new route #115 would operate as a two-directional loop on 115th, Cottage Grove, 95th Street and Vincennes. Route #112 is recommended for elimination under this proposal.
- Route #119 Michigan/119th is proposed to terminate at 115th/Michigan Station.
- The south terminal of Route #348 is proposed to terminate at 130th/I94, extending the route from the current turnaround at 136th/Indiana. In addition, CTA route #30 South Chicago will terminate at the new terminal at 130th/I94, moving from its current terminal at 130th/Exchange.
- For directness, route #352 Halsted is proposed to terminate at 111th Station instead of 95th. The north terminal of route #359 Robbins/South Kedzie is proposed as 115th Station instead of 95th. Terminating route #353 south of 95th will remove bus service from King Drive between 111th Street and 95th Street. For this reason no changes are proposed for route #353.

TSM/BRT Proposed Bus Service Changes

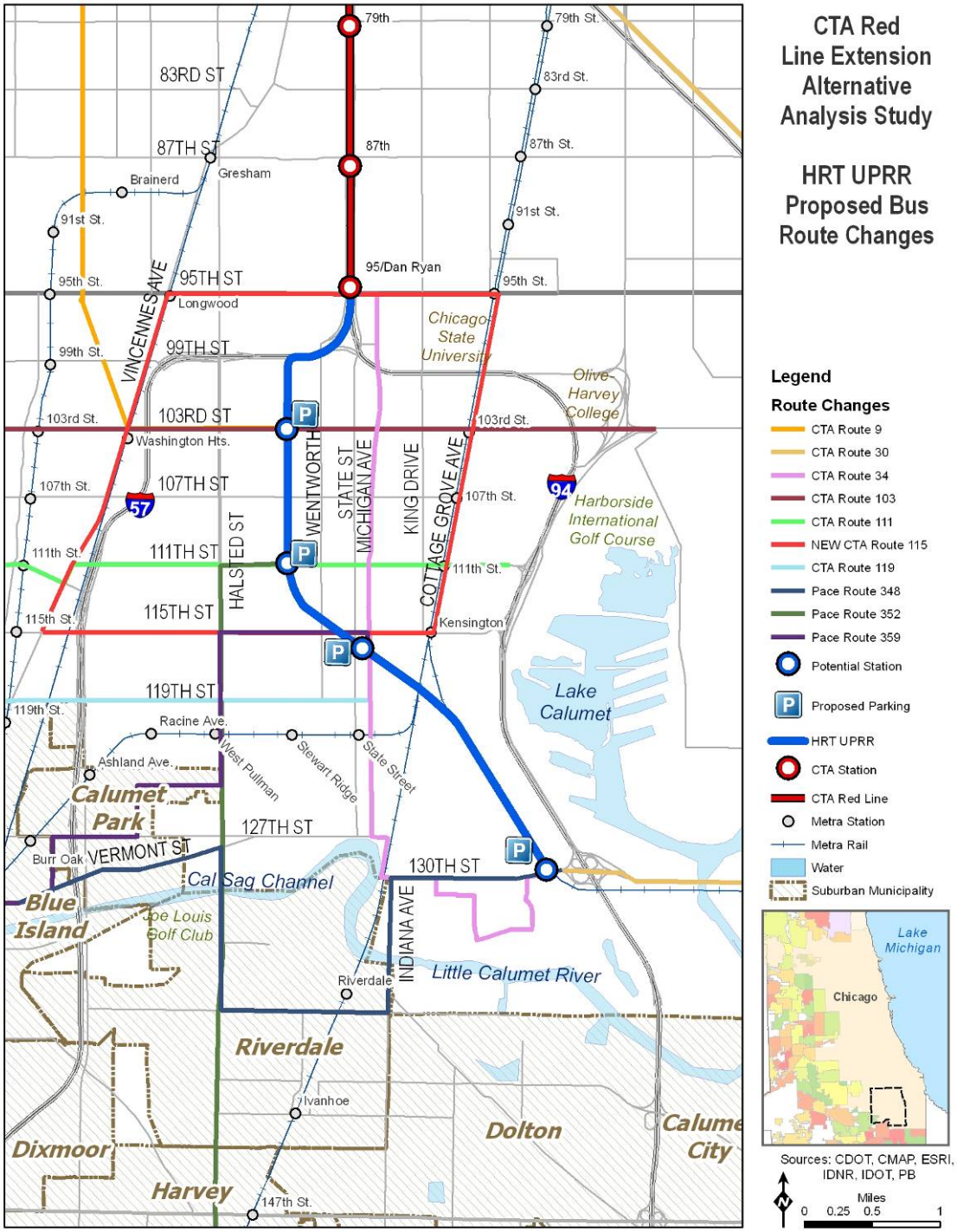
- Bus service changes associated with the TSM/BRT Alternative to 130th Street include a new enhanced bus route along Michigan Avenue. The proposed X34 enhanced bus route would operate along the current 34 South Michigan route and extend to 130th Street to serve Altgeld Gardens on a 4 minute peak headway. The headway for route 34 would be reduced to 12 minutes due to the addition of the enhanced bus X34. There are no other bus routes proposed to be changed for the TSM/BRT Alternative.

Table 6.3 lists the bus routes that currently operate within the study area. Changes to current bus operations on individual routes are proposed for each of the alternatives. The proposed bus route changes for the LPA and TSM/BRT are shown in Figures 6.1.

Table 6.3: Proposed Bus Routes Changes

Bus Route	LPA	TSM/BRT
8A	None	None
9	Terminate 104th/ Vincennes trips at 103rd	None
30	Terminate at 130th	None
34	Terminate SB at 130th	New X34
103	Combine with #106	None
106	Combine with #103	None
108	Eliminate	None
111	Serve 111th between 111th/Pulaski & 111th/Corliss.	None
115	New bi-directional loop route via 115th, Cottage Grove, 95th St & Vincennes	No new route
112	Eliminate	None
119	Terminate at 115th/Michigan	None
348	Terminate SB at 130th	None
352	Terminate at 111th	None
353	None	None
359	Terminate at 115th	None

Figure 6.1: LPA with Proposed Bus Route Changes



6.3 LPA Transportation Characteristics

The following transportation characteristics of the No Build, TSM/BRT and LPA are described below and include:

- Travel Time
- Access to Jobs
- Reliability and Safety
- Local Roads
- 95th Street Station Bus Capacity and Delay

6.3.1 Travel Time

Overall travel time has been calculated for the LPA, TSM/BRT, and No Build alternatives, as shown in Table 6.4. These travel time estimates include wait time, run time (in-vehicle), and walk time.

Table 6.4: Estimated Travel Times from 130th Street to Jackson Blvd.

Travel Time Elements	Time in Minutes		
	No Build	TSM/BRT	LPA
Wait time at 130th Station	3.50	2.25	2.25
Run time 130th to 95th Stations	28.00	23.00	14.00
Walk time: curb to platform	3.00	3.00	0.0
Wait time at 95th Station	2.25	2.25	0.0
Rail run time 95th to Jackson Station	25.00	25.00	25.00
Total Travel Time	61.75	55.50	41.25

As shown in Table 6.4, the travel time for the No Build Alternative is 62 minutes from 130th Street to the downtown Jackson station. This represents the existing travel time using route #34 South Michigan to 95th Street with a transfer to Red Line. Travel times for the TSM/BRT Alternative are expected to improve by five minutes or 56 minutes, but would still require a transfer to the Red Line. Overall, the LPA provides the fastest travel time at 41 minutes. Trips to Jackson would be improved by 21 and 14 minutes over the No Build and TSM/BRT, respectively.

6.3.2 Access to Jobs

The LPA would provide increased access to jobs within Chicago and 40 adjacent suburbs using the CTA transit system. Park-and-ride facilities for automobile access would be located at 103rd, 111th, 115th and 130th Streets for the TSM/BRT and LPA. The 130th Street park-and-ride facility would be near the I-94 Bishop Ford Freeway/130th Street interchange. This location is expected to draw a significant number of automobile commuters from the southern suburbs and northwest Indiana who would want to avoid congestion and travel delays further north along the Dan Ryan Expressway. Table 6.5 shows the estimated number of parking spaces for the LPA and TSM/BRT alternative for a 2015 year of construction (YOC) and 2030 forecast.

Table 6.5: Parking Spaces for 2015 and 2030

Location	TSM/BRT		LPA	
	2015	2030	2015	2030
103rd Street	100	200	200	200
111th Street	100	200	200	200
115th Street	100	1000	200	1000
130th Street	400	1400	900	2300
Total	**700**	**2800**	**1500**	**3700**

Table 6.6 shows the approximate number of transfers required for a transit trip from various origin areas in the study area to two major regional job centers: downtown Chicago and the O'Hare Airport / Rosemont area. The trips are considered during peak hour with a possible Blue Line and/or bus connection for O'Hare / Rosemont area trips. Overall, The LPA requires fewer transfers compared to No Build and TSM/BRT alternatives for these trips. Roseland Community Hospital (111th Street), Michigan commercial and retail corridor (115th Street and Michigan Avenue) and Altgeld Gardens (130th Street) would have walk to transit access to the stops/stations for the TSM/BRT and LPA. Compared to the LPA, the No Build and TSM/BRT would require a transfer from bus to rail at 95th Street to reach the Chicago Loop and additional 1-2 transfers to reach the O'Hare / Rosemont employment area.

Table 6.6: Number of Transfers between Select Origin-Destination Pairs

Number of Transfers Required	No Build	Michigan TSM/BRT	LPA HRT UPRR
Chicago Loop			
Altgeld Gardens	1	1	0
Pullman Library	1	1	1
Halsted Commercial / Retail	1	1	1
Michigan Commercial / Retail	1	1	0
Roseland Community Hospital	1	1	0
Chicago State University	1	1	1
Olive-Harvey College	1	1	1
Rosemont / O'Hare Area Employment			
Altgeld Gardens	2 - 3	2 - 3	1 - 2
Pullman Library	2 - 3	2 - 3	2 - 3
Halsted Commercial / Retail area	2 - 3	2 - 3	2 - 3
Michigan Commercial / Retail area	2 - 3	2 - 3	1 - 2
Roseland Community Hospital	2 - 3	2 - 3	1 - 2
Chicago State University	2 - 3	2 - 3	2 - 3
Olive-Harvey College	2 - 3	2 - 3	2 - 3

6.3.3 Reliability and Safety

Increased transportation reliability is evaluated by assessing impact of alternatives on operating reliability. The TSM/BRT alternative would utilize transit signal priority to improve overall travel time to 95th Street. However, the TSM/BRT alternative is expected to have a moderate operating reliability due to operation in mixed traffic along Michigan Avenue. The LPA would operate on an elevated guideway and achieve high operating reliability similar to existing Red Line service.

Table 6.7: Reliability and Safety

Criteria	No Build	TSM/BRT	LPA
Operating Reliability	N/A	Moderate	High
Potential Impact on Emergency Vehicle Incident Response Capability	N/A	Moderate/Low	Low
Enhance safety and security	N/A	Moderate	Moderate

In regards to safety, improving incident response was examined by evaluating the potential impact on emergency vehicle response capabilities. The TSM/BRT alternative could potentially have low to moderate impacts on emergency response vehicles due to signal priority conflicts which would ultimately go to emergency vehicles. TSM/BRT would operate in mixed traffic and would contribute to the normal traffic delay experienced during incident response. The LPA would be grade-separated and would not impact the ability of emergency vehicles to operate.

The LPA and TSM/BRT can incorporate design elements that enhance safety and security in preliminary engineering and final design. A wide range of safety measures will be identified, evaluated, and used in combination. These include vehicle measures (on-board closed-circuit television cameras, on-board audio and visual message communications to passengers, and emergency alarm systems), and station design (maximizing unobstructed sightlines in and surrounding stations, positioning of customer service booth for maximum presence and visibility in station, closed-circuit television cameras, public address systems, sufficient lighting, and emergency alarm systems). Traffic safety was measured using the criteria of the number potential conflict points with vehicles, pedestrians and bicycles. TSM/BRT alternative has the most number of conflict points with general traffic. Alternately, the LPA, due to the grade separation, has no conflict points with general traffic, but there are potential pedestrian conflicts with the freight railroad line for customers accessing the proposed 103rd and 111th Street stations. Mitigation measures, including pedestrian bridges, will be analyzed during Preliminary Engineering and preparation of an EIS.

6.3.4 Ridership

Ridership estimates for the year 2030 were developed using computerized travel forecasting models. The LPA exhibits strong ridership potential, while the TSM/BRT alternative is expected to only have a slight increase over the No Build alternative. By 2030, the LPA is expected to carry 13 million riders per year. For the TSM/BRT alternative, approximately one million riders are projected. Table 6.8 shows estimated weekday ridership for each station in 2030.

Table 6.8: Estimated 2030 Average Weekday Station Boardings

Station	No Build	TSM/BRT	LPA
103rd Street	N/A	500	5,100
111th Street	N/A	800	4,800
115th Street	N/A	100	6,900
130th Street	N/A	400	4,400

For consistency with other proposed rail extensions, total project ridership includes customers entering and exiting new stations as well as the volume traveling south of 95th Street Station on the extension. Year 2030 total project ridership is estimated at 42,000 per weekday or 13 million riders per year.

6.3.5 Local Roads

The impact on local roads was evaluated based on the level of traffic impediments. The LPA is proposed with full grade separation via an aerial structure and thus has a low level of potential traffic impediments. The TSM/BRT alternative operates at-grade in mixed flow traffic and has a moderate level of local roadway impacts.

The TSM/BRT Alternative would utilize traffic signal priority (TSP) at signalized intersections along 95th Street, Michigan Avenue, and 130th Street to improve running times. TSP improvements can be implemented to avoid negatively impact traffic level of service. However, the TSM/BRT alternative may require removal on street parking along Michigan Avenue in order to reduce improve level of service if warranted.

The LPA is elevated from 95th Street to the MED/CN tracks near 119th Street. The alignment then continues at -grade through an industrial area with no public through streets. Existing service drives and MWRDGC access roads would be grade separated.

The potential exists for Union Pacific freight railroad trains to affect access to the LPA at the proposed 103rd Street and 111th Street stations. At these two stations areas, the Union Pacific Railroad is at-grade, so that passing freight railroad trains would interrupt access to these Red Line Extension stations. Opportunities for pedestrian bridges will be analyzed in subsequent project steps. At the 115th Street/Michigan Avenue station, the Union Pacific Railroad is grade separated, so that access to the Red Line Extension station can be maintained by using Michigan Avenue, which passes underneath the Union Pacific Railroad.

The LPA would also require a new bus turnaround at 115th/Michigan in order to terminate CTA route #119 Michigan/119th. If an off-street turnaround is provided, it will require approximately 20,000 square feet, depending upon design.

Table 6.9: Traffic Impediments

Criteria	No Build	TSM/BRT	LPA
Potential corridor impacts	N/A	Moderate	Low
103rd, 115th and 130th Station area impacts	N/A	Low	Low-Moderate
95th Street Station area impacts	High	High	Low
Potential Displaced On-Street Parking Spaces	N/A	Moderate	Low

6.3.6 95th Street Station Bus Capacity and Delay

The LPA is expected to significantly improve bus and passenger congestion at the 95th Street station. The No Build and TSM/BRT Alternatives are expected to result in increased passenger traffic at the 95th Street station in 2030. Table 6.9 shows the current and forecasted annual ridership at the 95th Street station for the No Build, TSM/BRT and LPA. Under the No Build ridership is expected to increase by 0.4 Million in 2030.

Table 6.10: Annual 95th Street Station Ridership (in millions)

Ridership	Current Red Line (2007)	No Build (2030)	TSM/BRT (2030)	LPA (2030)
95th Street Station	9.1	9.5	9.8	4.3

Currently, nineteen CTA and Pace bus routes utilize the 95th terminal. The LPA will result in the re-routing of 11 bus routes to new Red Line Extension intermediate stations and elimination of two routes, thus relieving congestion at the 95th Street station.

The TSM/BRT alternative would include in one additional bus route and expansion of the 95th Street station bus terminal to provide additional bus bays and circulation improvements. The capital cost for this improvement is estimated at $73 M.

6.4 LPA Environmental Characteristics

The environmental characteristics of the LPA are based upon currently available information. The Environmental Impact Statement (EIS) process will be conducted for the LPA, and will assess the environmental impacts in more detail. Applicable environmental requirements and communications between the regulatory and resources agencies and the local project sponsor will be part of the EIS process.

Environmental characteristics of the No Build, TSM/BRT, and the LPA examined include:

- Social Equity / Neighborhoods
- Land Use and Development
- Displacements
- Visual and Aesthetic
- Noise and Vibration
- Air Quality

- Water and Ecosystem Resources
- Hazardous Waste Sites
- Historic, Archaeological and Cultural
- Parklands

6.4.1 Social Equity / Neighborhoods

Transit Dependent Populations

The location of transit-dependent populations is a measure of the potential for an alternative to better serve a core transit market. The following series of maps illustrates characteristics associated with transit dependent populations including: age distribution, low income households, and the number of no-vehicles households in relationship to the LPA.

Figure 6.2 illustrates the concentration of residents over the age of 65 and Figure 6.3 shows under the age of 18. The young and elderly have reduced access to personal vehicles and rely more on public transit.

Figure 6.4 shows areas where low income households are found relative to proposed station locations. Lower income households are more likely to rely on public transportation as a primary mode of transportation. See also Table 6.11.

Table 6.11: Poverty Status and Zero-Car Households within ½-Mile Station Areas

Criteria	No Build	TSM/BRT	LPA
2000 Poverty-Status Population	N/A	9,696	8,473
2000 Zero Car Households	N/A	2,991	2,336

Table 6.11 and Figure 6.5 provide data on households that report not owning a vehicle. These households are more likely to rely on public transportation as their primary mode of travel.

In general, the LPA serves the transit dependent populations in the study area, especially in the Roseland, southeast Washington Heights, and northeast West Pullman community areas and the Altgeld Gardens area.

Figure 6.2: 2000 Age Distribution Over 65

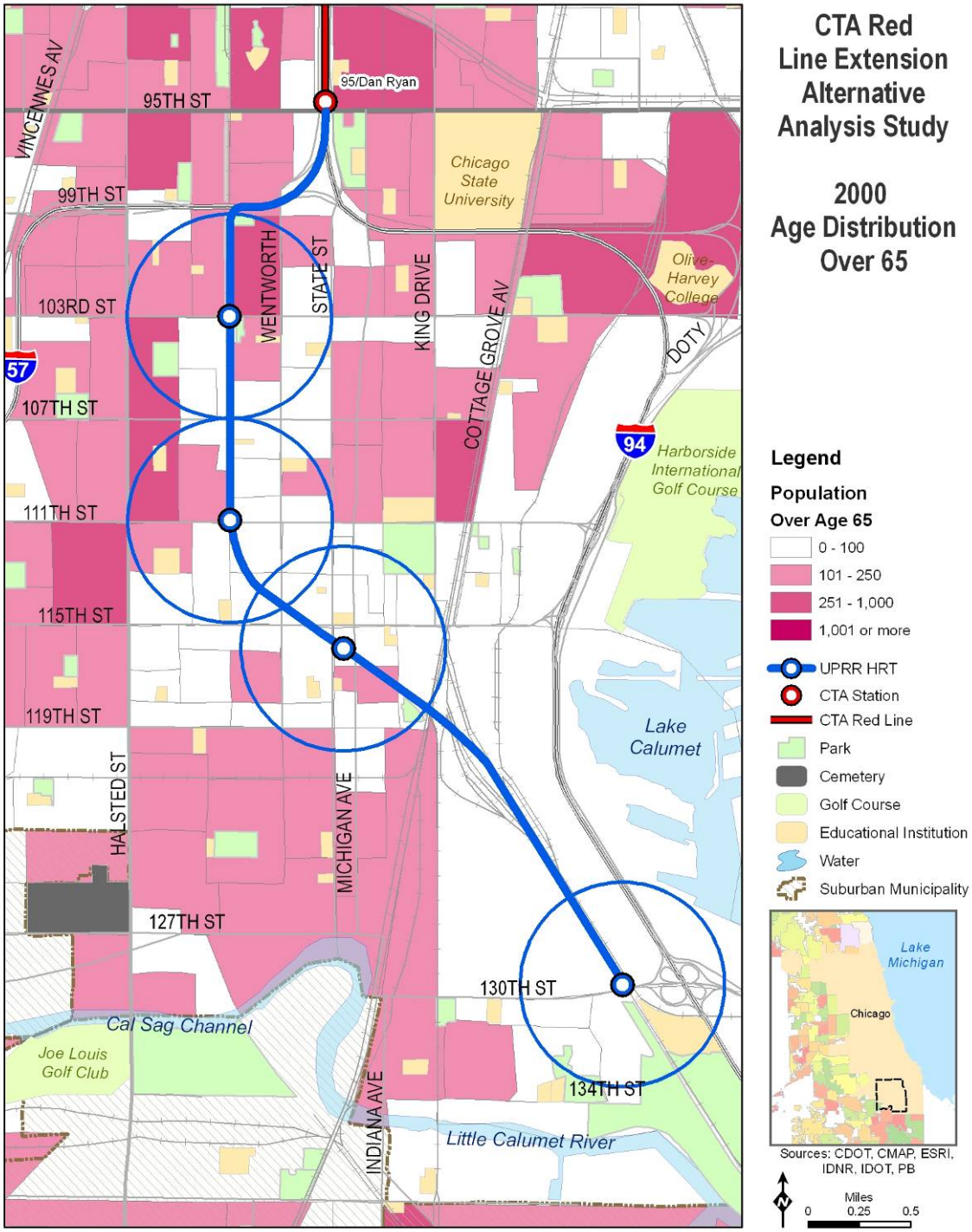


Figure 6.3: 2000 Age Distribution Under 18

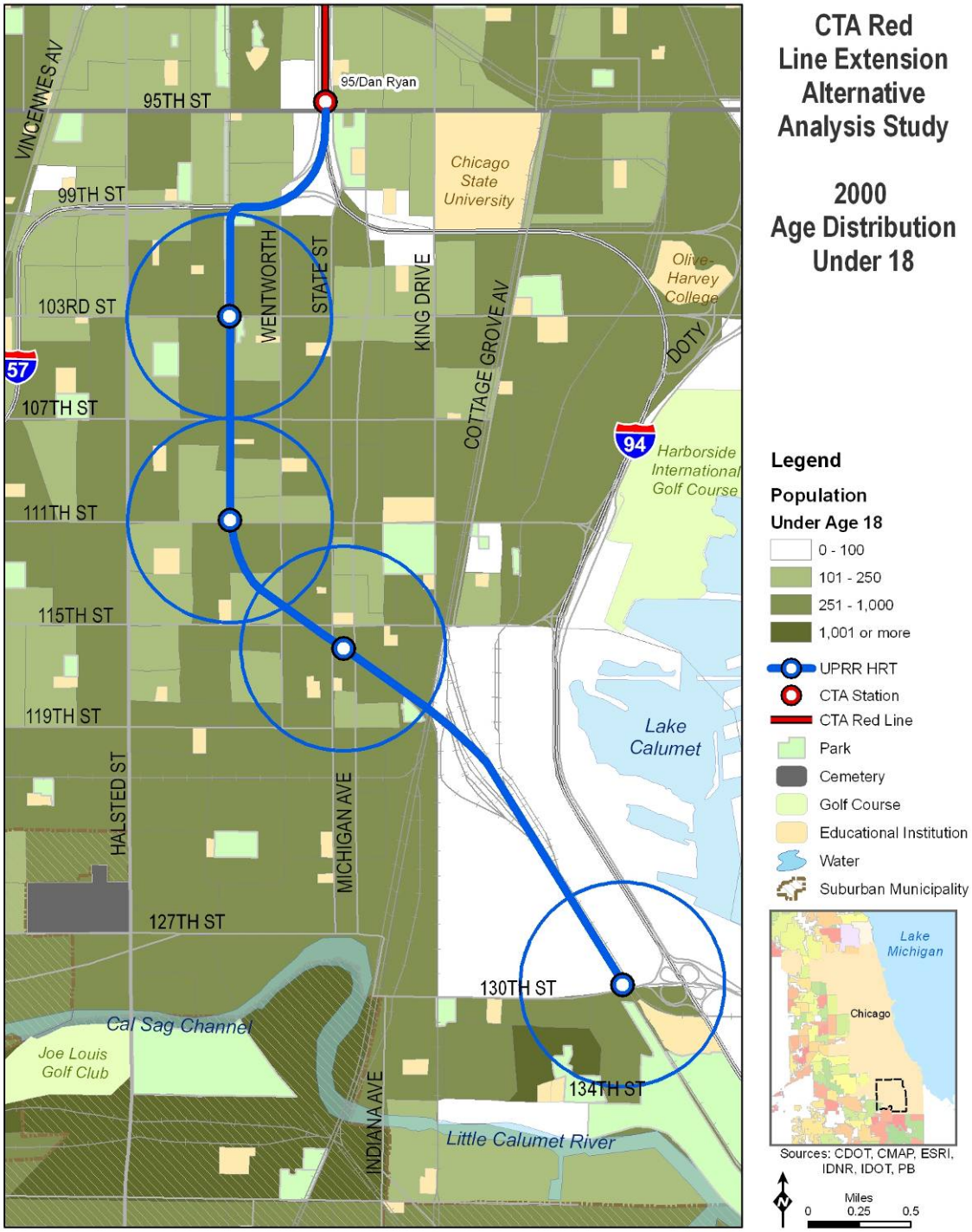


Figure 6.4: 2000 Poverty Status

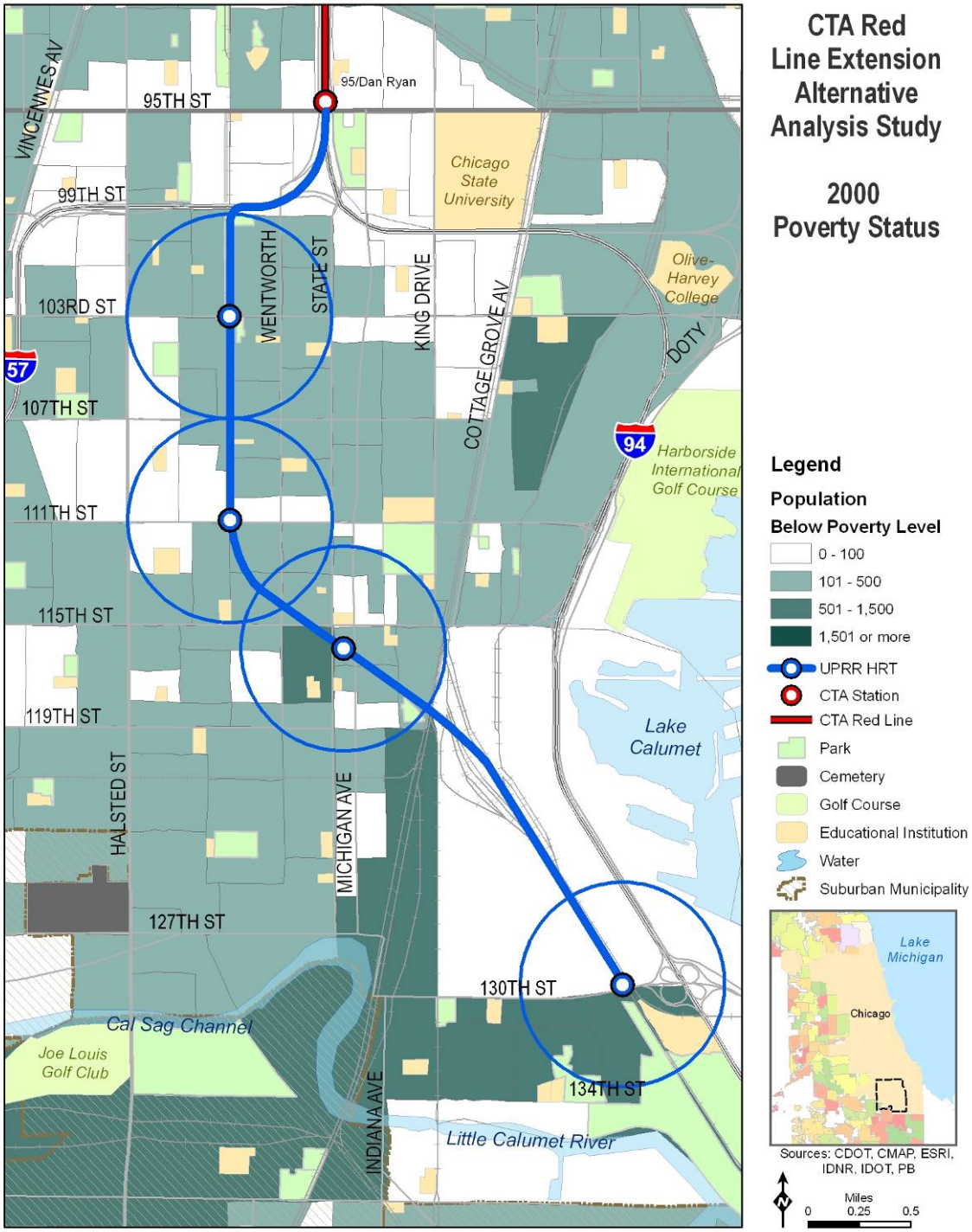
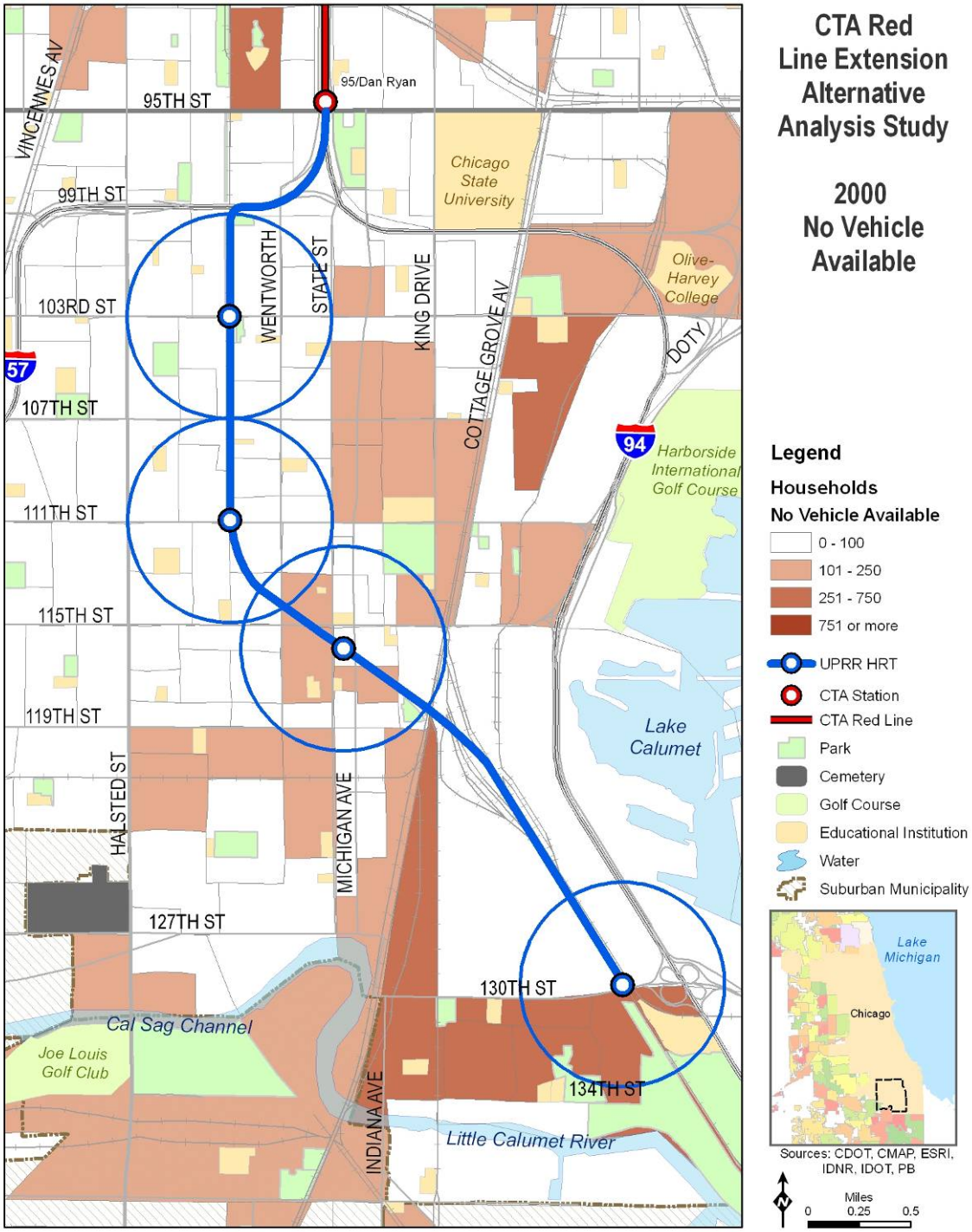


Figure 6.5: 2000 No Vehicle Available



6.4.2 Land Use and Development

The LPA is expected to have the greatest potential for future economic development. This is due to enhanced accessibility of station areas to the CTA rapid transit system compared to the No-Build and TSM alternatives. Altgeld Gardens and Murray Homes are under physical rehabilitation as part of the Chicago Housing Authority's Plan for Transformation, indicating a commitment to the residents and potential for additional economic development in the area.

Other opportunities exist at the 103rd Street station and at the 115th Street/Michigan Avenue area. The 103rd Street station area has a number of vacant and underutilized lots that can be redeveloped in response to the new station. The 115th Street / Michigan Avenue area is part of the Roseland/Michigan TIF which created a potential funding source for economic development in the area, and the City owns a number of parcels near the proposed station area that are being reviewed for potential commercial or mixed-use redevelopment.

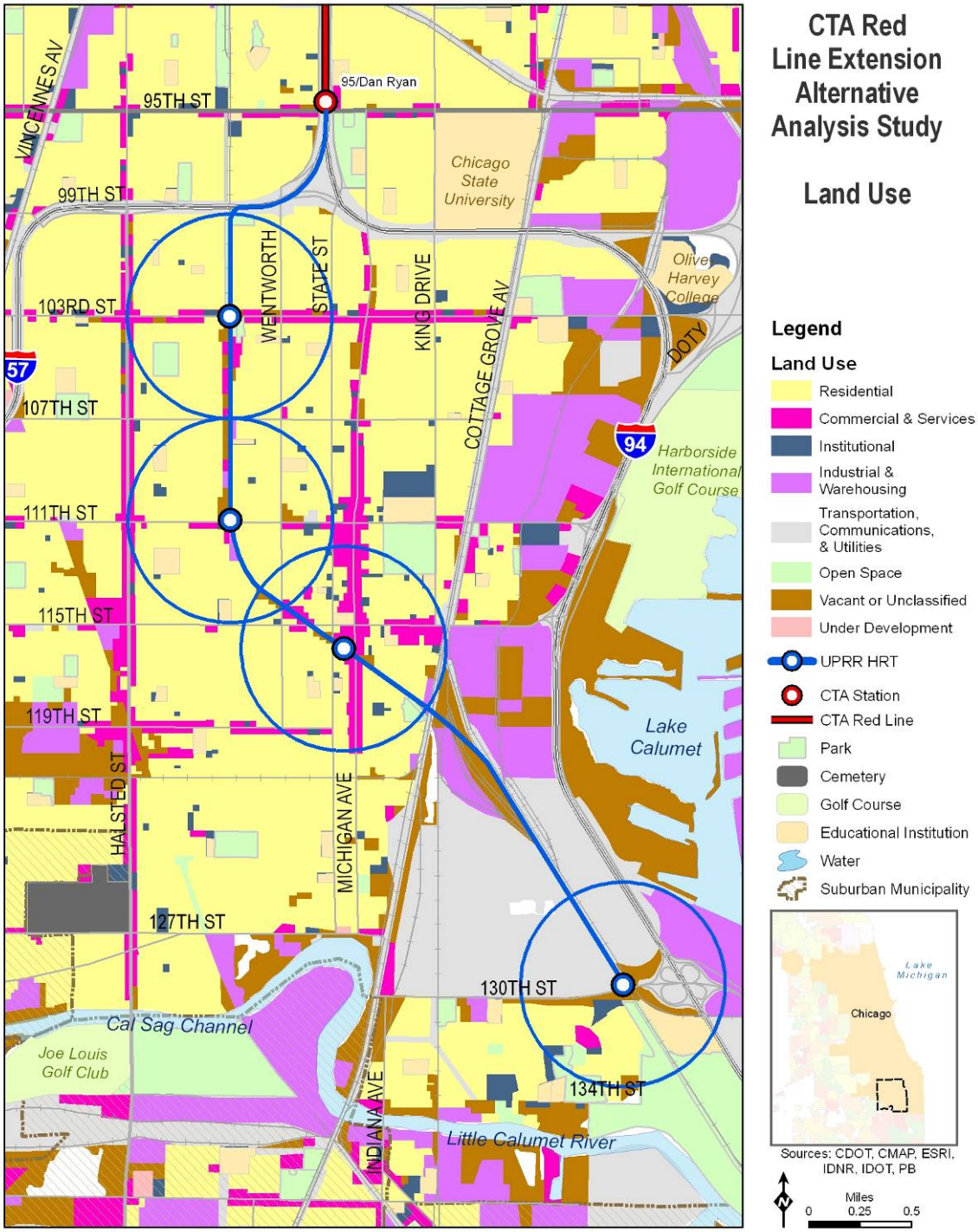
Figure 6.6 shows land use relative to the LPA and station areas within the Study Area.

Table 6.12: Land Use and Development

Criteria	No Build	TSM/BRT	LPA
Development initiatives	N/A	2	5
Long-term potential	N/A	−	+

Key: + Better than other alternatives; ○ Same as other alternatives; − Worse than other alternatives
* 0.5 mile buffer station area analysis

Figure 6.6: Land Use and Development



6.4.3 Displacements

The LPA would be located adjacent to the east or west edge of the UPRR right-of-way. The width of the UPRR right-of-way ranges from 65 to 135 feet. At this stage of the analysis both the east and west options suggest comparative level of impacts with no option having better or worse physical constraints. There are several key differences that characterize physical constraints for the east or west alignment of the LPA between I-57 and the Metra Electric District / Canadian National rail tracks.

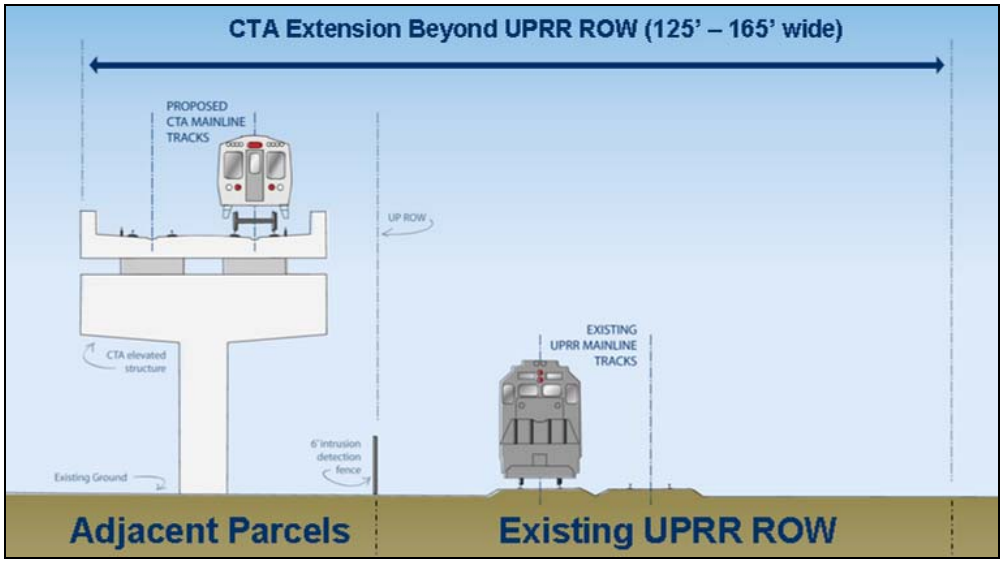
- The East alignment may require taking a small portion of Wendell Smith Park when the alignment transitions from the I-57 expressway to the east side of the UPRR right-of-way. This would require a Section 4(f) evaluation during the Environmental Impact Statement analysis.
- A small portion of a yard belonging to the Roseland Christian School (314 West 108th Street) may be impacted by the east side alignment.
- On the east, between I-57 and 103rd Street there are five vacant and 17 residential parcels that would be impacted by the Red Line extension; from 103rd and 111th Street there are 18 vacant, nine residential and two commercial/industrial parcels that would be impacted; and between 111th Street and the Metra Electric District/Canadian National rail tracks there are 30 vacant, 39 residential and 16 commercial/industrial parcels that would be affected. A preliminary analysis shows a potential total of 138 lots which may be affected, with ten parcels owned by the Union Pacific Railroad.
- For the West option, Fernwood Parkway extends between 95th and 103rd Streets between Eggelston Avenue and the UPRR right-of-way. The west alignment option can be accommodated without displacement of residences or businesses in this segment if the alignment uses Fernwood Parkway. However, the parkway is owned by the Chicago Parks Department and is zoned as “Parks and Open Space” as of May 2009. Using this property for the HRT UPRR Elevated alternative would require a Section 4(f) evaluation as part of the Environmental Impact Statement review.
- On the west, between 103rd and 111th Street there are 15 vacant and 18 commercial/ industrial parcels that would be impacted by the Red Line extension; between 111th Street and the Metra Electric District /Canadian National rail tracks there are 28 vacant, 25 residential and 22 commercial/industrial parcels that would be impacted. A preliminary analysis shows a total of 112 impacted parcels of which 27 parcels are owned by the Union Pacific Railroad and four are Fernwood Parkway.

6.4.4 Visual and Aesthetic

The LPA is deemed to have a moderate potential visual and aesthetic impact. The LPA received this rating because of the elevated profile. This impact is somewhat mitigated by the lack of frontage along the UPRR corridor. Figure 6.7 is example rendering of the LPA elevated structure adjacent to the UPRR ROW at the proposed 103rd Street Station. The elevated structure would be constructed of concrete with side walls in order reduce visual and noise impacts of the HRT alignment. This is similar in design and construction to the existing Orange Line elevated structure southwest of Halsted Street. Figure 6.8 illustrates of profile view of the LPA elevated structure adjacent to the UPRR ROW.

Figure 6.7: Example Rendering of the LPA Elevated Structure at the Proposed 103rd Street Station

Figure 6.8: Profile of the LPA between 95th Street and 119th Street



6.4.5 Noise and Vibration

A generalized noise and vibration analysis for the TSM/BRT and LPA was performed. Implementation of the proposed TSM/BRT service may add 5 decibel on the A-weighted sound level (dBA) to the noise environment experienced by residents. There is existing vehicular traffic and bus service along the proposed corridor, although the new TSM/BRT service is estimated to increase ambient noise by 5 dBA for noise receptors.

The LPA is estimated to increase ambient noise by 8 dBA, from 65 dBA to 73 dBA, for the residences closest to the right-of-way. A city bus idling is approximately at 72 dBA. It should be noted that the existing freight rail service also results in similar noise impacts. The UPRR corridor is currently an active freight rail line, with an average of 27 trains per day. Because of the existing freight rail service in the corridor, sensitive receptors along the alignment are likely

to experience a higher level of noise that residential areas without a similar transportation facility.

For the LPA, the CTA will evaluate and use a combination of noise abatement measures, as necessary. These measures could include rail vehicle measures (vehicle skirts, undercar absorption, and resilient or damped wheels), and guideway measures (sound barriers, rail lubrication on sharp curves, and ballasted track).

Vibration impacts are typically analyzed in terms of ground-borne vibration. Vibration occurs for rail transit when the train wheels rolling on the rails create vibration energy that is transmitted through the track support system into the transit structure. The amount of energy that is transmitted to the transit structure is dependent on a number of factors including the type of track support system, the vehicle suspension system, and smoothness of the wheels and rail. Screening level estimates for vibration for the LPA range from 58-62 vibration decibels (VdB). In general, 65 VdB is the approximate threshold of human perception.

For the LPA, the CTA will evaluate and use a combination of vibration abatement measures, as necessary. The type of track support system is a major determinant of ground borne vibration. The highest vibration levels are created by track that is rigidly attached to a concrete trackbed. The vibration levels are much lower when special vibration control track systems, such as ballasted mats and resilient fasteners are used.

6.4.6 Air Quality

Northeastern Illinois is classified as a moderate non-attainment area for the 8-hour ozone standard, and a non-attainment area for the annual fine particulate matter (PM2.5) standard. Air quality was assessed through the potential for micro-scale pollution.

The LPA includes heavy rail transit technology that is powered by electricity, which does not emit gases or particulate matter at the point of use. In addition, the LPA reduces the length of bus access trips, resulting in a reduction of emissions.

Buses used for the TSM/BRT service, or continued use of existing buses in the case of No-Build alternative, would have more adverse impact than the LPA, due to diesel exhaust. CTA is incorporating hybrid buses into its fleet to mitigate this impact, but the LPA would still have lower air quality impacts.

6.4.7 Water and Ecosystem Resources

The Red Line Extension study area is an urbanized area. Wetlands and critical habitat for protected species in the area were assessed for potential impacts. Waters in the area – the Cal-Sag Channel and the Little Calumet River – were not evaluated for impacts, such as non-point source pollution, and should be considered during the EIS review. Assessing potential environmental impacts to the natural environment provides information that can be used to limit or reduce the negative impacts of an alternative, if any.

During the screening analysis, the LPA was identified to have five wetlands within a 1,000 foot wide corridor around the alignment. The five wetlands are located on industrial or MWRDGC land on the southern portion of the alignment between the MED/CN tracks and 130th Street. Further review of the LPA corridor showed that most of the wetlands were on the outer edge of the corridor and would only have a slight chance of being negatively affected. The TSM/BRT was identified to have one wetland with 1,000 foot wide corridor around the alignment. The

TSM/BRT and LPA terminal station locations are situated in land areas adjacent to 130th Street that are landscaped and profiled for drainage.

Mitigation could be employed to protect or replace these wetlands. In addition, field studies during the upcoming EIS process will be completed to verify that these wetlands are still in existence and the potential impact that may occur based on the final design of the chosen alternative.

6.4.8 Hazardous Waste Sites

As part of its history, the Red Line Extension study area includes a high concentration of industrial and former industrial sites. One of the legacies of previous industrial processes is the potential for hazardous waste sites. These sites can include:

- Brownfields, which are abandoned or underutilized industrial facilities and land
- Waste handlers, which can include any facility that deals with toxic chemicals
- Superfund sites, which are deemed to be the worst brownfields, and are on a priority list for being cleaned by the U.S. Environmental Protection Agency
- Other sites, which can include active industrial sites or commercial properties, such as gas stations with leaking underground storage tanks (LUST)

Identifying these sites is important for two reasons: clean-up of a site can be costly, adding to the overall cost of an alternative, and reusing a site can have positive environmental benefits for a community.

There are 18 hazardous waste handlers and three other hazardous waste sites within 500 feet of TSM/BRT route along Michigan Avenue. However, the alternative does not require widening of Michigan Avenue, as service was anticipated to be provided in the existing street right-of-way; it is unlikely that these sites would be disturbed.

There are four hazardous waste handlers and three other hazardous waste sites within 500 feet of the LPA corridor.

6.4.9 Historic, Archaeological and Cultural

An analysis of historic, archaeological and cultural sites is important to ensure that the AA considers and respects a community's context and identity. Historic, archaeological and cultural sites within a 500 foot buffer from the centerline of each corridor were identified in Screen 2 and 3. The analysis determined that there was low potential for impacts to archeological sites with the proposed corridors. There were also no historic buildings or districts within a 500 foot buffer.

6.4.10 Parklands

There are two parklands that may be affected by the LPA. They include Fernwood Parkway, along the west side of the UPRR right-of-way and Wendall Smith Park, to the east of the UPRR right-of-way. The TSM/BRT and No-Build alternatives were determined to not have any impacts to park land.

The LPA west alignment would affect the portion of Fernwood Park that parallels the UPRR right-of-way from I-57 to 103rd Street. This linear park, about 75 to 80 feet wide and 0.5 mile long, would be impacted by the Red Line extension. Wendall Smith Park, along the east, is approximately 500 feet long and 260 to 270 feet wide. About 50 feet of the park adjacent to the

UPRR right-of-way would need to be used to accommodate the Red Line extension. Aerial photography shows trees and other vegetation in this area, separated from the other portions of the park by a sidewalk.

No natural recreational areas were found in any of the corridors during the environmental analysis.

6.4.11 Summary of Environmental Impacts

Table 6.13 below provides a summary of the potential environmental impacts for the LPA and TSM/BRT alternative. For additional detail on the preliminary environmental impacts for each alternative see the Red Line Extension Screen 3 Alternatives Evaluation Report, July 2009.

Table 6.13: Summary of Potential Environmental Impacts

Environmental Factors	TSM/BRT	LPA
Hazardous Sites: Brownfields	0	0
Hazardous Sites: Waste Handlers	18	4
Hazardous Sites: Superfund Sites	0	0
Hazardous Sites: Others	3	3
Wetlands	1	5
Historic Districts	Low	Low
Potential Micro Scale Pollution	Moderate	Low
Potential Noise Impact	+5 dBA	+8 dBA
Potential Vibration Impact	N/A	58-62 VdB
Potential Visual Impacts	Low	Moderate
Parklands Impacted	1	5
Recreation Areas Impacted	0	0
Total Parcels impacted	0	112-139
Vacant Parcels impacted	0	43-53
Critical Habitat Impacts to Protected Species	0	0
Potential for Archaeological Site Impacts within the Proposed ROW	Low	Low
Buildings Listed or Eligible for Listing in the NRHP Within 200’	0	0
Districts Listed or Eligible for Listing in the NRHP Within 200’	0	0

6.5 LPA Cost and Financial Analysis

A description of the capital and operating and maintenance cost estimates for the LPA and a preliminary financial analysis is presented in this section.

6.5.1 Capital Cost Estimates

Capital cost estimates have been developed in accordance with FTA guidelines. The guidelines call for cost estimates to be prepared and reported using the latest revision of FTA's Standard Cost Categories (SCC). In the estimates, cost components for the various alternatives are developed and summarized into the SCC. These cost categories form the basis for the format and structure that is used for the capital cost detail and summary sheets developed for this project. The FTA SCC consists of the following:

- Guideway
- Stations
- Support Facilities
- Sitework and Special Conditions
- Systems
- Right-of-Way, Land, Existing Improvements
- Vehicles
- Professional Services
- Allocated and Unallocated Contingency
- Finance Charges

Table 6.14: LPA Capital Cost ($M, 2009)

FTA Standard Cost Categories (with contingency) [10]	LPA 5.4 Miles
Guideways & Track Elements	180
Stations, Terminals, Stops	154
Yards, Shops, Administration Buildings.	-
Sitework & Special Conditions	21
Systems	128
Right-of-Way, Land Acquisition	32
Vehicles	175
Professional Services	139
Unallocated Contingency	50
Total Project Cost	**879**
Capital Cost per Route Miles	**163**

[10] An allocated contingency allowance, in the range of 12 percent to 25 percent, is included in the FTA standard cost categories.

Design alternatives exist and are described in Section 6.2. For the capital cost estimates in this section, the UPRR East Options to 130th Street with the South Terminal Station was assumed. Major capital cost elements for the LPA include the following:

- One at-grade terminal station with island and side platforms to serve three station tracks: $25 M.
- Three elevated profile intermediate, island-platform stations: $94 M.
- Construction of parking facilities at the intermediate and terminal stations with a year of construction total of all facilities at 1,500 parking spaces (Forecast for 2030 is 3700 parking spaces): $35 M.
- Construction of an aerial guide way structure from 95th Street to 119th Street: $149 M.
- Temporary facilities and protection of active lines adjacent to construction zones (includes CTA and UPRR lines): $6.0 M.
- Land acquisition for the extension, stations and amenities, terminal facilities, on-line substations: $32.0 M.
- Construction of realigned service roads and new overpass over UPRR red line extension for the south station: $4 M.
- Purchase of 78 new rapid transit cars: $175 M.

Yard and Shop Capital Cost Estimate

Completion of a new 270-car yard and shop facility is not included in the LPA project cost estimate. The CTA has long recognized 98th Shop as being an inadequate facility to support the current and future maintenance needs of the south end of the Red Line and have included the need for an expanded or new 98th Shop in past capital needs programs. With the shop reaching 40 years in age, the shop has also met the FTA criteria for replacement. The CTA has plans to utilize existing 98th Shop for non-revenue equipment repairs once a new revenue shop is constructed. The CTA has previously determined that the 98th Shop is in need of replacement and has made plans separate from this project to address those needs. For that reason, the replacement of 98th Shop is not considered to be part of the Red Line Extension project at this stage of the analysis. More detailed analysis in latter project phases should indicate that a portion of the yard and shop cost would be applicable to the LPA. A new Red Line yard/shop facility would be located on a combination of industrial/vacant land to the east of the CN/MED tracks and west of the IHB and NICTD tracks at approximately 120th Street and Cottage Grove.

Major capital cost elements for construction of new Yard and Shop include the following:

- Construction of yard and shop: $147 M.
- Purchase of real estate: $11 M.
- Professional services for design and construction: $45 M.
- Unallocated contingency: $12 M.
- Total capital cost for a new yard and shop facility is estimated at $215 M.

Total Program Capital Cost Estimate

To prepare a preliminary financial plan for the Red Line Extension project, a total program cost was developed. The program is divided into a New Starts funded and non-New Starts funded

segments. The non-New Starts funded segment consists of the yard and shop facility to be funded outside the New Starts program. The total program cost also includes estimates of inflation in construction costs and expressed in year-of-expenditure (inflated dollars). The total program cost in inflated dollars is estimated at $1.4 billion as shown in Table 6.15.

Table 6.15: Program Capital Cost Estimates ($M)

Segment	Base Year (2009) Dollars	Year-of-Expenditure (Inflated) Dollars
New Starts funded segment	$878	$1,142
Non-New Starts funded segment	$214	$287
Total	**$1,093**	**$1,430**

6.5.2 Operating and Maintenance Cost Estimates

Operating & Maintenance (O&M) costs were estimated using CTA's operating cost model, which is based on actual line item budget expenses. The cost model allocates each budget line item expense to a key service variable such as revenue hours, revenue miles, peak vehicles, route miles, etc. These variables are called "cost drivers" because the cost of service is "driven" by the magnitude of these variables. Thus, the more service hours provided or miles operated, the higher the O&M cost. Estimated annual operating cost for the LPA is $18.3 million in 2009 dollars. Table 6.16 summarizes the O&M costs for the LPA.

Table 6.16: LPA Operating and Maintenance Costs

Cost Driver	Unit Cost (2009 Dollars)	Level of Service	O&M Cost (2009 Dollars)
Rail			
Peak Trains	$131,552.79	8	$1,052,422
Peak Cars	$26,364.48	64	$1,687,327
Revenue Train Hours	$76.54	37,227	$2,849,192
Revenue Car Miles	$1.38	5,489,502	$7,570,895
Station Hours	$33.84	35,040	$1,185,819
Stations			
Elevated*	$304,556.80	4	$1,218,227
Track Miles			
Elevated	$118,840.61	10.6	$1,259,710
Substations	$62,969.30	1	$62,969
Fare Collection Equipment	$6,730.92	29	$195,197
Elevators/Escalators	$23,027.68	8	$184,221
Yard/Shop (per sq. foot)	$4.75		$0
Park & Ride (per space)	$521.46	2,800	$1,460,086
Rail Ridership	$0.05	7,708,106	$399,154
Bus			
Peak Buses	$34,587	6	$207,516
Revenue Bus Miles	$2.75	(276,451)	($759,439)
Revenue Bus Hours	$44.80	(3,991)	($178,762)
Turnarounds	$15,341	5	$76,703
Bus Stops	$14.14		$0
Bus Ridership	$0.05	(3,083,242)	($159,662)
Total O&M Cost (Base Year (2009) Dollars)			**$18,311,575**

* Station Unit Cost is an aggregated unit cost in CTA O&M cost model

6.5.3 Capital Funding Sources

CTA has identified the following preliminary capital funding sources for the LPA:

- *Federal New Starts Program (Section 5309)*: A federal match of 60 percent was assumed on the federally funded portion of the Project. Receipt of New Starts grant funds is assumed to commence in FY11 and is assumed to be subject to an annual cap of $150 million annually.
- *State Funds:* State funds are assumed to defray the remaining share of capital costs not covered by federal New Starts grants. This includes 40 percent of the cost of the federally funded portion of the project, and 100 percent of the non-federally funded portion of the project. Both portions total an estimated at $774 million. To date, however, no state funds have been identified or committed for this purpose. Therefore, there is presently a capital funding shortfall equal to the projected state funding share in the financial plan. On July 13, 2009, a $31 billion State capital bill, *Illinois Jobs Now!,* was signed into law. This bill provides $2.7 billion for the six-county northeastern Illinois region for bringing the transit system to a state of good repair. This capital bill is indicative of the State's commitment to funding public transportation investments and CTA will continue to advocate for additional funds in subsequent capital bills.

In addition, the financial plan includes federal transit formula grants that CTA is projected to receive from operating the incremental transit service associated with the project:

- Section 5309 Rail and Fixed Guideway Modernization Program, which grows as a function of fixed guideway directional route-miles and fixed guideway vehicle revenue-miles.
- Section 5307 Large Urban Cities Program, which grows as a function of demographic measures (population and population density, adjusted three years after each decennial census); level of service (vehicle revenue-miles and fixed guideway directional route-miles); and an incentive funding measure (passenger miles x passenger miles/operating cost)

These funds are applied toward future year infrastructure renewal and replacement costs associated with the LPA. These grant programs are subject to review and revision by Congress as part of surface transportation authorization legislation every six years, and could be altered in the future.

Projected future-year unit grant values are multiplied by projections of applicable transit service characteristics for the project (e.g., revenue vehicle miles, fixed guideway directional route miles, passenger miles, and operating costs). The resulting projection of incremental federal formula grants for the LPA in the design year (2030) is $6.6 million (2009 dollars).

Other federal funding program sources in the financial plan include:

- Section 9 (5307) Congestion Mitigation and Air Quality Program: Federal formula grants for transportation projects that reduce criteria air pollutants regulated from transportation-related sources in National Ambient Air Quality Standards nonattainment areas. Fixed funding of $4.0 million annually beginning in FY10, based on historic average funding levels.
- Job Access and Reverse Commute Program: A federal formula grant program to address the unique transportation challenges faced by welfare recipients and low-income persons seeking to get and keep jobs. One-time funding applied in FY09.
- Homeland Security/Department of Justice Grants: Federal formula grants for transit security improvements. Fixed funding of $6.5 million annually beginning in FY09, based on historic average funding levels.

6.5.4 O&M Funding Sources

CTA O&M funding sources include passenger revenue, public funding, system generated revenue, and additional public funding. Passenger revenue reflects the fares received from customers. Projected fare revenue for the proposed Red Line Extension LPA is a function of projected passengers and projected average fare paid per passenger. It is expected that $8.4 million (2009 dollars) in fare revenue will result in 2030 due to implementation of the Red Line Extension project.

Public funding includes sales tax and discretionary funding from the 1983 Regional Transportation Authority (RTA) Act, and new funding from the 2008 legislation.

- **Sales Tax (1983 Formula):** The RTA Sales Tax authorized in 1983 is the primary source of operating revenue for CTA. The tax is authorized by Illinois statute, imposed by the RTA in the six-county region of northeastern Illinois and collected by the State.

The sales tax is the equivalent of 1 percent on sales in Cook County and 0.25 percent on sales in the collar counties of DuPage, Kane, Lake, McHenry and Will. The 1 percent sales tax in Cook County is comprised of 1 percent on food and drugs and 0.75 percent from all other sales, with the State then providing a "replacement" amount to the RTA equivalent to 0.25 percent of all other sales. CTA receives 100 percent of the taxes collected in the City of Chicago and 30 percent of those collected in suburban Cook County, after the RTA retains its 15.0 percent share. Revenues are projected to grow beyond FY09 based on a projection of Cook County sales tax revenue developed for CTA by Moody's Economy.com.

- **Sales Tax and Public Transportation Fund (PTF):** RTA sales tax increased by the enactment of PL (P.A. 95-0708) in January 2008 equivalent to a 0.25 percent on sales in each county in the six-county region. By statute, 100 percent of the sales tax receipts and PTF funds, excluding the 25 percent PTF on Real Estate Transfer Tax (RETT) which goes to the CTA, are disbursed by formula to the Service Boards after setting aside funds for ADA paratransit service, suburban mobility, and for innovation, coordination, and enhancement (ICE). Funding for these three initiatives increase or decrease annually based on the percent change in the previous year's receipts from taxes imposed by PL (P.A. 95-0708) under Section 4.03. The RTA deposits funds each year into an ICE fund as directed by Section 4.03.3 of PL. ICE funds may be used by the RTA based on the affirmative vote of 12 RTA Directors for operating or capital grants or loans to Service Boards, transportation agencies, or units of local government that advance the goals and objectives of the RTA Strategic Plan. This funding is projected to grow on the basis of projected growth in sales and real estate transfer taxes in the six-county region.
- **RTA Discretionary:** Apportionment from RTA's 15 percent share of the sales tax (1983 Formula) and the State Public Transportation Fund (PTF) equal to 25 percent of the sales tax (1983 Formula) are the source of the RTA discretionary fund. This funding is projected to grow on the basis of projected growth in sales tax in the six-county region.
- **Real Estate Transfer Tax – RTA Formula:** As authorized by the 2008 Legislation (P.A. 95-0708), CTA receives the portion of PTF revenue earned from real estate transfer taxes. This funding is projected to grow on the basis of projected growth in Cook County real estate transfer taxes.
- **Real Estate Transfer Tax – City of Chicago:** In addition to the PTF real estate transfer tax revenue, the 2008 Legislation (P.A. 95-0708) authorized CTA to receive funds at a tax rate of 0.3 percent on real estate transfers in the City of Chicago. This funding is projected to grow on the basis of projected growth in Cook County real estate transfer taxes.

System generated revenue includes:

- **Reduced Fare Subsidy:** The reduced-fare subsidy is the State of Illinois reimbursement to CTA for discounted fares to seniors, people with disabilities and students. This revenue source is projected to grow with inflation.
- **Advertising, Charter, and Concessions:** Includes revenue from advertising, charter transit service, and concessions on CTA property. This revenue source is projected to grow with inflation.
- **Investment Income:** Interest income on CTA fund balances. Calculated annually in the financial plan on the basis projected cash balances. Applies a forecast of three-month U.S. Treasury Bills as the interest rate.

- **Statutory Required Contributions:** The Regional Transportation Authority Act requires the City of Chicago and Cook County to contribute $3.0 million and $2.0 million, respectively, towards CTA operations each year. This amount is projected to remain fixed at $5.0 million annually.
- **All Other Revenue:** Includes parking fees, sale of real estate and rentals. This revenue source is projected to grow with inflation.

6.5.5 Capital and Operating Shortfalls

Additional Revenue Sources

Additional revenue sources must be identified to address projected CTA and Red Line Extension project-specific shortfalls. A state-supplied funding source or mixture of multiple sources to address capital and operating shortfalls has not yet been identified by the State of Illinois or the RTA.

Risks and Uncertainties

As the Red Line Extension project progresses, there are several strategies that CTA could utilize to address these risks, if one or more should occur. These strategies include:

- Further staging the construction of the project;
- Controlling the growth of service;
- Raising fares at a higher annualized rate and/or more often;
- Redefining the scope of the project; and
- Introducing additional short and long term financing strategies.

Implementation

Based on the funding shortfalls identified above, CTA is developing a strategy to fund the capital and operating needs of the LPA. Overall, the strategy assumes that 60 percent of the project capital cost would be funded by FTA Section 5309 New Starts grants, with the remainder covered by state funding. CTA and the RTA are working with the Illinois Department of Transportation and relevant committees of the state legislature to identify stable and reliable sources of funding to fully fund operations and maintenance of existing services, renewal existing infrastructure, and fund the operations, maintenance, and eventual infrastructure renewal of capacity expansion projects, including the Red Line extension project.

As the Red Line Extension project progresses through the project development process, CTA will work with its funding partners to further develop and refine this funding strategy, which would ultimately form the basis of a Full Funding Grant Agreement between CTA and FTA.

6.6 LPA Achievement of Project Goals and Objectives

Five goals were identified for the Red Line Extension AA. Specific criteria and measures were developed for each goal as a means of assessing whether an alternative meets the goal. Figure 6.9 depicts how the LPA achieves these goals and objectives. These include:

Goal 1 – Regional and Local Access Mobility

The purpose of the Red Line Extension Alternatives Analysis (AA) Study is to identify transit improvements that would provide improved mobility to residents and businesses located in the City of Chicago's Far South area.

To evaluate this goal, the number of residents with access to high quality, convenient, and reliable transit service was estimated. The LPA provides access to a high number of residents. According to 2000 U.S. Census data, there are a total of 54,000 people and 19,000 households in the UPRR corridor. Nearly 59 percent (32,000) of the corridor population is within 0.25 miles of the station areas.

The Red Line Extension would provide connections with the other CTA rail rapid transit lines at transfer stations (Roosevelt, Jackson, Lake, Fullerton, and Belmont stations). The new Red Line Extension stations would include bus terminals for CTA and Pace bus transfers. The opportunity exists to construct a new transfer station to the NICTD South Shore Commuter Rail Line in the vicinity of the proposed Red Line Extension 130th Street station. This potential connection to the South Shore would depend on funding availability. The CTA will continue to coordinate with NICTD during the Red Line Extension project development. In addition, the CTA will continue to coordinate with Metra regarding their proposed South-East Service.

Goal 2 – Community and Economic Development

A major aspect of this goal is to locate transit alignments and stations in areas with existing land uses conducive to transit use or in those areas which have the greatest potential to develop transit supportive land uses.

The LPA fits well with the Purpose and Need Report for this project, providing a corridor that connects major neighborhoods and activity centers in the study area. Most of these neighborhoods have been experiencing stable growth and redevelopment in recent years. The City of Chicago Department of Community Development recently approved development plans for a new supermarket and commercial development at 115th Street and Michigan Avenue. An intermodal transit station with bus transfer and park and ride would be located adjacent to this site along the UPRR ROW at 115th Street/Michigan Avenue. The LPA also offers opportunities for development of land surrounding the terminal station at 130th Street and the enhanced potential for economic development activity in conjunction with the renewal of Altgeld Gardens. The LPA is adjacent to five TIF districts and/or enterprise zones and is consistent with local development plans.

The LPA has the highest level of past and current public support.

- In a November 2004, over 38,000 residents of the Red Line extension study area in the 9th and 34th Wards supported a public referendum for the Red Line Extension along the UPRR Corridor. A total of 38,142 'Yes' votes (93%) and 2,993 'No' votes were cast.
- 451 public comments were received in Screens 1, 2 and 3 – 140 of those expressed a preference for a particular alternative. 85 (60.7%) of these comments were in favor of the UPRR Rail alternative and 7 (5%) were in favor of the Halsted Rail alternative. 29 (20.7%) Comments showed general support of an extension of the Red Line, and 19 (13.6%) comments specifically support extending the line to 130th Street with no particular alternative mentioned.
- In June 2009, a petition was submitted to CTA including 512 signatures supporting the CTA's locally preferred route to extend the Red Line Rail Line from the 95th Street Station to 130th Street, using the Union Pacific Rail Road (UPRR) corridor.

Goal 3 – Regional Transit System Performance

This goal ensures that both the capital and operating costs of the project are commensurate with its benefits. The LPA is the most promising alternative to reduce travel times, improve trip

reliability, provide sufficient transit capacity to meet 2030 transit demand, maximize potential transit ridership, and to enhance linkages within the CTA and regional transit system.

Based on the Screen 3 analysis, the LPA provides the best opportunity to meet the cost-effectiveness thresholds currently set by FTA. The CTA is seeking approval and funding for construction from the federal government through the Federal Transit Administration's New Starts grant program. In general, projects advancing into the FTA PE phase of project development must achieve a cost-effectiveness measure of below $25 in project cost per hour of travel time savings. The cost-effectiveness of the LPA is expected to be refined during the EIS and PE phase of the project development in order to meet the FTA criteria for New Starts funding.

Goal 4 – Safety and Security

The Red Line extension would increase the safety and security by relieving congestion at the 95th Street station. Several CTA and Pace bus routes that currently serve the 95th Street station would be shortened and re-routed to terminate at 103rd, 111th, 115th and 130th Street. It is anticipated that CTA bus routes 103 – West 103rd Street, 106 – East 103rd Street, 111 – Pullman/111th/115th, 119 – Michigan/119th, and Pace bus routes 348 – Riverdale Connector, 352 – Halsted, and 359 – Robbins/S. Kedzie would be re-routed to serve Red Line Extension stations. These bus re-routings will result in the reduction of current 95th Street station bus terminal congestion, both in terms of the number of bus vehicles serving the station, a reduction in passenger-bus conflicts as passengers walk from the their bus drop-off/pick-up locations to the station house, and the total number of passengers on the station platform.

During the next steps, Preliminary Engineering and the preparation of an EIS, a wide range of safety measures will be identified, evaluated, and used in combination. They include vehicle measures (on-board closed-circuit television cameras, on-board audio and visual message communications to passengers, and emergency alarm systems), and station design (maximizing unobstructed sightlines in and surrounding stations, positioning of customer service booth for maximum presence and visibility in station, closed-circuit television cameras, public address systems, sufficient lighting, and emergency alarm systems).

Goal 5 – Environmental Quality

The fifth goal, Environmental Quality, is to develop solutions which minimize impacts to environmental resources and communities within the study area. The AA identified several potential impacts, including displacements, park lands, and noise and vibration. The next step, the preparation of an EIS will analyze these impacts, as well as the other social, economic, and environmental consequences in detail. The goal of the environmental analysis will be to avoid, minimize and mitigate potential environmental impacts. This environmental review process is required by the National Environmental Policy Act of 1969 (NEPA) and related laws.

Figure 6.9: Effectiveness of Alternatives Meeting Goals and Objectives in 2030

	Goal / Objectives	Evaluation Measures / Criteria	LPA	Notes
Goal 1: Regional and Local Access and Mobility			○	
1	Increase connectivity between and within neighborhoods and activity centers.	Population Served (2000) 31,927	High	Within 0.5 mile of station area
		Population Served (2030) 32,896	High	
		Community Facilities Served	High	
		Community Facilities Impacted	High	Within 500 feet of either side of corridor
		Degree of Potential Effect on Community Facilities	Low-Medium	UPRR West would significantly impact Fernwood Parkway. UPRR East would have low impact on Smith Park
		Employment (2000) 3,114	Medium	Within 0.5 mile of station area
		Employment (2030) 3,694	Medium	
		Service to Activity Centers Within the Study Area	High	Based on alignment and station locations
2	Improve access between city neighborhoods and regional centers, and between suburban communities and the greater central area.	Service to Activity Centers in the Region	High	How well alternatives provide service to activity centers
3	Increase regional transit competitiveness.	Enhancing Linkages and Major Trip Attractors/Generators Within the Region	High	Based on travel forecast with the best improvement in transit trips and reduction in vehicle trips
4	Improve customer transfer connections among regional transit modes.	Quality and Convenience of Trip	High	Number of transfers required and travel time
		Quality of Intermodal Connections	High	Based on quality of intermodal connections
Goal 2: Community and Economic Development			◒	
1	Support community development initiatives.	Consistent with Planned Development and Local Plans	High	Consistent with TIF district, local economic development and housing plans
		Joint Development Potential	Medium-High	
		Potential for Job Creation	Medium-High	
		Public Comments	High	Screen 1,2,3 public comments and public referendum results
2	Provide opportunity for transit-supportive development.	Property Acquisition	Medium-High	Available sites for stations, bus transfer and parking
		TOD Potential	Medium-High	Station area development and market trends
3	Support efficient land use patterns.	Complient with Zoning and Future Land Use	High	Based on City of Chicago planning and development documents
4	Respect community context and identity.	Number of Anticipated Displacements	Low-Medium	Number of displacements required
		Degree of Potential Effect on Neighborhoods	Medium-High	Based on public comments for the alternative
		Effects on Community Cohesion	Medium-High	
5	Promote equitable distribution of project benefits and impacts.	Low-Income or Minority Neighborhoods Served	High	Minority population within 0.5 mile of station area
		Low-Income or Minority Neighborhoods Impacted	Medium	Minority population negatively impacted within 0.5 mile of station area
		Potential for Displacement of Low-Income and Minority Households	Medium	Number of displacements required
		Potential for Displacement of Low-Income and Minority Businesses	Medium	
		Potential for Community Facilities Impacts in Low-Income or Minority Areas	Medium	
Goal 3: Regional Transit System Performance			◔	
1	Increase capacity and ridership.	Opening Year Preliminary Daily Ridership	High	Travel forecast results compared to other alternatives (July 2009)
		Forecast Year Preliminary Daily Ridership	High	
		Opening Year Annual Riders (System-wide)	High	
		Forecast Year Annual Riders (System-wide)	High	
		Daily Station/Stop Boardings	High	
2	Enhance efficiency and cost effectiveness.	Capital Costs per Passenger Mile (163 M)	Medium-High	Capital cost / one-way route miles (July 2009 capital cost estimate)
		Cost Effectiveness Index (potential for a medium rating)	Medium-High	FTA CEI Rating (July 2009 capital cost and ridership results)
3	Facilitate connections and linkages.	Number of Transfers between Select Origin-Destination Pairs	High	Travel forecast results
4	Reduce transit travel times.	Transit Travel Times between Representative Origin-Destination Pairs	High	130th Street terminal station to Loop
5	Integrate existing transit infrastructure, where feasible.	System Criteria Compatibility	High	Compatible with existing Red Line rail or 95th Street terminal station
		Interoperability with Existing Service	High	
		Consistency with Existing Infrastructure	High	
Goal 4: Safety and Security			○	
1	Increase transportation reliability.	Operating Reliability	High	Transit mode and service plan supports travel forecast
2	Improve incident response capabilities.	Potential Impact on Emergency Vehicle Incident Response Capability	High	Number of potential impacts to disrupt emergency vehicles (example rail grade crossings)
3	Incorporate design elements that enhance safety and security.	Extent of Vehicle/Transit/Pedestrian Conflicts that are not Fully Protected	High	Number of pedestrian/transit and vehicle/transit potential conflicts
Goal 5: Environmental Quality			◔	
1	Limit impacts.	Potential for Negative Visual Impact	Medium-High	Proximity to community facilities, residences and businesses with frontage to alignment
		Potential for Archaeological Site Impacts Within the Proposed Right-of-Way	High	Number of archaeological site impacts within the proposed right-of-way
		Buildings Listed or Eligible for Listing in the NRHP Within 200 Feet	High	Number of historic structures within 200 feet of the proposed right-of way
		Districts Listed or Eligible for Listing in the NRHP Within 200 Feet	High	Number of existing historic or eligible districts within 200 feet of the proposed right-of-way
		Parklands and Recreation Areas Impacted	Medium	Number of parkland and recreation areas impacted
		Anticipated Noise and Vibration Impact Potential for Mode (contour based on FTA guidance)	Medium-High	Noise and vibration analysis
		Wetland Impacts (5 within corridor)	Medium-High	Number of delineated or potential wetlands impacted
		Critical Habitat Impacts (0 impacted)	High	Number of critical habitats impacted
2	Support environmental benefits.	Consistency with Regional Air Quality Plans	High	CMAP conformity analysis
3	Reduce reliance on automobile travel.	Travel Forecast Modal Split	High	Based on travel forecast with the best improvement in transit trips and reduction in vehicle trips
	Performance Rating Scale:		● ◕ ◒ ◔ ○ Poor (Low) -------- Medium -------- Good (High)	

7.0 PUBLIC INVOLVEMENT

7.1 Public Involvement Approach

As part of the FTA's Alternative Analysis process the CTA conducted an array of public involvement activities. In order to achieve a high level of participation, a comprehensive public involvement plan was developed and implemented.

7.1.1 Description of Outreach Program

Over the course of the AA study, a series of three public presentations were conducted within the Red Line Extension Alternatives Analysis Study area to encourage the general public's participation at key project stages. Through presentations and displays, the public learned about the methodology of the New Starts federal planning processes and how evaluation criteria were developed and applied to the universe of alternatives for the Red Line AA. A formal question and answer process allowed the general public to make comments and ask questions on the study's findings.

Individual and group briefings for elected and public officials; community, civic, business and religious leaders; and other stakeholders were conducted along the same timeline, providing them the opportunity to comment and inquire about the project.

The public had continual access to the project's public outreach presentation materials on the Red Line Extension AA Study weblink via the CTA's website (www.transitchicago.com). In addition to presentation materials, the website provides information on how to submit comments and questions to CTA via phone, email and standard mail. At the end of each public comment period, all questions and answers were posted on the project website. In addition, a database of participants in the outreach process was developed and continually updated, and CTA's community outreach database was also used. CTA's existing database includes community groups, non-profits, community development organizations, and chambers of commerce.

Throughout the public involvement process, the CTA monitored participation from the general public, elected officials, and stakeholders to gauge public interest and opinion regarding the proposed project. To identify potential modification to the public notification process, CTA analyzed the number of attendees and the geographic representation through regularly scheduled discussions with local elected officials and through monitoring attendance at the public meetings.

7.1.2 General Public

Each affected community within the study area has had different levels of interest in the project, due to many factors including intended use; direct or indirect impacts; support for or lack of support for transit improvements; and potential or perceived degree of project impact on property and/or daily routines. This acknowledgement was integral to CTA's evaluation of whether the public education and involvement process was targeted properly or if it required adjustment to better reach and inform the public.

The study area encompasses several neighborhoods: Beverly, Altgeld Gardens, Pullman, Morgan Park, Roseland, Longwood Manor, Princeton Park, Cottage Grove Heights, Burnside, and Washington Heights. Outreach was conducted to the study area as a whole and CTA was also aware of the distinct neighborhoods and was able to identify critical local issues.

Three rounds of presentations took place over the course of the study: one for each level of alternatives screening. Because of the length of the Red Line Extension's alternative corridors, each round consisted of two meetings, for a total of six public meetings. Two identical meetings per screening phase ensured adequate stakeholder and community coverage throughout the study area. Prior to each presentation, the public was informed of the meetings through advertisements in local newspapers and car cards posted on CTA buses, trains, and in stations. During the second and third phases, previous participants were also notified by letter or email. Local stakeholders and elected officials were also recruited to help conduct outreach to generate more project and public interest in attending these meetings.

The first round of meetings outlined the Purpose and Need of the Red Line Extension Alternatives Analysis Study and presented the preliminary findings from Screen 1. The second round of public meetings reviewed the findings of Screen 1, presented the preliminary findings of Screen 2, and solicited comments and questions. The third round of meetings reviewed the findings of Screen 2, presented the preliminary findings of Screen 3, announced a recommended Locally Preferred Alternative (LPA), and solicited comments and questions particularly relating to the recommended LPA.

7.1.3 Stakeholders and Local Officials

Individual and group briefings were held to allow stakeholders and elected officials to share perspectives, interests, and potential concerns, as well as to offer their recommendations for strengthening candidate alternatives or to identify additional alternatives. Following the same schedule as the general public program, three rounds of briefings are scheduled for the Red Line Extension Alternatives Analysis Study. Stakeholders and elected officials also were invited to attend the public meetings. Stakeholder and elected official categories include the following:

Civic Organizations
Civic organizations include transportation, environmental, regional-growth or business-related groups.

Activity Generators
Members of this category include retail locations, area attractions, and parks.

Religious Organizations & Neighborhood Groups
Members of this category include ministers, local chambers of commerce, block clubs, and other community groups.

Government Facilities, Infrastructure, and Institutions
This category includes schools, operational facilities, neighborhood parks, railroads, and universities.

U.S. Representatives and U.S. Senators
Individual briefings for the Congressmen and Senators and/or their staff were conducted for the initial round of briefings. They were also invited to attend all public meetings. As the screening process proceeded and the study entered the final stages, another round of briefings were held with the Congressmen and Senators to provide the opportunity for them to comment on the recommended LPA.

Aldermen
Establishing a dialogue with aldermen inside the study area was critical for the public involvement efforts. Local aldermen served as a resource to assist CTA in expanding the list of local stakeholders, engage their residents in the process, and identify local issues pertinent to

the AA process. Aldermen were briefed regularly and were invited to participate in the public meetings and local stakeholder meetings

State and County Officials
These officials were informed of the AA study's progress. They also served as another resource to CTA to identify additional stakeholders, and to inform and explain potential local issues to CTA.

Surrounding Municipalities
A portion of the Village of Calumet Park is located within the study area, and Blue Island and Riverdale border the study area. CTA contacted these three municipalities and the South Suburban Mayors & Managers Association to identify potential stakeholders and other interest groups to be included in this public involvement process. CTA also sent alerts to other surrounding municipalities to keep them informed of the process.

7.2 Implementation and Execution of Public Involvement

The CTA Red Line Extension Alternatives Analysis Study Public Involvement included various meetings held in conjunction with each alternatives screening. Each round of meetings focused on the respective Screening phase. Each of the three rounds were conducted in a similar manner to ensure consistency.

Public Meeting Locations
The first step entailed identifying appropriate locations within the study area to hold the public presentations. Locations were identified in conjunction with the Aldermen in the study area. Locations identified changed during each round of meetings to ensure thorough study area coverage:

The locations identified met the following criteria:

- Location must be available on date of presentation;
- The facility must be able to accommodate a theater-type presentation that can hold at least 100 people and the presentation boards, technical staff, and public;
- Must be ADA accessible;
- Near public transportation; and
- Free of charge.

Meeting facilities were booked for public meetings several weeks in advance of the actual meetings to enable informative and accurate public notification. All logistical arrangements were arranged and confirmed.

Elected Official Briefings
All elected officials were informed them of scheduled public meetings. Those officials interested in a scheduled meeting were:

- Briefed using a flip board presentation
- Encouraged to identify stakeholders to be contacted in their area
- Encouraged to identify potential public meeting locations

Officials were contacted for follow-up meetings to update them regarding issues to be discussed at public meetings and to provide opportunity to comment prior to the meeting.

Public Meeting Announcements
CTA used the following methods to ensure that the stakeholders and general public were aware of the meetings:

- Meeting announcements appeared in local community papers two weeks in advance of the scheduled meetings.
- Some community papers were weeklies and required meeting notices to run twice
- Stakeholders were given information regarding upcoming meetings as a supplement to these advertisements
- Meeting announcements were posted on CTA's website
- Meeting announcement were posted at CTA stations and in CTA trains and buses via car cards
- CTA distributed and posted a press release including meeting details

Any member of the public interested in attending one or the entire series of presentations was welcome. No pre-registration was required.

7.3 Meeting Format

Each meeting included the following formats: an arcade open house, in which an area was dedicated to project maps and alternatives analysis process displays, a formal presentation including a PowerPoint presentation on Screen 1, 2, or 3 and a question and answer session.

The entire session was allotted two hours, beginning at 6:00 P.M. and ending at 8:00 P.M. This schedule allowed sufficient time to conduct the presentation, answer questions, and allow attendees to view the information on the presentation boards. The time was expanded when public involvement warranted.

Prior to each meeting, an internal client/consultant meeting and rehearsal was held to evaluate the effectiveness of the meeting and identify potential improvements for future meetings.

Arcade Open House
When attendees first arrived at the facility at 6:00 P.M., they signed in and were asked to provide contact information. They will were given a question/comment card and directed to the arcade. In the arcade, attendees had an opportunity to review project information and to familiarize themselves with the project so they can prepare questions or comments before the formal presentation and question and answer session.

The arcade was staffed by CTA and the project consultant team and included a series of poster boards (35 inches across and 47 inches tall) displaying maps, analysis results and recommendations.

Formal Presentation
The presentation consisted of a PowerPoint presentation lasting approximately 25 minutes. An interpreter for the hearing impaired and a translator for Spanish speaking individuals were available.

Question & Answer Session
At the conclusion of the presentation, the moderator explained the procedure for the question & answer session. There was a short break for participants to formulate their comments and/or questions. All questions were submitted in writing using question/comment cards provided to attendees at the sign-in table. The comment cards were collected by CTA and grouped in like

categories. The moderator read the questions/comments to the audience and the presentation panel provided answers verbally.

All questions received regarding the Red Line Extension Alternatives Analysis Study were also answered in writing and posted on the CTA website.

7.4 Screen 1 Public Involvement Summary

The CTA hosted two community meetings in the study area on April 10 & 11, 2007. These meetings presented the findings of Screen1 of the AA study.

The CTA placed advertisements to inform the community of the proposed project and upcoming meetings through local community newspapers, Chicago public libraries, local universities and colleges, aldermanic offices, customer alerts on CTA buses and stations (English & Spanish) and postings at village halls adjacent to the study area. The community newspapers included The Crusader (3/31 & 4/7), The Defender (4/4 & 4/6-10), La Raza (April 8-14), The Star Newspaper/The Daily Southtown (4/5). Additionally, the Chicagoland Chamber of Commerce, Alderman Beale and the Calumet Area Industrial Council posted information on their websites. Village hall postings included Burnham, Blue Island, Calumet, Calumet Park, Dolton, Evergreen Park, and Riverdale.

Prior to the public meetings, CTA met with community leaders, chamber of commerce executive directors, and aldermen and/or their staff. Additionally, CTA staff asked these leaders to assist them by submitting names of local groups/organizations that are active in the community and would be interested in this extension study, as well as becoming proactive participants of the public involvement process of the AA study. Recommended groups were added to the community outreach database. CTA contacted by letter 34 elected officials. Sixteen meetings were held to brief interested elected officials. There were 74 stakeholders invited to participate in a briefing on the morning of April 10, 2007. This briefing was held at Carver Military Academy. Fourteen individuals attended representing 11 organizations.

The public meetings were held at Chicago State University (April 10) and Chicago Public Library –West Pullman Branch (April 11) from 6:00-8:00 P.M. Sixty-six people attended the April 10 meeting. Eighty-one people attended the April 11 meeting. The presentation and meeting materials were made available on the website on the morning after the first public meeting.

The most common comment received was in regard to preferences for the alignments (corridors) studied – 89 comments in total. There was a strong level of support voiced for the UPRR corridor (55). The next category that received a high number of comments was in regard to economic and environmental impacts. Many people were interested in the economic benefits the study area would gain, including new access to jobs or jobs created by the project itself. Another common comment was on the project timeline with people wanting the project to move forward more rapidly.

The official comment period remained open until May 11, 2007. Two hundred and nine comments or questions were collected. These were answered by CTA staff and posted to the project website. Once posted, elected officials, stakeholders and meeting participants received either an email or letter notifying them that the comments and responses were now available on-line.

7.5 Screen 2 Public Involvement Summary

The CTA hosted two community meetings in the study area on December 3 and 4, 2008. These meetings presented the findings of Screen 2 of the AA study.

The CTA placed advertisements to inform the community of the proposed project and upcoming meetings through local community newspapers, Chicago public libraries, local universities and colleges, aldermanic offices, customer alerts on CTA buses and stations (English & Spanish) and postings at village halls adjacent to the study area. The community newspapers included The Crusader (11/20), The Defender (11/12 and 11/19), La Raza (11/23), The Southtown Star (11/20). Additionally, the Chicago 6th Ward office of Alderman Beale, Chicago Metropolitan Agency for Planning, Regional Transportation Authority, and the Active Transportation Alliance, posted information on their websites. Village hall postings included Burnham, Blue Island, Calumet, Calumet Park, Dolton, Evergreen Park, and Riverdale.

Similar to Screen 1 of the project, CTA met with community leaders, and elected officials and/or their staff prior to the public meetings. CTA staff briefed these leaders on the Screen 2 findings and also asked them to identify local groups/organizations that are active in the community and would be interested in this extension study. Recommended groups were added to the community outreach database. CTA contacted by letter 34 elected officials. Eight meetings were held to brief interested elected officials. There were 79 stakeholders invited to participate in a briefing on the morning of December 3, 2008. This briefing was held at Woodson Regional Chicago Public Library. Ten individuals attended representing 9 organizations.

The public meetings were held at Historic Pullman Visitor Center (December 3, 2008) and Woodson Regional Chicago Public Library (December 4, 2008) from 6:00-8:00 P.M. Using the data base from the prior public meetings, the CTA invited participants whom attended the Screen 1 public meetings. One hundred seventy people were invited to participate by letter or email. Forty-three people attended the December 3, 2008, meeting. Forty-one people attended the December 4, 2008 meeting. The presentation and meeting materials were made available on the website on the morning after the first public meeting.

The most common comment received expressed preferences for the alignments (corridors) studied - 50 comments in total. As in Screen 1 participants expressed a strong support for the Union Pacific Railroad (UPRR) corridor (31). The next category that received a high number of comments was in regard to the public involvement process. Participants were interested in how the screening criteria applied throughout the analysis to advance the alternatives being evaluated, if individual suggestions were considered and what information was available to the public. Another common comment was on the project timeline with people inquiring how much longer the process would take and when it would be completed.

The official comment period remained open until December 18, 2008. One hundred thirty-one comments or questions were collected. These were answered by CTA staff and posted to the project website. Once posted, elected officials, stakeholders and meeting participants received either an email or letter notifying them that the comments and responses were available online.

7.6 Screen 3 Public Involvement Summary

The CTA hosted two community meetings in the study area on June 3 and 4, 2009. These meetings presented the findings of Screen 3 and the recommendation of a LPA.

The CTA placed advertisements to inform the community of the proposed project and upcoming meetings through local community newspapers, customer alerts on CTA buses and stations (English & Spanish) and postings at village halls adjacent to the study area. The community newspapers included The Crusader (May 14 & 21), The Chicago Defender (May 13 & 30), La Raza (May 17), and The Southtown Star (May 18). Additionally, the Regional Transportation Authority, the Chicago Metropolitan Agency for Planning, Progressive Railroading, the Active Transportation Alliance, Transit Future, and the Chicago Defender, posted information on their

websites or in their e-newsletters. The Chicago Citizen newspaper also published an article regarding the meeting. Village hall postings included Burnham, Blue Island, Calumet, Calumet Park, Dolton, Evergreen Park, and Riverdale.

Similar to the earlier phases of the project, CTA met with community leaders and elected officials and/or their staff prior to the public meetings. CTA staff briefed these leaders on the Screen 3 findings and presented the recommended LPA. Additionally, CTA staff asked these leaders to identify local groups/organizations that are active in the community and would be interested in this extension study. Recommended groups were added to the community outreach database. CTA contacted by letter 34 elected officials. Eleven meetings were held to brief interested elected officials and/or their staff. Represented in the meetings were Aldermen from 6 Chicago wards, a Cook County Commissioner, a U.S. Congressman, 2 State Representatives, and a State Senator. There were 86 stakeholders invited to participate in a briefing on the morning of June 3, 2009. This briefing was held at Olive Harvey College. Fourteen individuals attended representing 13 organizations.

The public meetings were held at Olive Harvey College (June 3, 2009) and Woodson Regional Chicago Public Library (June 4, 2009) from 6:00-8:00 P.M. Using the data base from the prior public meetings, the CTA invited individuals who participated in the Screen 1 and 2 public meetings. Two hundred eighteen people were invited to participate by letter or email. Forty-four people attended the June 3, 2009 meeting. Sixty-seven attended the June 4, 2009 meeting. The presentation and meeting materials were made available on the website on the morning after the first public meeting.

A total of 111 comments were received at the stakeholder and public meetings, via e-mail, or U.S. Postal Service. The majority of the comments received were related to economic and environmental impacts. Some focused on the opportunity for business and job development whiles others questioned the impact on homes and property. In addition, many comments were in support or opposition to the project, and some questioned how their support would affect the outcome of the project. Lastly, a petition that included 512 signatures was submitted in support of the CTA's recommended LPA.

The official comment period was extended to June 25, 2009. Questions and comments were responded to by CTA staff and posted to the website (transitchicago.com).

On August 12, 2009 the Chicago Transit Board met and the adopted an LPA. A letter was sent to participants, stakeholders and agency outreach inviting them to submit comments or participate in the Board action. At the meeting comments were made by stakeholders in support of the Red Line Extension. The CTA will now move to the Environmental Impact Statement step of the FTA process. There will be additional opportunities for public involvement in subsequent steps of the FTA process.

7.7 Final Reporting

Upon the completion of all the public involvement activities CTA completed Public Involvement binders for each corresponding screen. These included all related information for public meeting announcements, elected official meetings, stakeholder meetings, public meetings, public involvement, media coverage, examples of the CTA website, any follow up activity, as well as copies of all registration cards and any comment that was submitted during each screen.

8.0 NEXT STEPS

The preparation of a Draft Environmental Impact Statement (DEIS) will be the next step following the recent selection of a LPA. After completion of scoping for the EIS, the CTA will prepare an application to the Federal Transit Administration (FTA) for advancement into Preliminary Engineering phase of the New Starts process. Issues that will be addressed in these next steps include:

- Detailed alignment analysis for the LPA
- Details of intermediate and terminal station locations
- Right-of-way requirements
- Impacts identification and proposed mitigation measures
- Costs and possible phasing
- Evaluation of the cost effectiveness of project elements

There will be opportunities for public involvement in subsequent project phases.